

Wetland and Stream Delineation Report

City of Marysville -State Avenue Improvement Project

Marysville, Washington

October 5, 2017

FJS

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1.0 Introduction

1.1 Project Background

State Avenue is a 3-lane, asphalt paved roadway which runs north and south through the City of Marysville. This road parallels Interstate 5, and is a major corridor for the transportation network of the city. Currently there is a need to improve State Avenue to address growing transportation needs, stormwater flow, illumination issues, and a lack of sidewalks.

This report describes the methods and findings of wetland and stream delineations for the State Avenue Improvement Project. The report was prepared by HDR, Inc. (HDR) biologists and is intended to provide documentation for local, state, and federal permitting activities required for the project.

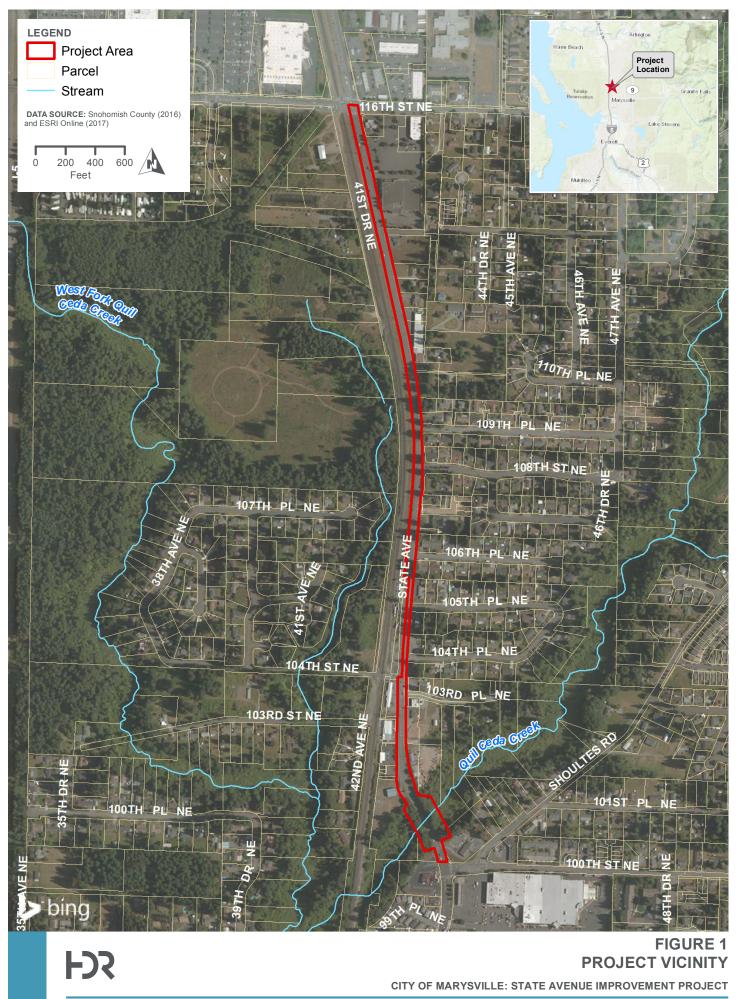
1.2 Project Location

The proposed project is located within the City of Marysville, Washington in Sections 16 and 9, Township 30 North, Range 5 East (Figure 1). The proposed project would be approximately 5,300 feet long between 100th street NE and 116th Street NE. The proposed project will require the purchase of a limited amount of property by the City of Marysville on the east side of State Avenue, with the remainder of the project being located in Right of Way. Surface elevation in the project area ranges from approximately 10 feet to 80 feet above mean sea level based on the survey data for this project.

1.3 Project Description

The State Avenue Improvement Project will widen State Avenue between 100th street NE and 116th Street NE from a 3-lane to 5-lane principal urban arterial section with curbs, gutters, sidewalks, landscape planters, enclosed storm drainage facilities, and illumination.

Twenty-five feet below the proposed improvement section runs Quil Ceda Creek, which is piped under the road via a culvert. The current storm drainage on State Avenue conveys stormwater to Quil Ceda creek via embankment sheet-flow, surface runoff, and a few direct outfalls from closed storm facilities on State Avenue itself. This project proposes to install new stormwater drainage improvements, replace the existing box culvert with a larger fish-passable structure, and also reconstruct roadway embankment and retaining walls to be more suitable to the proposed stormwater drainage facilities.



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2.0 Study Methods

The study area for wetlands and streams is defined as 300 feet upstream and downstream of Quil Ceda Creek at the State Avenue crossing, and surrounding undeveloped land (Figure 2). The remaining project area consists of developed lands that do not have wetlands or streams. Wetlands and streams outside the study area were not formally assessed; these areas were identified based on characteristics visible from public rights-of-way and on information obtained from existing documents and studies, maps, and aerial photographs.

Wetlands and streams were identified through a two-step process. HDR biologists first reviewed existing public-domain information, such as on-line maps and public databases. Following this review, HDR biologists completed a thorough field investigation of the study area that included wetland and stream identification, delineation, and classification.

2.1 Review of Existing Information

Existing documents reviewed for this wetland and stream study include the following:

- U.S. Department of Agriculture's Natural Resources Conservation Service (USDA NRCS) web soil survey (2017)
- U.S. Fish and Wildlife (USFWS) National Wetland Inventory maps (2017)
- Washington Department of Fish and Wildlife's (WDFW) Priority Habitats and Species (PHS) on the web (2017a)
- WDFW Salmonscape interactive mapping (2017b)
- Washington Department of Natural Resource (WDNR) Forest Practices Application Review System (FPARS) (2017a)
- WDNR Natural Heritage Information Request Self-Service System (2017b)

These documents provide background information on the soils, hydrology, land use, fish and wildlife use, and wetlands and streams in the study area.

2.2 Field Investigation

Field investigations for the project were conducted by qualified HDR biologists on May 4, and May 11, 2017. During the three months preceding field investigations, NOAA (2017) recorded a total of 16.79 inches of precipitation in Everett, approximately 8 miles southwest from the project location. Recorded precipitation levels in February, March, April, and May were above normal. During the two weeks prior to the start of field work (April 21 through May 3, 2017), 1.43 inches of precipitation was recorded at the Everett (NOAA 2017). The average temperature recorded was around 51°F in Everett, which is normal during this time of year (NOAA 2017).

2.2.1 Wetlands

HDR Biologists delineated wetlands within the study area using the three parameter methods described in the *Corps of Engineers Wetland Delineation Manual*

(Environmental Laboratory 1987), as updated by the *Regional Supplement to the Corps* of Engineers Wetland Delineation Manual: Western Mountains, Valleys and Coast Region-Version 2.0 (WMVC) (USACE 2010). A detailed description of the field methods used in this study is provided in Appendix A. Formal data plots were collected in each wetland identified within the study area. Wetland boundaries outside the study area were approximated based on characteristics visible from public rights-of-way and on information obtained from existing documents and studies, maps, and aerial photographs.

Delineated wetland boundaries and sample plots were marked in the field with flagging tape and surveyed by a professional land surveyor. The resulting data from the delineations were then incorporated into project base maps.

The City of Marysville requires that wetlands be rated using the *Washington State Wetland Rating System for Western Washington: 2014 Update* Washington State Department of Ecology Publication # 14-06-029 (Hruby 2014). Using this system, wetlands were rated in the field by using the Wetlands Rating Field Data Form provided with the rating system manual (Appendix B). Table 1 lists the rating criteria for the City of Marysville. A detailed analysis of wetland functions is not included in this report; however, a brief description of wetland functions is provided.

Wetland habitats in the study area were also classified according to the system outlined by the USFWS in *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979). The Cowardin system classifies wetlands based on their dominant vegetation structure and water regime.

|--|

| Regulatory | Category | | | | | | | | | |
|--|--|---|--|--|--|--|--|--|--|--|
| Agency | I | II | III | IV | | | | | | |
| Washington State Department of Ecology ^a City of Marysville ^b | Category I wetlands represent a unique or rare wetland type; or are more sensitive to disturbance than most wetlands; or are relatively undisturbed and contain ecological attributes that are impossible to replace within a human lifetime; or provide a high level of functions. Specific wetlands that meet the Category I criteria include: Relatively undisturbed estuarine wetlands over one acre in size; Wetlands of High Conservation Value (formerly call national Heritage Wetlands), specifically, Wetlands identified by the Washington Natural Heritage Program/DNR as important ecosystems for maintaining plant diversity in our state; Bogs; Mature and old-growth forested wetlands over one acre in size; Wetlands in coastal lagoons; Interdunal wetlands that score 8 or 9 points for habitat, and are larger than one acre in size; and Wetlands scoring 23 points or more (out of 27) on the wetland rating form. | Category II wetlands are difficult, though not impossible, to replace, and provide high levels of some functions. Specific wetlands that meet the Category II criteria include: 1. Estuarine wetlands smaller than one acre in size, or disturbed estuarine wetlands larger than one acre; 2. Wetlands scoring between 20-22 points (out of 27) on the wetland rating form; and 3. Interdunal wetlands larger than one acre 7 or lower for habitat, or those found in a mosaic of wetlands and dunes larger than 1 acre. | Category III wetlands provide a moderate level of functions and can often be adequately replaced with a well-planned mitigation project. Specific wetlands that meet the Category III criteria include: 1. Wetlands scoring between 16-19 points (out of 27) on the wetland rating form; 2. Wetlands that can be adequately replaced with a well-planned mitigation project; and 3. Interdunal wetlands between 0.1 acre and 1.0 acre in size. | Category IV wetlands have the lowest levels of functions and are often heavily disturbed. Specific wetlands that meet the Category IV criteria include: 1. Wetlands scoring less than 16 points (out of 27) on the wetland rating form. | | | | | | |

Table 1. Wetland Rating System for Washington State Department of Ecology and the City of Marysville

^a Hruby 2014

^b MMC 22E.010.060

2.2.2 Streams

HDR biologists, identified the ordinary high water mark (OHWM) on freshwater streams in the study area using the using Ecology's (Anderson et al. 2016) guidance for OHWM identification, which is based on the Shoreline Management Act (RCW 90.58.030(2)(b) and Washington Administrative Code (WAC 173-22-030(11)). HDR biologists looked for physical indicators including, but not limited to, a natural scour line impressed on the bank, distribution of upland and water tolerant vegetation, and drift deposits. The OHWM for identified streams within the study area was marked in the field and the locations were surveyed by a professional land surveyor. The resulting data were incorporated into project base maps.

Streams identified in the project area were classified according to the stream definitions and typing systems detailed in the Marysville Municipal Code 22E.010.210 (1). Criteria for this typing system are described in Table 2. The stream types described in this report are based on the stream reaches within the study area; upstream reaches may be rated lower or higher. Fish presence was determined through the review of previous studies, an assessment of the available habitat, and the hydrologic condition of all identified surface waters.

| Stream Class | Definition ^a | | | | | | |
|--------------|--|--|--|--|--|--|--|
| Type S | "Type S" streams are those streams identified as "Shorelines of the State" under Chapter 90.58 of The Shoreline Management Act. | | | | | | |
| Type F | "Type F" streams are those natural streams that are not Type S and are either perennial or intermittent and have salmonid fish use or the potential for salmonid fish use. | | | | | | |
| | "Type Np" streams are those natural streams that are not Type S or Type F and are either perennial or intermittent and have one of the following characteristics: | | | | | | |
| Type Np | Non-salmonid fish use or the potential for non-salmonid fish use; or Headwater streams with a surface water connection to salmon-bearing or potentially salmon-bearing streams (Class I or II). | | | | | | |
| Type Ns | "Type NS" streams are those natural streams that are not Type S, Type F, or Type Ns. They are either perennial or intermittent, do not have fish or the | | | | | | |
| | potential for fish, and are non-headwater streams. | | | | | | |

Table 2. City of Marysville Stream Classification System

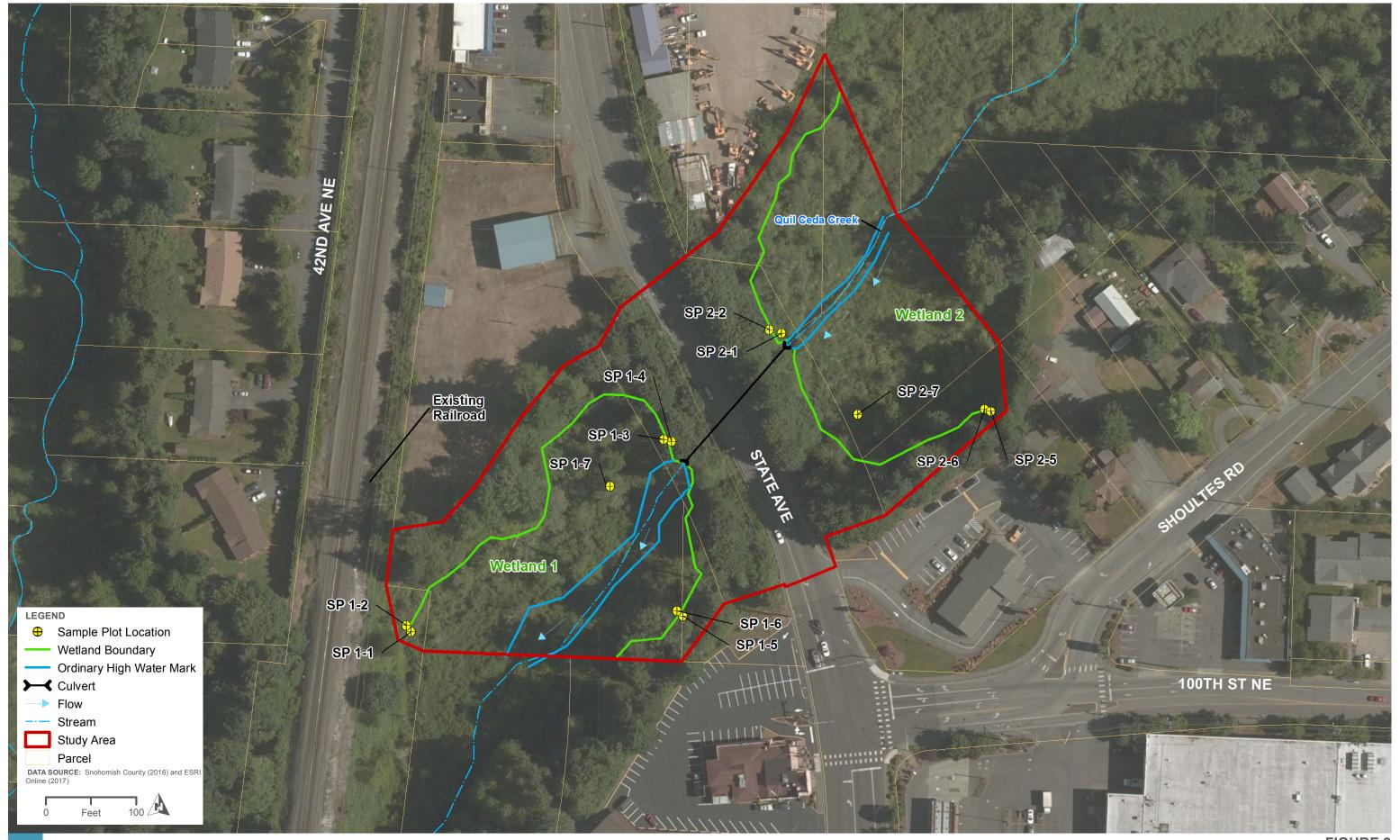
^aDefinitions are summarized from Marysville Municipal Code 22E.010.210

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3.0 Results

3.1 Wetlands within the Study Area

HDR biologists identified two wetlands (Wetland 1 and Wetland 2) within the study area (Figure 2). The wetlands were distinguished from adjoining uplands by the presence of indicators for wetland hydrology, hydric soils, and hydrophytic vegetation. Wetland delineation data sheets are provided in Appendix A, and wetland rating forms are in Appendix B. Figure 2 shows the locations of the wetland, streams, and data plots. Detailed descriptions of the wetland located in the study area are provided in Table 3.



PATH: G:PROJECTS/WASHINGTONICITY_OF_MARYSVILLE_201737/STATE_AVE_IMPRV_10058512/7.2_WP/MAP_DOCS/NATURAL_RESOURCES/WETLAND_STREAM_V2.MXD - USER: GIVISONLAN - DATE: 10/11/2017

FIGURE 2 WETLANDS AND STREAMS WITHIN THE STUDY AREA CITY OF MARYSVILLE: STATE AVENUE IMPROVEMENT PROJECT

| | Wetland 1 – INFOR | MATION SUMMARY | | | | | | |
|--|--|---|--|--|--|--|--|--|
| Location: | Latitude: 48.085945 Longitude: -122.1 | 73065 (Figure 2) | | | | | | |
| | | Local Jurisdiction | City of Marysville | | | | | |
| State I found | | WRIA | #7 Snohomish | | | | | |
| | | Ecology Rating (Hruby, 2014) | Category II | | | | | |
| | | Water Quality | 7 | | | | | |
| The second | States and Annual States | Hydrologic | 7 | | | | | |
| | | Habitat | 6 | | | | | |
| | | Local Rating | Category II | | | | | |
| | | Local Buffer Width | 100 feet | | | | | |
| | | Wetland Size | 2.36 ac. | | | | | |
| | | Cowardin Classification | PEM1 / PSS1 | | | | | |
| Jac Class | | HGM Classification | Depressional | | | | | |
| | | Wetland Data Sheet(s) | SP 1-1,SP 1-3, SP 1-6, SP 1-7 | | | | | |
| | | Upland Data Sheet (s) | SP 1-2, SP 1-4, SP 1-5 | | | | | |
| Wetland 1 is a palustrine scrub-shrub and emergent wetland that is mostly dominated by rose spirea (<i>Spiraea douglasii</i>, FACW), red osier (<i>Cornus alba</i>, FACW), black twinberry (<i>Lonicera involucrata</i>, FAC), skunk cabbage (<i>Lysichiton americanus</i>, OBL), Himalayan blackberry (<i>Rubus armeniacus</i>), salmonberry (<i>Rubus spectabilis</i>, FAC), giant horsetail (<i>Equisetum telmateia</i>, FACW), western lady fern (<i>Athyrium cyclosorum</i>, FAC), reed canary grass (<i>Phalaris arundinacea</i>, FACW), and youth on age (<i>Tolmiea, menziesii</i>, FAC). hedgenettle (<i>Stachys chamissonis</i>, FACW), policeman's helmet (<i>Impatiens glandulifera</i>, FACW), Gooseberry (<i>Ribes lacustre</i>, FAC), touch-me-not balsam (<i>Impatiens noli-tangere</i>, FACW), Kentucky bluegrass (Poa pratensis, FAC), and creeping buttercup (<i>Ranunculus repens</i>) are also present. | | | | | | | | |
| Soils | Soils in Wetland 1 are mapped by USDA NRCS as Ragnar fine sandy loam, 0 to 8 percent slopes, which are moderately well drained. Norma loam is mapped along the streambed of Quil Ceda Creek. Soils observed in the wetland consist of 10 inches black (10YR 2/2) sandy loam over 6 inches of (10YR 4/1) sandy loam with redoximorphic features. Soils in this wetland meet the hydric soil indicator for a Depleted Matrix (F3). | | | | | | | |
| Hydrology | Wetland 1 is a depressional wetland bisected by Quil Ceda Creek, a perennial Type S stream that is formed by multiple upstream tributaries that conflux in North Marysville. Wetland 1 is primarily fed by groundwater discharge, as well as overbank flooding from Quil Ceda Creek. Primary indicators for hydrology in sampled plots include saturated soils at 6 inches and water table at 10 inches. | | | | | | | |
| Rationale for Delineation | Wetlands were distinguished by uplands based on the presence of hydrophytic vegetation, hydric soils, and wetland hydrology. | | | | | | | |
| Rationale for Local Rating | Category II with a total score of 20 poin | nts. | | | | | | |
| | Wetland Func | tions Summary | | | | | | |
| Wetland 1 has moderate potential to improve water quality because it has some dense, uncut, herbaceous plants, and is seasonally ponded. Surrounding residences/roads generate stormwater runoff and provide medium landscape potential for water quality functions. The wetland discharges into Quil Ceda Creek, which is on the 303(d) list. As a result, the water quality improvement provided by the wetland is of high value to society. | | | | | | | | |
| Hydrologic | Wetland 1 has a low potential to attenuate stormwater flows due to an unconstricted outlet and small land area in comparison to the basin at large. Flooding occurs in the sub-basin immediately down-gradient of the unit. As a result, the hydrologic function provided by the wetland is of high value to society. | | | | | | | |
| Habitat | Wetland 1 provides moderate habitat f as well as a diversity of plant communi landscape potential and value due to it scores high habitat value to society as endangered species and WDFW priori | ities and hydroperiods. The we is limited connectivity to access it is mapped as a location for l | tland scored low for sible habitats. Regardless, it | | | | | |

Table 3. Wetland Summaries

| | Wetland 2 – INFOR | MATION SUMMARY | | | | | | |
|--|---|---|---|--|--|--|--|--|
| Location: | Latitude: 48.086407 Longitude: -122.1 | 70952 (Figure 2) | | | | | | |
| . Mar | | Local Jurisdiction | City of Marysville | | | | | |
| a Barthan | | WRIA | #7 Snohomish | | | | | |
| TAL AS | | Ecology Rating (Hruby, 2014) | Category II | | | | | |
| | | Water Quality | 8 | | | | | |
| | | Hydrologic | 7 | | | | | |
| Contraction of the | | Habitat | 7 | | | | | |
| ALCONT MA | Sand Contraction of the street of the | Local Rating | Category II | | | | | |
| | | Local Buffer Width Wetland Size | 100 feet 41.74 ac. | | | | | |
| A. 20 8 2 1 | and the second second | Cowardin Classification | PFO with 3 of 5 Strata | | | | | |
| | | | | | | | | |
| | | HGM Classification | Depressional | | | | | |
| | | Wetland Data Sheet(s) | SP 2-1, SP 2-6, SP 2-7 | | | | | |
| | | Upland Data Sheet (s) | SP 2-2, SP 2-5 | | | | | |
| Dominant VegetationWetland 2 is a large forested wetland with a large variety of Cowardin classes and respective vegetation. Dominant plants identified within the study area for this wetland are black twinber reed canary grass, western skunk cabbage, salmonberry, English ivy (Hedera helix, FACU), Himalayan blackberry, giant horse tail, and western lady fern, ninebark (Physocarpus capitat FACW), and white dogwood and are also present. | | | | | | | | |
| Soils | area are Norma loam along the stream loam with 8 to 15 percent slopes on the observed in Wetland 2 consist of 7 incl sandy loam with redoximorphic feature Depleted Matrix (F3), and immediately presence of ferrous iron. | moderately well drained. Other soils in the greater wetland mbed of Quil Ceda Creek, and more Ragnar fine sandy he upper edges of both sides of the wetland. Soils ches of (10YR2/1) sandy loam over 7 inches of (10YR 4/2) res. Soils in this wetland meet the hydric soil indicator for a ly started turning more-red when exposed to air indicating | | | | | | |
| Hydrology Rationale for | that is formed by multiple upstream trib primarily fed by groundwater discharge Primary indicators for hydrology in sam table at 0 inches, and surface water be | bisected by Quil Ceda Creek, a perennial Type S stream ibutaries that conflux in North Marysville. Wetland 2 is ge, as well as overbank flooding from Quil Ceda Creek. mpled plots include saturated soils at 0 inches and water between 0.5-1 inches. mds based on the presence of hydrophytic vegetation, | | | | | | |
| Delineation | hydric soils, and wetland hydrology. | | Jarophylio Vogotalion, | | | | | |
| Rationale for Local Rating | Category II with a total score of 22 poir | ints. | | | | | | |
| | Wetland Funct | tions Summary | | | | | | |
| Water Quality | Wetland 2 has medium potential to imp dense, uncut, herbaceous plants. The stormwater runoff and provide high lan functions. The wetland discharges into the water quality improvement provider | topography and surrounding ro dscape potential for water qua Quil Ceda Creek, which is on d by the wetland is considered | esidences/roads generate lity and hydrologic the 303(d) list. As a result, of high value to society. | | | | | |
| HydrologicWetland 2 has a high potential to attenuate stormwater flows due to surrounding land use and topography. Flooding also occurs in the sub-basin immediately downstream of the wetland ur That being said, the unconstricted outlet of the wetland did not have very high ponding marks suggesting that flashes of stormwater into the wetland are not contained or slowed. As a result the hydrologic function provided by the wetland is of high value to society. | | | | | | | | |
| Habitat | the hydrologic function provided by the wetland is of high value to society. Wetland 2 provides high habitat function due to multiple connected vegetation structures within the wetland, high interspersion of habitat types, and a diversity of habitat features. The wetland also scored low for landscape potential due to its limited connectivity to accessible habitats. Regardless, it is of high value to society as it is mapped as a location for both USFWS threatened or endangered species and WDFW priority species. | | | | | | | |

3.2 Streams

The study area is located in the Quil Ceda Creek drainage basin of the Snohomish watershed (Water Resource Inventory Area [WRIA] 7). The mainstem of Quil Ceda Creek is the only stream that intersects the project in the study area. A summary of the stream is provided in Table 4, and Figure 2 shows the stream location. Detailed descriptions are provided below, and photographs are provided in Appendix C.

| Table 4. | Summary | of | Streams | in | the | Study | Area |
|----------|---------|----|---------|----|-----|-------|------|
|----------|---------|----|---------|----|-----|-------|------|

| Stream | Tributary to | Stream Type ^a | Buffer Width (ft) | USACE Jurisdiction ^b | Average Width in Study Area (ft) ^c | Approximate Length in Study Area (ft) [°] |
|--------------------|--------------|-----------------------------|----------------------|------------------------------------|---|--|
| Quil Ceda Creek | Ebey Slough | Type S | 100 | RPW | Average 20 feet (before State Avenue crossing) Average 40 feet (after State Avenue crossing) | 650 |

^a Marysville Municipal Code 22E.010.210.

^b RPW – Relatively Permanent Water

^c Average widths and approximate lengths were determined based on existing survey data and field observations.

3.2.1 Quil Ceda Creek

Quil Ceda Creek is a low gradient, steep-banked stream that is the confluence of multiple merging tributaries from the hills of northeastern Marysville. The major confluence point with its middle fork is approximately 8,000 feet upstream (northeast) of the study area, and it's confluence with Ebey Slough is approximately 21,200 feet downstream (southwest). The West Fork Quil Ceda Creek is another tributary that joins Quil Ceda Creek downstream of the railroad tracks to the west of the project.

Quil Ceda Creek flows approximately 650 feet through the study area, passing under State Avenue via a culvert. Upstream of the State Ave culvert, the stream is a single channel with steep banks through a wetland floodplain. The channel is fairly uniform in width at an average of approximately 16 feet at bankfull and has little sinuosity (Appendix C, Photo 1). The banks are steep and incised and topped with predominantly reed canary grass (*Phalaris arundinacea*) with some Pacific willow (*Salix lasiandra*).

Downstream (west) of the culvert, the stream emerges into a large pool, and a smaller corrugated metal pipe drains to the left bank from under the road embankment (Appendix C, Photo 2). The stream channel becomes shallower downstream, and branches into three channels around vegetated bars and woody debris. The riparian areas downstream of State Ave are more densely vegetated than the upstream side and include more tall woody shrubs including Pacific willow, red alder (*Albus rubra*), and twinberry (Appendix C, Photo 3).

Flow levels were average at the time of the field visit on May 4, and water depths were between three and four feet. The substrate throughout consisted mainly of sand, silt, and mud on the banks with limited small "pea" sized gravel in the stream bed. Some larger gravels were present in the braided channels downstream. Quil Ceda Creek exhibits bank erosion on both the left and right banks at various segments throughout the channel. This indicates that the system is flashy and can encounter high, fast flows at times.

Salmonid fish species that inhabit Quil Ceda Creek include coho, chum, pink, and Chinook salmon, as well as steelhead and cutthroat trout (WDFW 2017a,b; Streamnet 2017; Tulalip Tribes 2009). Bull trout are documented as occurring just outside of the study area downstream of Wetland 1 (WDFW 2017b). The segment of Quil Ceda Creek in the study area is low gradient with very little gravel present, and research has suggested this area is primarily used by fish for rearing, as well as some limited spawning (Tulalip Tribes 2009). Good spawning habitat is located in tributaries upstream of the study area (Tulalip Tribes 2009) and both adult and juvenile migrating salmon pass through the study area reach. Consequently, it is assumed that all Puget Sound salmonid species could be present both upstream and downstream of the culvert under State Avenue. From 1995 to 2014 WDFW and Tulalip Tribe biologists have documented steelhead, Chinook, and Chum salmon upstream of the culvert. Pink and coho salmon have also been modeled to be present upstream (Zach Lamebull, Tulalip Tribes, personal communication, August 2017).

4.0 References

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APPENDIX A

WETLAND DELINEATION METHODOLOGY AND DATA FORMS

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Wetland Delineation Methodology

Wetlands are defined as areas saturated or inundated by surface or groundwater at a frequency and duration sufficient to support, and which under normal circumstances do support, a prevalence of vegetation adapted for life in saturated soil conditions. The methods used to delineate the on-site wetlands conform to methods described in the Corps of Engineers Wetland Delineation Manual (Environmental Laboratory 1987), and Regional Supplement to the Corps of Engineers Wetland Delineated Delineated Methands Western Mountains, Valleys and Coast Region (USACE 2010). All delineated wetlands were instrument-surveyed and mapped on project base maps.

To be considered a wetland, an area must have hydrophytic vegetation, hydric soils, and wetland hydrology. HDR staff collected data on these parameters in areas representative of typical site conditions. Staff collected additional data in associated uplands, as needed, to confirm wetland and stream boundaries. Wetland boundaries and wetland data plot locations in the study area were marked with sequentially-numbered, bright pink flagging.

Vegetation

The dominant plants and their wetland indicator status were evaluated to determine if the vegetation was hydrophytic. To determine which plants were dominant at a sample plot biologists applied the 50/20 rule per Corps recommendations. Under this guidance absolute cover estimates were made for each species found rooted within the sample plot, for each vegetative strata found in the habitat (tree, sapling/shrub, herb, and woody vine). The species that had the most cover was included along with the next species until the absolute cover of these totaled more than 50 percent of the total absolute cover was also included as a dominant species for that vegetative stratum.

Sample plots varied in size depending on site topography and habitat complexity. The objective of establishing a plot was to depict particular plant associations that reflect specific water regimes or other ecological factors. So, on steep-sided riparian areas, a plot may consist of a narrow strip along the waters edge or within a floodplain a plot may be a standard 30-foot circle.

Hydrophytic vegetation is defined as vegetation adapted to wetland conditions. To meet the hydrophytic vegetation criterion, more than 50 percent of the dominant plants in each stratum must be Facultative, Facultative Wetland, or Obligate, based on the wetland indicator category assigned to each plant species by the National Wetland Plant List (NWPL) of the U.S. Army Corps of Engineers, Cold Regions Research and Engineering Laboratory, Remote Sensing and Geographic Information System (http://www.crrel.usace.army.mil/). Table A-1 lists the definitions of the indicator categories.

| Wetland Indicator 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 (34 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. |

Table A-1. Definitions of Wetland Plant Indicator Categories used to Determine the Presence of Hydrophytic Vegetation

Source: Lichvar et al. (2012).

HDR biologists identified plants to species in the field and estimated percent cover of dominant plants. Scientific and common plant names follow currently accepted nomenclature. Most names are consistent with *Flora of the Pacific Northwest* (Hitchcock and Cronquist 1973) and the PLANTS Database (USDA NRCS 2015). During the field investigation, staff observed and recorded the dominant plant species on data sheets for each data plot.

Soils

Generally, an area must contain 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 in the upper part (12 inches). Biological activities in saturated soil result in reduced oxygen concentrations and organisms turn to anaerobic processes for metabolism. Over time, anaerobic biological processes result in certain soil color patterns, which are used as indicators of hydric soil. Typically, low-chroma colors are formed in the soil matrix, and bright-colored redoximorphic features form within the matrix. Other important hydric soil indicators include organic matter accumulations in the surface horizon, reduced sulfur odors, and organic matter staining in the subsurface (USDA NRCS 2010).

HDR staff examined soils by excavating sample pits to a depth of 20 inches to observe soil profiles, colors, and textures. In some case, a shallower soil pit was adequate to document hydric soil indicators. Munsell color charts (Munsell Color 2009) were used to describe soil colors.

Hydrology

Project staff examined the area for evidence of hydrology. Wetland hydrology criteria were considered to be satisfied if it appeared that the soil was seasonally inundated or saturated to the surface for a consecutive number of days greater than or equal to 12.5 percent of the growing season. The growing season for the area was determined based on the period in which temperatures are above 28 degrees Fahrenheit 5 out of 10 years (Ecology 1997) using the long-term climatological data collected by the U.S. Department of Agriculture Natural Resource Conservation Service (USDA NRCS) (2016). Using

the USDA NRCS (2002) WETS table for the nearest station (Everett), the growing season was approximated to be typically between February 6 and December 9, or a total of 305 days.

Wetland hydrology indicators are divided into two categories – primary and secondary indicators (USACE 2010). Primary indicators of hydrology include surface inundation, high water table, and saturated soils. The presence of one primary indicator is sufficient to conclude that wetland hydrology is present. In the absence of a primary indicator, observation of two or more secondary indicators is required to conclude that wetland hydrology is present. Secondary indicators of hydrology include drainage patterns, water-stained leaves, and geomorphic setting (USACE 2010).

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

| Project/Site: State Avenue 0 | | | City/County: Snohomish Sa | | | Sampling Date: 5/4/2017 | | | | | | | | |
|--------------------------------------|-----------------|--------------------|--|---------------|---------------------|-------------------------|---------------|-------------|---------------|-----------------|----------|-----------|------|--|
| Applicant/Owner: | City of Mary | sville | | | State: WA Sa | | | Sampling | SP 1 | SP 1-1 | | | | |
| Investigators: Danielski | | | | | Section, To | own | ship, Range: | 16, 30N, 5E | | | | | | |
| Landform (hillslope, | terrace, etc.): | Depression | | | Loca | al Relie | ef (concave | e, co | nvex, none): | Concave | | Slope(%): | 0 | |
| Subregion (LRR): | А | | Lat: | 48.086128 | 8 | Long: | -122.1742 | 263 | | Datum: V | VGS84 | - | | |
| Soil Map Unit Name: Norma loam | | 1 | | | | | NW | /I CI | assification: | PSS1 | | | | |
| Are climatic / hydrol | ogic conditions | on the site typica | l for thi | s time of ye | ear? | Yes | ; | No | X (If No | , explain in Re | marks) | | | |
| Are Vegetation: | Soil | or Hydrology | signi | ficantly dist | urbed? | | Are "Norm | nal (| Circumstance | es" present? | Yes | s X | No | |
| Are Vegetation: Soil or Hydrology na | | natu | naturally problematic? (If needed, explain any ans | | | swers in Rema | rks.) | | | | | | | |
| SUMMARY OF | FINDINGS | - Attach a site | e map | showing | g samp | oling | point lo | cat | ions, tran | sects, impo | ortant f | features, | etc. | |
| Hydrophytic Vegeta | tion Present? | Yes X | No |) | | | | | | | | | | |
| Hydric Soil Present? | | Yes X | — No | , | Is the Sampled Area | | | | | | | | | |
| Wetland Hydrology Present? | | Yes X | Nc | <u></u> | withi | | in a Wetland? | | Yes / | < | No | | | |

Remarks:

Paired wetland plot at NE end of Wetland 1. All 3 indicators present. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|---|---------------------|---------------------|-----------|----------------------------------|------------|---------------|-------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | nt Specie | S | | |
| 1. | | | | That Are OBL, FAC | CW, or FA | C: | 2 | (A) |
| 2. | | | | Total Number of D | ominant | _ | | - |
| 3. | | | | Species Across All | Strata: | | 2 | (B) |
| 4. | | | | Percent of Domina | nt Specie | s – | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Cornus alba | 50 | Yes | FACW | Total % Cover of: | | <u>Multip</u> | ly by: | |
| 2. | | | | OBL species | 80 | _x1= _ | 80 | _ |
| 3. | | | | FACW species | 60 | x2= | 120 | |
| 4. | | | | FAC species | | x3= | 0 | |
| 5. | | | | FACU species | | x4= | 0 | |
| | 50 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 140 | (A) | 200 | (B) |
| 1. Lysichiton americanus | 80 | Yes | OBL | | | | | |
| 2. Impatiens glandulifera | 10 | No | FACW | Prevalence Ind | 'ex = B/A= | = | 1.43 | 2 |
| 3. | | | | Hydrophytic Vege | tation In | dicator | s: | |
| 4. | | | | 1 - Rapid Te | st for Hyd | Irophytic | c Vegetatio | on |
| 5. | | | | X 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | s1 (Provide | • |
| 8. | | | | data in F | Remarks o | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland | Non-Vasc | ular Pla | ants ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Veg | etation1 (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | у |
| | 90 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1 | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | X | No | |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 10 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |
| Sample plot meets dominance test and prevalen | ce index for hydrop | hytic vegetation. | | | | | | |

SOIL

| (inchoo) | Matrix | | Rede | ox Feature | es | | | |
|--|---|--|--|---|--|----------------------|--|--|
| inches) C | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-14 | 5Y 2.5/1 | 100 | | | | | Sandy Loam | Slight Sulfidic Smell |
| | | | | | | | | - 5 |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | tion PM-Podu | | od or Coo | tod Sand G | raine | 21 0 | cation: PL=Pore Lining, M=Matrix |
| • | | | unless otherwise not | | lieu Sanu G | | | oblematic Hydric Soils ³ : |
| Histosol (A1 | | | Sandy Redox (St | | | | 2 cm Muck | • |
| | | - | Stripped Matrix (S | | | | | t Material (TF2) |
| Histic Epipe Black Histic | | - | | , | (avaant MI | | | ow Dark Surface (TF12) |
| | | - | Loamy Mucky Mi | | (except ivit | RLA I) | | |
| | . , | - | Loamy Gleyed M | | | | Other (Exp | lain in Remarks) |
| | elow Dark Surface | - (ATT) | Depleted Matrix (| | | | 3 a diantana af hu | |
| | Surface (A12) | - | Redox Dark Surfa | | ` | | - | drophytic vegetation and |
| | ky Mineral (S1) | - | Depleted Dark Su | |) | | - | logy must be present, |
| | ved Matrix (S4) | | Redox Depressio | ns (F8) | | | uniess disturb | ed or problematic. |
| Restrictive Laye | er (if present): | | | | | | | |
| Туре: | | | | | | | | |
| Depth (inch | es): | | | | | | Hydric Soil Pre | sent? Yes X No |
| | hydric soil indicat | or for presence | e of Hydrogen Sulfide | A4). | | | | |
| | | for for presence | e of Hydrogen Sulfide | A4). | | | | |
| ample plot meets YDROLOGY Wetland Hydrold | | | | A4). | | | Secondary India | sators (2 or more required) |
| ample plot meets YDROLOGY Wetland Hydrold | ogy Indicators: rs (minimum of on | | | | except | | | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, |
| ample plot meets YDROLOGY Wetland Hydrold Primary Indicator | ogy Indicators: rs (minimum of on ater (A1) | | eck all that apply) | aves (B9) | · • | | | ned Leaves (B9) (MRLA 1, 2, |
| Ample plot meets YDROLOGY Wetland Hydrolo Primary IndicatorSurface Wa | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) | | eck all that apply) Water-Stained Le | aves (B9) | · • | | Water Stai | ned Leaves (B9) (MRLA 1, 2, |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A | eaves (B9) , and 4B) | • | | Water Stai 4A, and Drainage F | ned Leaves (B9) (MRLA 1, 2, 4B) |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) | aves (B9) , and 4B) ates (B13) |) | | Water Stai 4A, and Drainage F | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) |
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| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Surface Soi Inundation Sparsley Ve Field Observation | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3 | e required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): | aves (B9) ates (B13) Odor (C1 heres alo uced Iron iction in T ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | C6) A) | Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) <i>ye</i> Hummocks (D7) |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Surface Soi Inundation V Sparsley Ve Field Observatio Surface Water Table Pres | ogy Indicators: rs (minimum of on tter (A1) Tables (A2) (A3) (A3) (A3) (A3) (A3) (A3) (A3) (A3 | e required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): | aves (B9) ates (B13) Odor (C1 heres alo uced Iron iction in T ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR) 3.0 | C6) A) | Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neuti Raised An Frost-Heav | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) <i>ye</i> Hummocks (D7) |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Surface Soi Inundation V Sparsley Ve Field Observation Saturation Prese (includes capillar) | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) rs (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeriel In egetated Concave ons: resent? Yes sent? Yes int? Yes y fringe) | e required; che | eck all that apply) Water-Stained Lec MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | aves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR) 3.0 0.0 | C6) A) Wetland | Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) <i>ye</i> Hummocks (D7) |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Surface Soi Inundation V Sparsley Ve Field Observation Saturation Prese (includes capillar) | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) rs (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeriel In egetated Concave ons: resent? Yes sent? Yes int? Yes y fringe) | e required; che | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): | aves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR) 3.0 0.0 | C6) A) Wetland | Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) <i>ye</i> Hummocks (D7) |
| Ample plot meets YDROLOGY Wetland Hydrold Primary Indicator Surface Wa X High Water X Saturation (Water Mark Sediment D Drift Deposi Algal Mat or Iron Deposi Surface Soi Inundation V Sparsley Ve Field Observation Saturation Prese (includes capillar) | ogy Indicators: rs (minimum of on ater (A1) Tables (A2) (A3) rs (B1) Deposits (B2) its (B3) r Crust (B4) its (B5) il Cracks (B6) Visible on Aeriel In egetated Concave ons: resent? Yes sent? Yes int? Yes y fringe) | e required; che | eck all that apply) Water-Stained Lec MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | aves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR) 3.0 0.0 | C6) A) Wetland | Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) <i>ye</i> Hummocks (D7) |

Sampling Site: SP 1-1



Photo Name: Photo_170504113537.jpg

Direction: West

Caption: Sample plot 1-1 in Wetland 1

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

| Project/Site: | | | | City/Co | unty: | | | Sampling Da | ate: 5/4/20 | 017 | | | | | |
|--------------------|---------|--------------|--------------------|------------|--------------|----------|----------|--------------|-------------|-------------|------------------|-------------|------------|------|--|
| Applicant/Owner | : (| City of Mary | sville | | | - | | State | e: WA | 4 | Sampling Po | oint: SP 1- | -2 | | |
| Investigators: | Danie | elski | | | | | _ | Section, To | wnshi | p, Range: | - 16, 30N, 5E | | | | |
| Landform (hillslop | pe, ter | race, etc.): | Hillslope | | | Loc | al Relie | ef (concave, | conve | ex, none): | Convex | | Slope(%): | 7 | |
| Subregion (LRR) |): | A | | Lat: | 48.08607 | - 75 | Long: | -122.17437 | 7 | | Datum: | WGS84 | | | |
| Soil Map Unit Na | ame: | Norma loam | I | | | | - | NWI | Class | sification: | None | | | | |
| Are climatic / hyc | drologi | c conditions | on the site typica | al for thi | s time of y | ear? | Yes | ; N | lo) | X (If No | , explain in R | emarks) | | | |
| Are Vegetation: | : | Soil | or Hydrology | signi | ficantly dis | sturbed? | | Are "Norma | al Circ | cumstance | es" present? | Yes | x X | No | |
| Are Vegetation: | | Soil | or Hydrology | natu | rally proble | ematic? | | (If needed, | expla | in any an | swers in Rem | arks.) | | | |
| SUMMARY C | OF FI | NDINGS | - Attach a sit | e map | showir | ng sam | pling | point loc | atior | ns, tran | sects, imp | ortant f | eatures, e | etc. | |
| Hydrophytic Veg | etatior | Present? | Yes | No | Х | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | No | Х | | Is the | Sampled A | rea | | | | | | |
| Wetland Hydrolo | gy Pre | esent? | Yes | No | X | | within | n a Wetland | ? | | Yes | | No | X | |

Remarks:

Sample plot is not located in a wetland; all 3 criteria are absent. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|-------------------------------------|----------|---------------------|-----------|----------------------------------|-------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | int Specie | s | | |
| 1 | | | | That Are OBL, FAC | CW, or FA | C: | 1 | (A) |
| 2. | | | | Total Number of D | ominant | | | |
| 3. | | | | Species Across All | Strata: | | 2 | (B) |
| 4. | | | | Percent of Domina | nt Specie | 5 | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 50 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Rubus spectabilis | 60 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | ly by: | |
| 2. | | | | OBL species | | _x1= | | _ |
| 3. | | | | FACW species | 5 | x2= | 10 | |
| 4. | | | | FAC species | 60 | x3= | 180 | |
| 5. | | | | FACU species | 30 | x4= | 120 | |
| | 60 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 95 | (A) | 310 | (B) |
| 1. Tellima grandiflora | 25 | Yes | FACU | | | | | |
| 2. Polystichum munitum | 5 | No | FACU | Prevalence Inc | lex = B/A= | = | 3.2 | 6 |
| 3. Impatiens glandulifera | 5 | No | FACW | Hydrophytic Vege | etation Inc | dicator | s: | |
| 4. | | | | 1 - Rapid Te | st for Hyd | rophytic | vegetatio | n |
| 5. | | | | 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | ¹ (Provide | |
| 8. | | | | data in F | Remarks o | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland | Non-Vasc | ular Pla | ints ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Vege | etation ¹ (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | y |
| | 35 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1 | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | 11 | No X | _ |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 65 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | • | | | | |
| | | | | | | | | |

Hydrophytic vegetation is not dominant in the sample plot.

SOIL

| Profile Desc | ription: (Descr | ibe to the de | pth neede | ed to document the | indicator of | or confirm | the abse | nce of indicators.) | | | |
|--------------|-----------------------------------|----------------|-------------|-------------------------------------|--------------|-------------------|------------------|----------------------------------|---------------------------|-----------|--------------|
| Depth | | Matrix | | Red | ox Feature | es | | | | | |
| (inches) | Color (mo | st) 🤅 | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Rema | rks | |
| 0-20 | 10YR 3/2 | 2 10 | 00 | | · | | | Sandy Loam | | | |
| | | | | | · | | | | | | |
| | | | | | · | | | | | | |
| | | | | | · | | | | | | |
| | | | | | · | | <u> </u> | · | | | |
| | | | | | · | | | | | | |
| | | | | | · | | | | | | |
| | | | | | · | | | <u> </u> | | | |
| | | - Doplation F | M_Roduc | ed Matrix, CS=Cove | rod or Coo | tod Sond C | roino | | on: PL=Pore Lining | n M_Motri | |
| | | • | | inless otherwise no | | ileu Sanu G | | Indicators for Proble | | | і х . |
| - | sol (A1) | | | Sandy Redox (S | - | | | 2 cm Muck (A ² | • | 3. | |
| | Epipedon (A2) | | _ | | , | | | Red Parent Ma | | | |
| | Histic (A3) | | _ | Stripped Matrix (| | (avaant MI | | | Dark Surface (TF12 | 2) | |
| | . , | I) | _ | Loamy Mucky Mi | | (except IVIL | .RLA I) | | | 2) | |
| | gen Sulfide (A4 ted Below Dark | | , – | Loamy Gleyed M Depleted Matrix | | | | Other (Explain | III REMAIKS) | | |
| · | | |) _ | | . , | | | 3Indiantors of hydro | abutia vagatation a | n d | |
| | Dark Surface (A | , | _ | Redox Dark Surf | . , | ` | | ³ Indicators of hydro | | na | |
| | / Mucky Minera | | _ | Depleted Dark S Redox Depression | |) | | wetland hydrology | | | |
| | / Gleyed Matrix | | | | 5hs (F6) | | | unless disturbed o | or problematic. | | |
| | Layer (if pres | ent): | | | | | | | | | |
| Туре: | | | | | | | | | | | |
| Depth | (inches): | | | | | | | Hydric Soil Presen | t? Yes | No | X |
| HYDROLC | DGY | | | | | | | | | | |
| Wetland H | ydrology Indic | ators: | | | | | | | | | |
| Primary Inc | licators (minimu | um of one requ | uired; che | ck all that apply) | | | | Secondary Indicato | rs (2 or more requi | red) | |
| Surfac | ce Water (A1) | | | Water-Stained Le | eaves (B9) | (except | | Water Stained | Leaves (B9) (MRL | A 1, 2, | |
| High \ | Water Tables (A | (2) | | MRLA 1, 2, 4/ | A, and 4B) | | | 4A, and 4B |) | | |
| Satura | ation (A3) | | _ | Salt Crust (B11) | | | | Drainage Patte | erns (B10) | | |
| Water | Marks (B1) | | _ | Aquatic Inverteb | rates (B13) |) | | Dry-Season W | ater Table (C2) | | |
| Sedim | nent Deposits (B | 32) | _ | Hydrogen Sulfide | e Odor (C1 |) | | Saturation Visi | ible on Aeriel Imag | ery (C9) | |
| Drift D | eposits (B3) | | _ | Oxidized Rhizos | pheres alo | ng Living R | oots (C3) | Geomorphic P | osition (D2) | | |
| Algal | Mat or Crust (B | 4) | _ | Presence of Red | luced Iron | (C4) | | Shallow Aquita | ard (D3) | | |
| Iron D | eposits (B5) | | _ | Recent Iron Red | uction in Ti | illed Soils (0 | C6) | FAC-Neutral T | est (D5) | | |
| Surfac | ce Soil Cracks (| B6) | _ | Stunted or Stress | sed Plants | (D1) (LRR | A) | Raised Ant Mo | ounds (D6) (LRR A |) | |
| Inund | ation Visible on | Aeriel Image | ry (B | Other (Explain in | Remarks) |) | | Frost-Heave H | lummocks (D7) | | |
| Spars | ley Vegetated (| Concave Surfa | ace (B8) | | | | | | | | |
| Field Obse | ervations: | | | | | | | | | | |
| Surface Wa | ater Present? | Yes | No) | Depth (inches): | | | | | | | |
| Water Tabl | | Yes | No) | Depth (inches): | | | | | | | |
| Saturation | Present? | Yes | No) | Depth (inches): | | | Wetland | d Hydrology Present | ? Yes | No | Х |
| (includes ca | apillary fringe) | | | | | | | | | | |
| Describe Rec | corded Date (sti | eam gauge, r | nonitoring | well, aerial photos, p | revious ins | spections), i | f availabl | e: | | | |
| | | | | | | | | | | | |
| Remarks: | | | | | | | | | | | |
| No wetland h | ydrology indica | tors are prese | nt in the s | ample plot. | | | | | | | |
| | | | | | | | | | | | |

Sampling Site: SP 1-2



Photo Name: Photo_170504114147.jpg

Direction:

Caption: SP1-2 pit



Photo Name: Photo_170504114659.jpg

Direction: North

Caption: Sp 2-1

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

| Project/Site: | · | | С | ity/Cou | nty: | Snoho | mish | | | Sampling [| Date: 5/4/2 | 2017 | | | | | |
|--------------------|-------------------------------------|---------|----------------|----------|-------------|-------------|--------|----------|----------|------------|-------------|--------------|--------------|-------------|-----------|------|--|
| Applicant/Owner | r: City c | of Mary | sville | | | | | | | State: | WA | | Sampling F | Point: SP 1 | -3 | | |
| Investigators: | Danielski | | | | | | | | Section | , Towi | nship, | Range: | 16, 30N, 5I | E | | | |
| Landform (hillslo | pe, terrace, | etc.): | Depression | | | | Loca | al Relie | ef (conc | ave, c | onvex, | none): | Concave | | Slope(%): | 0 | |
| Subregion (LRR) |): A | | | | _at: 48 | .086727 | | Long: | -122.1 | 73195 | | | Datum: | WGS84 | | | |
| Soil Map Unit Na | ame: Norm | a loam |) | | | | | | | NWI C | lassific | cation: | PEM | | | | |
| Are climatic / hyd | drologic con | ditions | on the site ty | pical fo | or this tim | ne of year | r? | Yes | | No | Х | (If No | , explain in | Remarks) | | | |
| Are Vegetation: | Soil | | or Hydrology | : | significar | ntly distur | bed? | | Are "N | ormal | Circun | - nstance | s" present? | Ye | s X | No | |
| Are Vegetation: | Soil | | or Hydrology | | naturally | problema | atic? | | (If nee | ded, e | xplain | any ans | swers in Re | marks.) | | | |
| SUMMARY C | OF FINDI | NGS | - Attach a | site r | nap sh | owing | samp | oling | point | loca | tions | , trans | sects, im | portant | features, | etc. | |
| Hydrophytic Veg | etation Pres | sent? | Yes | Х | No | | | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | Х | No | _ | | ls the | Sample | ed Are | ea | | | | | | |
| Wetland Hydrold | Vetland Hydrology Present? Yes X No | | | | , | withir | a Wetl | and? | | | Ye | s X | N |) | | | |
| | | | | | | | | | | | | | | | | | |

Remarks:

Sample plot is located in Wetland 1; all 3 criteria are present. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|---|---------------------|---------------------|-----------|----------------------------------|-------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | nt Specie | S | | |
| 1. | | | | That Are OBL, FAC | CW, or FA | C: | 1 | (A) |
| 2. | | | | Total Number of Do | ominant | | | |
| 3. | | | | Species Across All | Strata: | | 1 | (B) |
| 4. | | | | Percent of Domina | nt Specie | 5 | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. | | | | Total % Cover of: | | <u>Multip</u> | <u>ly by:</u> | |
| 2. | | | | OBL species | | _x1= | | _ |
| 3. | | | | FACW species | 70 | x2= | 140 | |
| 4. | | | | FAC species | | x3= | 0 | |
| 5. | | | | FACU species | | x4= | 0 | |
| | | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 70 | (A) | 140 | (B) |
| 1. Phalaris arundinacea | 50 | Yes | FACW | | | | | |
| 2. Impatiens glandulifera | 10 | No | FACW | Prevalence Ind | lex = B/A= | - | 2.0 | 0 |
| 3. Equisetum telmateia | 5 | No | FACW | Hydrophytic Vege | etation Inc | dicator | s: | |
| 4. Stachys chamissonis | 5 | No | FACW | 1 - Rapid Te | st for Hyd | rophytic | c Vegetatio | n |
| 5. | | | | X 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | s1 (Provide | |
| 8. | | | | data in F | Remarks o | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland | Non-Vasc | ular Pla | ints ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Veg | etation ¹ (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | у |
| | 70 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | X | No | |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 30 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | <u>_</u> | | | | | | | |
| Sample plot meets dominance test and prevalence | ce index for hydrop | hytic vegetation. | | | | | | |

SOIL

| Depth | Matrix | | Red | ox Feature | es | | | |
|---|--|--|--|---|--|----------------------|--|--|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-10 | 10YR2/2 | 100 | | | | | Sandy Loam | |
| 10-16 | 10YR4/1 | 85 | 7.5YR4/6 | 15 | C | M | Sandy Loam | Some Gravels Present |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| ype: C= Co | oncentration, D= Dep | letion, RM=Redu | uced Matrix, CS=Cover | red or Coa | ted Sand G | rains. | ²L0 | cation: PL=Pore Lining, M=Matrix |
| ydric Soil I | ndicators: (Applical | ble to all LRRs, | unless otherwise no | - | | | Indicators for Pro | oblematic Hydric Soils ³ : |
| Histos | ol (A1) | | Sandy Redox (S | 5) | | | 2 cm Muck | x (A10) |
| Histic | Epipedon (A2) | - | Stripped Matrix (| S6) | | | Red Paren | t Material (TF2) |
| Black | Histic (A3) | | Loamy Mucky Mi | | (except ML | RLA 1) | | ow Dark Surface (TF12) |
| | gen Sulfide (A4) | | Loamy Gleyed M | . , | | | Other (Exp | lain in Remarks) |
| Deple | ted Below Dark Surfa | ce (A11) | X Depleted Matrix | (F3) | | | | |
| | Dark Surface (A12) | | Redox Dark Surf | | | - | drophytic vegetation and | |
| Sandy | Mucky Mineral (S1) | | Depleted Dark S | urface (F7) |) | wetland hydro | logy must be present, | |
| | Gleyed Matrix (S4) | | Redox Depression | ons (F8) | | | unless disturb | ed or problematic. |
| | Layer (if present): | | | | | | | |
| Type: | | | | | | | | |
| Depth | (inches): | | | | | | | cont? Voc V No |
| | neets hydric soil indic | ator for a Deple | ted Matrix (F3). | | | | Hydric Soil Pre | sent? Yes <u>X</u> No |
| ample plot r | | | ted Matrix (F3). | | | | Hyaric Soll Pre | |
| ample plot r | OGY | | | | | | | cators (2 or more required) |
| ample plot r IYDROLC Wetland Hy Primary Ind | OGY /drology Indicators: icators (minimum of c re Water (A1) | | | eaves (B9) | (except | | Secondary India | |
| ample plot r IYDROLC Wetland Hy Primary Ind | OGY /drology Indicators: icators (minimum of c | | eck all that apply) | | | | Secondary India | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, |
| ample plot r IYDROLC Wetland Hy Primary Ind | Adrology Indicators: icators (minimum of o be Water (A1) Vater Tables (A2) | | eck all that apply) Water-Stained Le | | | | Secondary India | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, |
| ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura | Adrology Indicators: icators (minimum of o be Water (A1) Vater Tables (A2) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 | A, and 4B) | | | Secondary India Water Stai 4A, and Drainage F | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water | PGY /drology Indicators: icators (minimum of o we Water (A1) Vater Tables (A2) ation (A3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) | A, and 4B) rates (B13) |) | | Secondary India Water Stai 4A, and Drainage F Dry-Seaso | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) |
| ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim | PGY /drology Indicators: icators (minimum of o we Water (A1) Vater Tables (A2) ation (A3) Marks (B1) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr | A, and 4B) rates (B13) e Odor (C1 |) | | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D | PGY vdrology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide | A, and 4B) rates (B13) e Odor (C1 oheres alo |)) ng Living R | oots (C3) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal | Adrology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) reposits (B3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp | A, and 4B) rates (B13) e Odor (C1 oheres alon uced Iron (|)) ng Living R (C4) | | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D | PGY /drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) | | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red | A, and 4B) rates (B13) e Odor (C1 oheres alon uced Iron (uction in Ti |) ng Living R (C4) illed Soils (ⁱ | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac | PGY /drology Indicators: icators (minimum of o we Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) reposits (B5) | one required; ch | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Red | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda | PGY vdrology Indicators: icators (minimum of o water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) we Soil Cracks (B6) | one required; ch | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda | PGY /drology Indicators: icators (minimum of o water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) reposits (B5) we Soil Cracks (B6) ation Visible on Aeriel rey Vegetated Concar | one required; ch | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Drift D Algal I Iron D Surfac Surfac Spars Field Obse | PGY /drology Indicators: icators (minimum of o water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) reposits (B5) we Soil Cracks (B6) ation Visible on Aeriel rey Vegetated Concar | one required; ch | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) |
| Ample plot r Wetland Hy Primary Ind Surfac X High V X Satura Water Drift D Algal I Iron D Surfac Surfac Surfac Field Obse | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concar rvations: ther Present? Yes | one required; ch Imagery (B ve Surface (B8) | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) |
| Ample plot r Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Spars Field Obse | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ley Vegetated Concar rvations: ther Present? Yes a Present? Yes | one required; ch Imagery (B ve Surface (B8) | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) A) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) /e Hummocks (D7) |
| Ample plot r Wetland Hy Primary Ind Surface X High V X Satura Water Sedim Drift D Algal I Iron D Surface Surface Wa Water Table Saturation I | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ley Vegetated Concar rvations: ther Present? Yes a Present? Yes | one required; ch Imagery (B ve Surface (B8) | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Rede Stunted or Stress Other (Explain in X Depth (inches): | A, and 4B) ates (B13) odor (C1 oheres alou uced Iron (uction in Ti sed Plants |) ng Living R (C4) illed Soils ((D1) (LRR | C6) A) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) /e Hummocks (D7) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Drift D Algal I Iron D Surfac Inunda Spars Field Obse Surface Wa Water Table Saturation I (includes ca | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concar rvations: ther Present? Yes Present? Yes apillary fringe) | one required; ch Ilmagery (B ve Surface (B8) <u>X</u> No XNo | eck all that apply) Water-Stained Le MRLA 1, 2, 44 Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Rede Stunted or Stress Other (Explain in X Depth (inches): | A, and 4B) ates (B13) oberes alou uced Iron (uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) illed Soils (f (D1) (LRR 10.0 6.0 | C6) A) Wetland | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) /e Hummocks (D7) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Drift D Algal I Iron D Surfac Inunda Spars Field Obse Surface Wa Water Table Saturation I (includes ca | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concar rvations: ther Present? Yes Present? Yes apillary fringe) | one required; ch Ilmagery (B ve Surface (B8) <u>X</u> No XNo | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | A, and 4B) ates (B13) oberes alou uced Iron (uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) illed Soils (f (D1) (LRR 10.0 6.0 | C6) A) Wetland | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) /e Hummocks (D7) |
| Ample plot r IYDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Drift D Algal I Iron D Surfac Inunda Spars Field Obse Surface Wa Water Table Saturation I (includes ca | PGY /drology Indicators: icators (minimum of of the Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) the Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concar rvations: ther Present? Yes Present? Yes apillary fringe) | one required; ch Ilmagery (B ve Surface (B8) <u>X</u> No XNo | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Red Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | A, and 4B) ates (B13) oberes alou uced Iron (uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) illed Soils (f (D1) (LRR 10.0 6.0 | C6) A) Wetland | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An Frost-Heav | cators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) ral Test (D5) t Mounds (D6) (LRR A) /e Hummocks (D7) |

Sampling Site: SP 1-3



Photo Name: Photo_170504130154.jpg

Direction: NorthWest

Caption: SP1-3 wetland plot at north end of Wetland 1

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

| Project/Site: | State Avenue | | | City/Cou | unty: | Snohomish | ۱ | | Sampling D | ate: 5/4/2 | 017 | | | | |
|--------------------|--------------|--------------|-------------------|-------------|--------------|-----------|----------|--------------|------------|--------------|-----------------|-------------|------------|------|--|
| Applicant/Owner: | : (| City of Mary | sville | | | - | | State | e: V | NA | Sampling P | oint: SP 1- | -4 | | |
| Investigators: | Danie | lski | | | | | _ | Section, To | wns | hip, Range | : 16, 30N, 5E | | | | |
| Landform (hillslop | pe, ter | race, etc.): | Hillslope | | | Loc | al Relie | ef (concave, | con | nvex, none) | : Convex | | Slope(%): | 10 | |
| Subregion (LRR) | : / | 4 | | Lat: | 48.08667 | 74 | Long: | -122.1732 | 10 | | Datum: | WGS84 | | | |
| Soil Map Unit Na | me: I | Norma loam | l | | | | | NWI | Cla | ssification: | None | | | | |
| Are climatic / hyd | drologi | c conditions | on the site typic | al for this | s time of y | ear? | Yes | . N | lo | X (If No | o, explain in F | Remarks) | | | |
| Are Vegetation: | | Soil | or Hydrology | signi | ficantly dis | sturbed? | | Are "Norma | al C | ircumstanc | es" present? | Yes | x X | No | |
| Are Vegetation: | ; | Soil | or Hydrology | natu | ally proble | ematic? | | (If needed, | exp | olain any ar | nswers in Ren | narks.) | | | |
| SUMMARY C | of fil | NDINGS | - Attach a sit | e map | showin | ng sam | pling | point loc | atio | ons, tran | nsects, imp | portant f | eatures, e | etc. | |
| Hydrophytic Vege | etation | Present? | Yes | No | Х | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | No | Х | | Is the | Sampled A | rea | | | | | | |
| Wetland Hydrolog | gy Pre | sent? | Yes | No | X | | within | n a Wetland | ? | | Yes | š | No | X | |

Remarks:

Sample plot is not located in a wetland; all 3 criteria are absent. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|--|-----------|---------------------|-----------|-----------------------------------|------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | nt Specie | S | | |
| 1. | | | | That Are OBL, FAC | W, or FA | C: | 1 | (A) |
| 2. | | | | Total Number of Do | ominant | _ | | _ |
| 3. | | | | Species Across All | Strata: | | 2 | (B) |
| 4. | | | | Percent of Dominal | nt Specie | s – | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 50 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Oemleria cerasiformis | 30 | Yes | FACU | Total % Cover of: | | <u>Multip</u> | <u>oly by:</u> | |
| 2. Rubus spectabilis | 5 | No | FAC | OBL species | | _x1= | | |
| 3. | | | | FACW species | 18 | x2= | 36 | |
| 4. | | | | FAC species | 5 | x3= | 15 | |
| 5. | | | | FACU species | 30 | x4= | 120 | |
| | 35 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 53 | (A) | 171 | (B) |
| 1. Equisetum telmateia | 15 | Yes | FACW | | | | | |
| 2. Stachys chamissonis | 2 | No | FACW | Prevalence Ind | lex = B/A= | = | 3.2 | 2 |
| 3. Phalaris arundinacea | 1 | No | FACW | Hydrophytic Vege | tation In | dicator | s: | |
| 4 | | | | 1 - Rapid Te | st for Hyd | rophytic | c Vegetatio | on |
| 5 | | | | 2 - Dominano | ce Test is | >50% | | |
| 6. | | | | 3 - Prevalence | ce Index i | s ≤3.0¹ | | |
| 7 | | | | 4 - Morpholo | gical Ada | ptations | s1 (Provide | • |
| 8 | | | | data in F | Remarks of | or on a s | separate s | heet) |
| 9 | | | | 5 - Wetland I | Non-Vasc | ular Pla | ants ¹ | |
| 10 | | | | Problematic | Hydrophy | tic Veg | etation ¹ (E | xplain) |
| 11 | | | | ¹ Indicators of hydrid | c soil and | wetland | d hydrolog | у |
| | 18 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1 | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | 11 | No X | _ |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 82 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |
| No hydrophytic vegetation is present in the same | ole plot. | | | | | | | |

SOIL

| Depth | Ma | ıtrix | D. | edox Feature | 29 | | | | | | |
|--|--|--|--|--|--|-------------------------------|---|--|----------------------|--|--|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks | | | |
| 0-9 | 10YR 2/2 | | | | | | Sandy Loam | | | | |
| 9-20 | 10YR3/3 | 100 | | | | | Sandy Loam | Some Cobbles | | | |
| | 10113/3 | | | | | | | | | | |
| · | | | | | | | | | | | |
| <u> </u> | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | · | | | | |
| | | | | | | | | | | | |
| | contration D- C | Doplotion PM-P | Reduced Matrix, CS=Cov | varad or Cor | tod Sand G | raine | 21.00 | cation: PL=Pore Lining, M | -Motrix | | |
| | | • | Rs, unless otherwise i | | aleu Sanu G | itallis. | | blematic Hydric Soils ³ : | | | |
| Histoso | | | Sandy Redox | - | | | | - | | | |
| | pipedon (A2) | | Stripped Matrix | . , | | | 2 cm Muck (A10) Red Parent Material (TF2) | | | | |
| | istic (A3) | | Loamy Mucky | | (excent MI | | | ow Dark Surface (TF12) | | | |
| | en Sulfide (A4) | | Loamy Gleyed | | (except init | \mathbf{RLA} I) | | lain in Remarks) | | | |
| | d Below Dark Su | | Depleted Matri | | | | | | | | |
| | ark Surface (A12 | | Redox Dark S | . , | | ³ Indicators of by | drophytic vegetation and | | | | |
| | Mucky Mineral (S | , | Depleted Dark | . , | ') | - | logy must be present, | | | | |
| | Gleyed Matrix (S | | Redox Depres | |) | | - | ed or problematic. | | | |
| | _ayer (if present | | | | | | | | | | |
| Type: | Layer (ii presen | .y. | | | | | | | | | |
| | | | | | | | | | | | |
| • • | inches). | | | | | | Hydric Soil Pre | cont? Voc | No > | | |
| Depth (i Remarks: | inches): | ne sample plot. | | | | | Hydric Soil Pre | sent? Yes | No > | | |
| Depth (i Remarks: No hydric soils | are present in th | ne sample plot. | | | | | Hydric Soil Pre | sent? Yes | No <u>></u> | | |
| Depth (i Remarks: No hydric soils HYDROLOC | are present in th | | | | | | Hydric Soil Pre | sent? Yes | No > | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyd | are present in th GY trology Indicato | ors: | ; check all that apply) | | | | | sent? Yes | | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyd Primary Indic | are present in th GY trology Indicato | ors: | ; check all that apply) Water-Stained | Leaves (B9 |) (except | | Secondary Indic | | | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyc Primary Indic | are present in th GY drology Indicato eators (minimum | ors: | | | | | Secondary Indic | ators (2 or more required) ned Leaves (B9) (MRLA 1 | | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyc Primary Indic | are present in th GY drology Indicato eators (minimum Water (A1) ater Tables (A2) | ors: | Water-Stained | 4A, and 4B | | | Secondary Indic | ators (2 or more required) ned Leaves (B9) (MRLA 1 | | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyc Primary Indic Surface High Wa Saturati | are present in th GY drology Indicato eators (minimum Water (A1) ater Tables (A2) | ors: | Water-Stained MRLA 1, 2, | 4A, and 4B |) | | Secondary India Water Stai 4A, and Drainage F | ators (2 or more required) ned Leaves (B9) (MRLA 1 4B) | | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyc Primary Indic Surface High Wa Saturati Water M | are present in the GY drology Indicato eators (minimum Water (A1) ater Tables (A2) ion (A3) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 | 4A, and 4B 1) ebrates (B13 |) | | Secondary Indic Water Stai 4A, and Drainage F | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyc Primary Indic Surface High Wa Saturati Water N Sedime | are present in the GY drology Indicator eators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte | 4A, and 4B I) brates (B13 de Odor (C1 |) ;) 1) | oots (C3) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyc Primary Indic Surface High Wa Saturati Water M Sedime Drift De | are present in the GY drology Indicator eators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf | 4A, and 4B brates (B13 de Odor (C ² ospheres alo |) 1) ng Living R | oots (C3) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyd Primary Indic Surface High Wa Saturati Water M Sedime Drift De Algal M | are present in th GY trology Indicator ators (minimum Water (A1) ater Tables (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize | 4A, and 4B brates (B13 de Odor (C ospheres alc educed Iron |) 1) ong Living R (C4) | | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyd Primary Indic Surface High Wa Saturati Water M Saturati Drift De Algal Ma | are present in the GY trology Indicator cators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R | 4A, and 4B brates (B13 de Odor (C ² ospheres alc educed Iron eduction in T |) 1) ing Living R (C4) ïilled Soils ((| C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr | eators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyc Primary Indic Surface High Wa Saturati Water N Sedime Drift De Algal M Iron De Surface | are present in the GY drology Indicator sators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re | 4A, and 4B brates (B13 de Odor (C ospheres alo educed Iron eduction in T essed Plants |) 1) (C4) ïilled Soils (((LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyc Primary Indic Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Surface | are present in the GY trology Indicator eators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain | 4A, and 4B brates (B13 de Odor (C ospheres alo educed Iron eduction in T essed Plants |) 1) (C4) ïilled Soils (((LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyc Primary Indic Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Surface | are present in the GY drology Indicator sators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6 ion Visible on Ae y Vegetated Cor | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain | 4A, and 4B brates (B13 de Odor (C ospheres alo educed Iron eduction in T essed Plants |) 1) (C4) ïilled Soils (((LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised An | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOC Wetland Hyd Primary Indic Surface High Wa Saturati Water M Sedime Drift De Algal Ma Iron De Surface Inundat | are present in the GY trology Indicator ators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Ae y Vegetated Corv vations: | ors: of one required | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain | 4A, and 4B brates (B13 de Odor (C ² ospheres alo educed Iron eduction in T essed Plants in Remarks |) 1) (C4) ïilled Soils (((LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyd Primary Indic Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dej Surface Inundat Sparsle Field Observ Surface Water | are present in the GY frology Indicator rators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Ae y Vegetated Cor vations: er Present? Y Present? Y | ors: of one required) eriel Imagery (B hcave Surface (I | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain B8) X Depth (inches) | 4A, and 4B brates (B13 de Odor (C ² ospheres ald educed Iron eduction in T essed Plants in Remarks |) 1) (C4) ïilled Soils (((LRR | C6) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | rators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOG Wetland Hyd Primary Indic Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron De Surface Inundat Sparsle Field Observ Surface Wate Water Table Saturation Pr | are present in the GY Arology Indicator rators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6 ion Visible on Ae y Vegetated Corr vations: er Present? Y Present? Y | ors: of one required) eriel Imagery (B ncave Surface (I esNo | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain B8) X Depth (inches) | 4A, and 4B brates (B13 de Odor (C ² ospheres ald educed Iron eduction in T essed Plants in Remarks |) 1) (C4) ïilled Soils (((LRR | C6) A) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | eators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) re Hummocks (D7) | , 2, | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyd Primary Indic Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dej Surface Inundat Sparsle Field Observ Surface Water | are present in the GY Arology Indicator rators (minimum Water (A1) ater Tables (A2) on (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6 ion Visible on Ae y Vegetated Corr vations: er Present? Y Present? Y | of one required of one required) eriel Imagery (B ncave Surface (I esNo esNo | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain B8) X Depth (inches) | 4A, and 4B brates (B13 de Odor (C ² ospheres ald educed Iron eduction in T essed Plants in Remarks |) 1) (C4) iilled Soils (((LRR | C6) A) | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised Ant Frost-Heav | eators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) re Hummocks (D7) | , 2 , (C9) | | |
| Depth (i Remarks: No hydric soils HYDROLOO Wetland Hyd Primary India Surface High Wa Saturati Water N Sedime Drift De Algal Ma Iron Dej Surface Inundat Sparsle Field Observ Surface Wate Vater Table Saturation Pr (includes cap | are present in the GY trology Indicato eators (minimum Water (A1) ater Tables (A2) ion (A3) Marks (B1) nt Deposits (B2) posits (B3) at or Crust (B4) posits (B5) Soil Cracks (B6) ion Visible on Ae y Vegetated Cor vations: er Present? Y Present? Y resent? Y valiary fringe) | ors: of one required of one required eriel Imagery (B ncave Surface (I esNo esNo esNo | Water-Stained MRLA 1, 2, Salt Crust (B1 Aquatic Inverte Hydrogen Sulf Oxidized Rhize Presence of R Recent Iron Re Stunted or Stre Other (Explain B8) X Depth (inches) | 4A, and 4B brates (B13 de Odor (C ² ospheres alc educed Iron eduction in T essed Plants in Remarks |))) (C4) iilled Soils ((6 (D1) (LRR) | C6) A) Wetlan | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised Ant Frost-Heav | eators (2 or more required) ned Leaves (B9) (MRLA 1 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery ic Position (D2) quitard (D3) al Test (D5) : Mounds (D6) (LRR A) re Hummocks (D7) | , 2 , (C9) | | |

No wetland hydrology indicators are present in the sample plot.

Sampling Site: SP 1-4



Photo Name: Photo_170504131927.jpg

Direction: North

Caption: SP1-4 upland plot upslope of Wetland 1



Photo Name: Photo_170504131348.jpg Direction: Caption: Sp 1-4 pit

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

| Project/Site: S | - | | | City/Co | unty: | Snohomish | | | Sampling D | ate: 5/11/ | 2017 | | | |
|----------------------|--------------------|----------------------|------------|---------------|--------|---------------|----------------|---------|------------|------------------|------------|-----------|------|--|
| Applicant/Owner: | City of Mary | /sville | | | | | State | : WA | | Sampling P | oint: SP 1 | -5 | | |
| Investigators: | Danielski | | | | | | Section, Tow | vnship | , Range: | - 16, 30N, 5E | | | | |
| Landform (hillslope | e, terrace, etc.): | Hillslope | | | Loc | - al Relie | ef (concave, o | conve | x, none): | Convex | | Slope(%): | 10 | |
| Subregion (LRR): | А | | Lat: | 48.086143 | 3 | Long: | -122.17313 | 4 | | Datum: | WGS84 | - | | |
| Soil Map Unit Nam | ne: Norma loan | า | | | | - | NWI | Classi | fication: | None | | | | |
| Are climatic / hydro | ologic conditions | s on the site typica | al for thi | s time of ye | ear? | Yes | N | o X | (If No | , explain in F | Remarks) | | | |
| Are Vegetation: | Soil | or Hydrology | signi | ficantly dist | urbed? | | Are "Norma | I Circu | umstance | es" present? | Yes | s X | No | |
| Are Vegetation: | Soil | or Hydrology | natu | rally proble | matic? | | (If needed, | explai | n any an | swers in Rem | narks.) | | | |
| SUMMARY O | F FINDINGS | - Attach a site | e map | showing | g sam | pling | point loca | ation | s, tran | sects, imp | portant f | eatures, | etc. | |
| Hydrophytic Veget | ation Present? | Yes | No | Х | | | | | | | | | | |
| Hydric Soil Preser | it? | Yes | No | X | | Is the | Sampled Ar | ea | | | | | | |
| Wetland Hydrolog | y Present? | Yes | No | X | | within | n a Wetland? | • | | Yes | 5 | No | Х | |

Remarks:

Sample plot is not located in a wetland; all 3 criteria are absent. Sample plot is a paired upland plot. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test Worksheet: | | | | |
|--|-------------------------|----------------------|------------------|--|-----------|---------------|--------|-------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Dominant Species | | | | |
| 1. | | | | That Are OBL, FACW, or FAC: | | 2 | (A) | |
| 2. | | | | Total Number of Dominant | | | - | |
| 3. | | | | Species Across All Strata: | | | 4 | (B) |
| 4. | | | Percent of Domin | | nt Specie | s – | | |
| | | = Total Cover | | That Are OBL, FACW, or FAC: | | C: | 50 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index worksheet: | | | | |
| 1. Rubus spectabilis | 20 | Yes | FAC | Total % Cover of: Multi | | <u>Multip</u> | ly by: | |
| Ribes divaricatum Ribes divaricatum | 2 | No | FAC | OBL species | | _x1= | | _ |
| | | | | FACW species | 5 | x2= | 10 | |
| 4. | | | | FAC species | 22 | x3= | 66 | |
| 5. | | | | FACU species | 8 | x4= | 32 | |
| | 22 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 35 | (A) | 108 | (B) |
| 1. Tellima grandiflora | 5 | Yes | FACU | | | | | |
| 2. Equisetum telmateia | 5 | Yes | FACW | Prevalence Index = B/A= 3.08 | | | | |
| 3. Polystichum munitum | 3 | Yes | FACU | Hydrophytic Vegetation Indicators: | | | | |
| 4. | | | | 1 - Rapid Test for Hydrophytic Vegetation | | | | |
| 5. | | | | 2 - Dominance Test is >50% | | | | |
| 6. | | | | 3 - Prevalence Index is ≤3.0¹ | | | | |
| 7. 8. | | | | 4 - Morphological Adaptations ¹ (Provide | | | | |
| | | | | data in Remarks or on a separate sheet) | | | | |
| 9. | | | | 5 - Wetland Non-Vascular Plants ¹ | | | | |
| 10 | | | | Problematic Hydrophytic Vegetation ¹ (Explain) | | | | |
| | | | | ¹ Indicators of hydric soil and wetland hydrology | | | | |
| | 13 | = Total Cover | | must be present, unless disturbed or problematic. | | | | |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | 1 | No X | |
| | = Total Cover | | | Present? | | | | - |
| % Bare Ground in Herb Stratum 87 | % Cover of Biotic Crust | | | | | | | |
| Remarks: | | | | | | | | |
| Hydrophytic vegetation is not dominant in the same | nple plot. Dense vi | ne maple overhanging | in sample plot. | | | | | |

| Depth | | Aatrix | | | | ox Feature | | | _ | | _ | | |
|---|--|---|------------------------------------|---|---|--|--|----------------------|--|---|---|----------------------------|----|
| (inches) | Color (mois | st) | % | Color (| moist) | % | Type ¹ | Loc ² | Texture | | Remarks | | |
| 0-17 | 7.5YR 3/2 | <u> </u> | 100 | | | | | | Sandy Loam | | | | |
| 17-20 | 2.5Y 5/3 | | 95 | 2.5Y | 5/6 | 5 | C | | Sandy Clay Loam | Also Fair | nt Depletions | | |
| | | | | | | | | | | | | | |
| pe: C=Co | ncentration, D= | Depletion, | , RM=Red | duced Matrix | , CS=Cover | red or Coa | ted Sand G | rains. | ²Loc | ation: PL= | =Pore Lining, N | /=Matrix | x. |
| lric Soil Ir | ndicators: (Ap | plicable to | all LRR | s, unless otł | nerwise no | ted.) | | | Indicators for Pro | blematic I | Hydric Soils ³ : | | |
| Histos | ol (A1) | | | Sand | / Redox (S | 5) | | | 2 cm Muck | (A10) | | | |
| Histic I | Epipedon (A2) | | | Stripp | ed Matrix (| S6) | | | Red Parent | Material (| TF2) | | |
| Black I | Histic (A3) | | | Loam | y Mucky Mi | neral (F1) | (except ML | .RLA 1) | Very Shallo | w Dark Su | rface (TF12) | | |
| Hydro | gen Sulfide (A4) |) | | Loam | y Gleyed M | atrix (F2) | | | Other (Expl | ain in Rem | narks) | | |
| Deplet | ed Below Dark | Surface (A | 11) | Deple | ted Matrix (| (F3) | | | | | | | |
| Thick I | Dark Surface (A | .12) | | | x Dark Surfa | ``' | | | ³ Indicators of hyd | | - | | |
| Sandy | Mucky Mineral | (S1) | | Deple | ted Dark S | urface (F7) |) | | wetland hydrol | ogy must b | oe present, | | |
| Sandy | Gleyed Matrix | (S4) | | Redo | x Depressio | ons (F8) | | | unless disturbe | d or proble | ematic. | | |
| Restrictive | Layer (if prese | ent): | | | | | | | | | | | |
| Type: | | | | | | | | | | | | | |
| | | | | _ | | | | | | | | | |
| emarks: hydric soil: | (inches): s are present in | the sample | e plot. | - | | | | | Hydric Soil Pres | sent? | Yes | No | |
| marks: hydric soil: YDROLO | s are present in | | e plot. | - | | | | | Hydric Soil Pres | sent? | Yes | No | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi | s are present in GY vdrology Indica icators (minimu | ntors: | | | | | | | Secondary Indica | ators (2 or | more required |) | _ |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac | s are present in GY rdrology Indica icators (minimu e Water (A1) | ntors: m of one re | | Wate | -Stained Le | . , | (except | | Secondary Indica | ators (2 or ed Leaves | |) | |
| marks: hydric soil: /DROLO Vetland Hy Primary Indi Surfac High V | s are present in GY rdrology Indica icators (minimu e Water (A1) Vater Tables (A | ntors: m of one re | | Wate | -Stained Le | . , | (except | | Secondary Indica | ators (2 or ied Leaves 4B) | more required |) | |
| marks: hydric soil: /DROLO Vetland Hy Primary Indi Surfac High V Satura | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2) tion (A3) | ntors: m of one re | | Wate MR Salt C | -Stained Le LA 1, 2, 4A Crust (B11) | A, and 4B) | | | Secondary Indica Water Stair 4A, and Drainage P | ators (2 or ied Leaves 4B) atterns (B1 | more required s (B9) (MRLA 7 |) | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A tion (A3) Marks (B1) | ators: m of one re 2) | | Wate MR Salt C | -Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr | A, and 4B) | | | Secondary Indica Water Stair 4A, and Drainage P | ators (2 or ed Leaves 4B) atterns (B1 o Water Ta | more required s (B9) (MRLA 10) ble (C2) |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B | ators: m of one re 2) | | Wate MR Salt C Aqua Hydro | r-Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr | A, and 4B) rates (B13) Odor (C1 |) | | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation | ators (2 or ed Leaves 4B) atterns (B1) Water Ta /isible on / | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Satura Water Sedim Drift D | s are present in GY rdrology Indica icators (minimu e Water (A1) Vater Tables (A1) Vater Tables (A3) Marks (B1) ent Deposits (B3) | ntors: m of one re 2) 2) | | Wate MR Salt C Aquat Hydro Oxidia | -Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr ogen Sulfide zed Rhizosp | A, and 4B) rates (B13) Odor (C1 oheres alor |) ng Living R | oots (C3) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphi | ators (2 or led Leaves 4B) atterns (B1 Water Ta Visible on <i>I</i> c Position (| more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2) |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Satura Drift D Algal N | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A tion (A3) Marks (B1) ent Deposits (B eposits (B3) Mat or Crust (B4 | ntors: m of one re 2) 2) | | Water MR Salt C Aquat Hydro Oxidiz Prese | -Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr gen Sulfide zed Rhizosp nce of Red | A, and 4B) rates (B13) Odor (C1 pheres alor uced Iron (|) ng Living R (C4) | . , | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq | ators (2 or led Leaves 4B) atterns (B1 a Water Ta /isible on / c Position (uitard (D3) | more required (B9) (MRLA (D) ble (C2) Aeriel Imagery (D2) |) 1, 2, | |
| YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron Do | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B1) ent Deposits (B3) Mat or Crust (B4 eposits (B5) | ators: m of one re 2) 2) | | Water MR Salt C Aquat Hydro Oxidiz Prese Recei | -Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr ogen Sulfide zed Rhizosp nce of Red nt Iron Redu | A, and 4B) rates (B13) e Odor (C1 oheres alor uced Iron (uction in Ti |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stain 4A, and Drainage P Dry-Seasor Saturation Geomorphi Shallow Aq FAC-Neutra | ators (2 or led Leaves 4B) atterns (B1 h Water Ta /isible on <i>I</i> c Position uitard (D3) al Test (D5 | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2) |) 1, 2, | |
| YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron Da Surfac | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B5) | ators: m of one re 2) 2) 1) 36) | equired; c | Waten MR Salt C Aquat Hydro Oxidi: Prese Recen | Stained Le -Stained Le Crust (B11) ic Invertebr ogen Sulfide zed Rhizosp nce of Red nt Iron Redu ed or Stress | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq FAC-Neutra Raised Ant | ators (2 or ed Leaves 4B) atterns (B1 Water Ta /isible on / c Position (uitard (D3) al Test (D5 Mounds (E | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron Do Surfac Surfac | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A1) Vater Tables (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B ation Visible on A | ators: m of one re 2) 2) 1) 36) Aeriel Imag | equired; c | Wated MR Salt C Aqua Hydro Oxidi Prese Rece Stunt Other | -Stained Le LA 1, 2, 4A Crust (B11) ic Invertebr ogen Sulfide zed Rhizosp nce of Red nt Iron Redu | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stain 4A, and Drainage P Dry-Seasor Saturation Geomorphi Shallow Aq FAC-Neutra | ators (2 or ed Leaves 4B) atterns (B1 Water Ta /isible on / c Position (uitard (D3) al Test (D5 Mounds (E | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron De Surfac Inunda Sparsl | s are present in GY rdrology Indica icators (minimule e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4 eposits (B5) e Soil Cracks (B ation Visible on A ey Vegetated C | ators: m of one re 2) 2) 1) 36) Aeriel Imag | equired; c | Wated MR Salt C Aqua Hydro Oxidi Prese Rece Stunt Other | Stained Le -Stained Le Crust (B11) ic Invertebr ogen Sulfide zed Rhizosp nce of Red nt Iron Redu ed or Stress | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq FAC-Neutra Raised Ant | ators (2 or ed Leaves 4B) atterns (B1 Water Ta /isible on / c Position (uitard (D3) al Test (D5 Mounds (E | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron Do Surfac Inunda Sparsl | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B5) e Soil Cracks (B5) ey Vegetated C rvations: | ators: m of one re 2) 2) 36) Aeriel Imag oncave Su | equired; c gery (B rface (B8 | Waten MR Salt C Aquat Hydro Oxidiz Prese Recent Stunte Other | -Stained Le -Stained Le Crust (B11) ic Invertebring gen Sulfide zed Rhizosp nce of Red nt Iron Redu ed or Stress (Explain in | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq FAC-Neutra Raised Ant | ators (2 or ed Leaves 4B) atterns (B1 Water Ta /isible on / c Position (uitard (D3) al Test (D5 Mounds (E | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| Primarks: Pydric soil: Pydric soil: Primary Indi Primary Indi Surfac High V Satura Water Sedim Drift D Algal N Iron De Surfac Inunda Sparsl Field Obset Surface Wa | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A1) Vater Tables (A1) Vater Tables (A1) ent Deposits (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B4) extion Visible on ey Vegetated C rvations: ter Present? | ators: m of one re 2) 2) 36) Aeriel Imag oncave Su Yes | equired; c gery (B rface (B8 | Waten MR Salt C Aquar Aquar Hydro Oxidia Prese Recen Stunte Other) X Depth | -Stained Le LA 1, 2, 4 Frust (B11) ic Invertebring gen Sulfide red Rhizospince of Red ht Iron Redu ed or Stresse (Explain in (inches): | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq FAC-Neutra Raised Ant | ators (2 or ed Leaves 4B) atterns (B1 Water Ta /isible on / c Position (uitard (D3) al Test (D5 Mounds (E | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| marks: hydric soil: YDROLO Vetland Hy Primary Indi Surfac High V Satura Water Sedim Drift D Algal M Iron De Surfac Surfac Sparsl Surface Wa Nater Table | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4 eposits (B5) e Soil Cracks (B ation Visible on a ey Vegetated C rvations: ter Present? Present? | ators: m of one re 2) 2) 2) 36) Aeriel Imag oncave Su Yes Yes | gery (B rface (B8 | Waten MR Salt C Aquai Hydro Oxidia Prese Recei Stunte Other) X Depth | -Stained Le LA 1, 2, 44 crust (B11) ic Invertebr gen Sulfide zed Rhizosp nce of Red nt Iron Redu ed or Stress (Explain in | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) A) | Secondary Indica Water Stain 4A, and Drainage P Dry-Seasor Saturation V Geomorphic Shallow Aq FAC-Neutra Raised Ant Frost-Heave | ators (2 or led Leaves 4B) atterns (B1 water Ta visible on <i>i</i> c Position (uitard (D3) al Test (D5 Mounds (E e Hummoc | more required s (B9) (MRLA l0) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) cks (D7) |) 1, 2 , (C9) | |
| Primarks: Phydric soil: Primary Indi Surfac High V Satura Water Sedim Drift D Algal N Iron De Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4 eposits (B5) e Soil Cracks (B ation Visible on ey Vegetated C rvations: ter Present? Present? | ators: m of one re 2) 2) 36) Aeriel Imag oncave Su Yes | equired; c gery (B rface (B8 | Waten MR Salt C Aquai Hydro Oxidia Prese Recei Stunte Other) X Depth | -Stained Le LA 1, 2, 4 Frust (B11) ic Invertebring gen Sulfide red Rhizospince of Red ht Iron Redu ed or Stresse (Explain in (inches): | A, and 4B) rates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants |) ng Living R (C4) Iled Soils (i | C6) A) | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation Geomorphic Shallow Aq FAC-Neutra Raised Ant | ators (2 or led Leaves 4B) atterns (B1 water Ta visible on <i>i</i> c Position (uitard (D3) al Test (D5 Mounds (E e Hummoc | more required s (B9) (MRLA 10) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) |) 1, 2, | |
| Primary Indi Surfac High V Satura Vater Sedim Drift D Algal N Iron Du Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A1) Vater Tables (A1) vater Tables (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B5) e Soil Cra | ttors: m of one re 2) 2) 2) 36) Aeriel Imag oncave Su Yes Yes Yes | gery (B rface (B8 | Wated MR Salt C Aqua Hydro Oxidia Prese Rece Stunte Other) X Depth X Depth | -Stained Le LA 1, 2, 4 Frust (B11) ic Invertebring gen Sulfide red Rhizosp nce of Red ht Iron Reduced or Stress (Explain in (inches): (inches): (inches): | A, and 4B) ates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) Iled Soils (i (D1) (LRR | C6) A) Wetland | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphi Shallow Aq FAC-Neutra Raised Ant Frost-Heave | ators (2 or led Leaves 4B) atterns (B1 water Ta visible on <i>i</i> c Position (uitard (D3) al Test (D5 Mounds (E e Hummoc | more required s (B9) (MRLA l0) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) cks (D7) |) 1, 2 , (C9) | |
| Primary Indi Surfac High V Satura Vater Sedim Drift D Algal N Iron Do Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A2 tion (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4 eposits (B5) e Soil Cracks (B ation Visible on ey Vegetated C rvations: ter Present? Present? | ttors: m of one re 2) 2) 2) 36) Aeriel Imag oncave Su Yes Yes Yes | gery (B rface (B8 | Wated MR Salt C Aqua Hydro Oxidia Prese Rece Stunte Other) X Depth X Depth | -Stained Le LA 1, 2, 4 Frust (B11) ic Invertebring gen Sulfide red Rhizosp nce of Red ht Iron Reduced or Stress (Explain in (inches): (inches): (inches): | A, and 4B) ates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) Iled Soils (i (D1) (LRR | C6) A) Wetland | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphi Shallow Aq FAC-Neutra Raised Ant Frost-Heave | ators (2 or led Leaves 4B) atterns (B1 water Ta visible on <i>i</i> c Position (uitard (D3) al Test (D5 Mounds (E e Hummoc | more required s (B9) (MRLA l0) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) cks (D7) |) 1, 2 , (C9) | |
| Primary Indi Surfac High V Satura Vater Sedim Drift D Algal N Iron Do Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F | s are present in GY rdrology Indica icators (minimul e Water (A1) Vater Tables (A1) Vater Tables (A1) vater Tables (A3) Marks (B1) ent Deposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B5) e Soil Cra | ttors: m of one re 2) 2) 2) 36) Aeriel Imag oncave Su Yes Yes Yes | gery (B rface (B8 | Wated MR Salt C Aqua Hydro Oxidia Prese Rece Stunte Other) X Depth X Depth | -Stained Le LA 1, 2, 4 Frust (B11) ic Invertebring gen Sulfide red Rhizosp nce of Red ht Iron Reduced or Stress (Explain in (inches): (inches): (inches): | A, and 4B) ates (B13) Odor (C1 oheres alor uced Iron (uction in Ti sed Plants Remarks) |) ng Living R (C4) Iled Soils (i (D1) (LRR | C6) A) Wetland | Secondary Indica Water Stair 4A, and Drainage P Dry-Seasor Saturation V Geomorphi Shallow Aq FAC-Neutra Raised Ant Frost-Heave | ators (2 or led Leaves 4B) atterns (B1 water Ta visible on <i>i</i> c Position (uitard (D3) al Test (D5 Mounds (E e Hummoc | more required s (B9) (MRLA l0) ble (C2) Aeriel Imagery (D2)) D6) (LRR A) cks (D7) |) 1, 2 , (C9) | |

Sampling Site: SP 1-5



Photo Name: Photo_170511141713.jpg

Direction: South

Caption: SP 1-5 upland plot

| Project/Site: | Site: State Avenue | | City/Co | unty: | Snohor | nish | | | Sampling Da | ate: 5/11/ | /2017 | | | | | | |
|--------------------|--------------------|--------------|----------------|----------|---------|-------------|---------|---------------|-------------|------------|----------|--------------|----------------|------------|-----------|------|--|
| Applicant/Owner | : (| City of Mary | sville | | | | | | S | State: | WA | | Sampling Po | oint: SP 1 | -6 | | |
| Investigators: | Danie | elski | | | | | | | Section, | Towr | nship, F | Range: | 16, 30N, 5E | | | | |
| Landform (hillslo | pe, ter | race, etc.): | Hillslope | | | | Loc | - cal Reli | ef (conca | ive, co | onvex, | none): | Concave | | Slope(%): | 10 | |
| Subregion (LRR) |): / | Ą | | | Lat: | 48.08594 | 5 | Long: | -122.17 | 3065 | | | Datum: | WGS84 | - | | |
| Soil Map Unit Na | ame: I | Ragnar fine | sandy loam, | 0 to 8 | perce | nt slopes | | - | N | 1WI C | lassific | ation: | PSS1 | | | | |
| Are climatic / hyd | drologi | c conditions | on the site ty | /pical f | or this | time of ye | ear? | Yes | ; | No | Х | (If No | , explain in R | emarks) | | | |
| Are Vegetation: | S | Soil | or Hydrology | / | signif | icantly dis | turbed? | | Are "No | ormal | Circum | - nstance | s" present? | Ye | s X | No | |
| Are Vegetation: | | Soil | or Hydrology | / | natur | ally proble | matic? | | (If need | led, e | xplain a | any ans | swers in Rem | arks.) | | | |
| SUMMARY C | OF FI | NDINGS | - Attach a | site | map | showin | g sam | pling | point l | ocat | tions | , trans | sects, imp | ortant | features, | etc. | |
| Hydrophytic Veg | etation | Present? | Yes | Х | No | | | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | Х | No | | | Is the | Sample | d Are | ea | | | | | | |
| Wetland Hydrolo | ogy Pre | sent? | Yes | Х | No | | | withir | n a Wetla | and? | | | Yes | Х | Nc | | |
| | | | | | | | | | | | | | | | | | |

Remarks:

Sample plot is located in Wetland 1; all 3 criteria are present. Area has above average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshee | et: | | |
|-------------------------------------|----------|---------------------|-----------|----------------------------------|--------------|---------------|--------------------------|--------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | ant Species | 6 | | |
| 1 | | | | That Are OBL, FAG | CW, or FA | C: _ | 4 | (A) |
| 2. | | | | Total Number of D | ominant | | | |
| 3. | | | | Species Across All | Strata: | | 4 | (B) |
| 4. | | | | Percent of Domina | int Species | | | |
| | | = Total Cover | | That Are OBL, FAG | CW, or FA | C: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshee | et: | | |
| 1. Rubus spectabilis | 35 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | <u>ly by:</u> | |
| 2. Ribes lacustre | 5 | No | FAC | OBL species | | x1= | | |
| 3. | | | | FACW species | 10 | x2= | 20 | |
| 4. | | | | FAC species | 61 | x3= | 183 | - |
| 5. | | | | FACU species | | x4= | 0 | - |
| | 40 | = Total Cover | | UPL species | | x5= | 0 | - |
| Herb Stratum (Plot size:) | | | | Column Totals: | 71 | (A) | 203 | (B) |
| 1. Athyrium cyclosorum | 20 | Yes | FAC | | | _ | | - |
| 2. Equisetum telmateia | 10 | Yes | FACW | Prevalence Inc | dex = B/A= | | 2.86 | ; |
| 3. | | | | Hydrophytic Vege | etation Ind | licators | 6: | |
| 4. | | | | 1 - Rapid Te | est for Hydr | rophytic | Vegetatio | n |
| 5. | | | | X 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalen | ce Index is | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | ogical Adap | otations | ¹ (Provide | |
| 8. | | | | data in I | Remarks o | r on a s | separate sh | ieet) |
| 9. | | | | 5 - Wetland | Non-Vascu | ular Pla | nts¹ | |
| 10. | | | | Problematic | Hydrophyt | tic Vege | etation ¹ (Ex | plain) |
| 11. | | | | ¹ Indicators of hydri | ic soil and | wetland | l hydrology | , |
| | 30 | = Total Cover | | must be present, u | inless distu | urbed o | r problema | tic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. Rubus armeniacus | 1 | Yes | FAC | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | XN | 10 | |
| | 1 | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 70 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | • | | | | |

Sample plot meets dominance test and prevalence index. Dense vine maple overhanging.

| rofile Desci | | | | _ | | | | |
|--|---|---|---|--|---|----------------------|---|---|
| Depth | Matrix | | | ox Feature | | | | |
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-6 | 10YR2/1 | 100 | | | | | Loam | |
| 6-14 | 2.5Y 4/1 | 100 | | | | | | Soil texture was not recorded |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | · | | | |
| | | | | | | | | |
| vpe: C=C | Differentiation. D= Deple | etion. RM=Redu | ced Matrix, CS=Cover | ed or Coa | ted Sand G | rains. | 2L00 | cation: PL=Pore Lining, M=Matrix. |
| | - | | unless otherwise not | | | | | oblematic Hydric Soils ³ : |
| | ol (A1) | | Sandy Redox (S5 | - | | | 2 cm Muck | - |
| | Epipedon (A2) | - | Stripped Matrix (S | | | | | t Material (TF2) |
| | Histic (A3) | - | Loamy Mucky Mi | | (excent MI | RIA 1) | | ow Dark Surface (TF12) |
| | gen Sulfide (A4) | - | Loamy Gleyed M | . , | (except mil | | | lain in Remarks) |
| | ted Below Dark Surfac | - | Depleted Matrix (| | | | | |
| | Dark Surface (A12) | - | Redox Dark Surfa | | | | ³ Indicators of by | drophytic vegetation and |
| | Mucky Mineral (S1) | - | Depleted Dark Su | () |) | | - | logy must be present, |
| | Gleyed Matrix (S4) | - | Redox Depressio | |) | | - | ed or problematic. |
| | | | | 113 (1 0) | | | | |
| | Layer (if present): | | | | | | | |
| Type: | | | | | | | | |
| | | | | | | | | |
| emarks: oils at 6-14 t | | on exposure to a | ir indicating presence | of Ferrous | s iron. | | Hydric Soil Pre | sent? Yes <u>X</u> No |
| emarks: bils at 6-14 t | urned redder hue upc | on exposure to a | ir indicating presence | of Ferrous | s iron. | | Hydric Soil Pre | sent? Yes <u>X</u> No |
| emarks: bils at 6-14 t YDROLC Wetland Hy | turned redder hue upo IGY /drology Indicators: | - | | of Ferrous | s iron. | | | |
| emarks: bils at 6-14 f YDROLC Wetland Hy Primary Ind | ogy and the second seco | - | eck all that apply) | | | | Secondary Indic | ators (2 or more required) |
| emarks: bils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac | BGY PGY vdrology Indicators: icators (minimum of o se Water (A1) | - | eck all that apply) Water-Stained Le | aves (B9) |) (except | | Secondary Indic | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, |
| emarks: bils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac X High V | UGY Vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) | - | eck all that apply)Water-Stained Le MRLA 1, 2, 4A | aves (B9) |) (except | | Secondary India | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) |
| emarks: ills at 6-14 f YDROLC Vetland Hy Primary Ind Surfac X High V X Satura | DGY /drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) ation (A3) | - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) | eaves (B9) , and 4B) |) (except | | Secondary India Water Stai 4A, and Drainage F | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) |
| emarks: hils at 6-14 the YDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water | GGY vdrology Indicators: icators (minimum of o water (A1) Vater Tables (A2) tion (A3) Marks (B1) | - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr | aves (B9) ., and 4B) ates (B13) |) (except | | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2 , 4B) Patterns (B10) n Water Table (C2) |
| emarks: hils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim | aurned redder hue upo GY /drology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) | - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide | aves (B9) , and 4B) ates (B13) Odor (C1 |) (except)) | | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) |
| Primary Ind X High V X Satura Vater X Satura Vater Sedim Drift D | turned redder hue upo GY /drology Indicators: icators (minimum of o ce Water (A1) Vater Tables (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) | - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo |) (except)) ng Living Ro | Doots (C3) | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) |
| emarks: iils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I | Aurned redder hue upo PGY vdrology Indicators: icators (minimum of o te Water (A1) Vater Tables (A2) tition (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) | - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu | aves (B9) ates (B13) Odor (C1 heres alo uced Iron |) (except)) ng Living Re (C4) | | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) |
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| emarks: pils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Sparsl Field Obse | Aurned redder hue upo PGY /drology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) ice Soil Cracks (B6) ation Visible on Aeriel ley Vegetated Concav rvations: | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants |) (except)) ng Living Ro (C4) illed Soils (((D1) (LRR | 26) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | ators (2 or more required) ned Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) n Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) guitard (D3) al Test (D5) Mounds (D6) (LRR A) |
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| emarks: Dils at 6-14 t Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Surfac Field Obse Surface Wa Water Table | Aurned redder hue upo Argy Ardrology Indicators: icators (minimum of o water (A1) Vater Tables (A2) tition (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) eposits (B5) we Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concav rvations: ther Present? Yes a Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Leg MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants |) (except) ng Living Rd (C4) illed Soils (((D1) (LRR) 0.0 | C6) A) | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised Ant Frost-Heav | ators (2 or more required) hed Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) In Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) al Test (D5) Mounds (D6) (LRR A) re Hummocks (D7) |
| emarks: oils at 6-14 t Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Sparsl Field Obse Surface Wa Water Table Saturation F | Aurned redder hue upo PGY /drology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) eposits (B5) re Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concav rvations: ther Present? Yes Present? Yes Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants |) (except) ng Living Rd (C4) illed Soils (((D1) (LRR | C6) A) | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised An | ators (2 or more required) hed Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) In Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) al Test (D5) Mounds (D6) (LRR A) re Hummocks (D7) |
| emarks: bils at 6-14 t Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Sparsl Field Obse Surface Wa Water Table Saturation F | Aurned redder hue upo Argy Ardrology Indicators: icators (minimum of o water (A1) Vater Tables (A2) tition (A3) Marks (B1) ent Deposits (B2) reposits (B3) Mat or Crust (B4) eposits (B5) we Soil Cracks (B6) ation Visible on Aeriel ey Vegetated Concav rvations: ther Present? Yes a Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Leg MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants |) (except) ng Living Rd (C4) illed Soils (((D1) (LRR) 0.0 | C6) A) | Secondary Indic Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ac FAC-Neutr Raised Ant Frost-Heav | ators (2 or more required) hed Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) In Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) al Test (D5) Mounds (D6) (LRR A) re Hummocks (D7) |
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| emarks: oils at 6-14 t Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Sparsl Field Obse Surface Wa Water Table Saturation F | Aurned redder hue upo PGY /drology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) ice Soil Cracks (B6) ation Visible on Aeriel ley Vegetated Concav rvations: atter Present? Yes Present? Yes apillary fringe) | ne required; che | Eck all that apply) Water-Stained Leg MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): Depth (inches): | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants Remarks) |) (except))ng Living Re (C4) illed Soils (((D1) (LRR) 0.0 0.0 | C6) A) Wetland | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised Ant Frost-Heav | ators (2 or more required) hed Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) In Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) al Test (D5) Mounds (D6) (LRR A) re Hummocks (D7) |
| emarks: bils at 6-14 t YDROLC Wetland Hy Primary Ind Surfac X High V X Satura Water Sedim Drift D Algal I Iron D Surfac Inunda Sparsl Field Obse Surface Wa Water Table Saturation F (includes ca | Aurned redder hue upo PGY /drology Indicators: icators (minimum of o ice Water (A1) Vater Tables (A2) ation (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) ice Soil Cracks (B6) ation Visible on Aeriel ley Vegetated Concav rvations: atter Present? Yes Present? Yes apillary fringe) | ne required; che | Eck all that apply) Water-Stained Leg MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in X Depth (inches): Depth (inches): Depth (inches): | eaves (B9) ates (B13) Odor (C1 heres alo uced Iron uction in T ed Plants Remarks) |) (except))ng Living Re (C4) illed Soils (((D1) (LRR) 0.0 0.0 | C6) A) Wetland | Secondary India Water Stai 4A, and Drainage F Dry-Seaso Saturation Geomorph Shallow Ad FAC-Neutr Raised Ant Frost-Heav | ators (2 or more required) hed Leaves (B9) (MRLA 1, 2, 4B) Patterns (B10) In Water Table (C2) Visible on Aeriel Imagery (C9) ic Position (D2) quitard (D3) al Test (D5) Mounds (D6) (LRR A) re Hummocks (D7) |

Sampling Site: SP 1-6



Photo Name: Photo_170511143444.jpg

Direction: North

Caption: SP 1-6 wetland SP in S portion of Wetland 1

| Project/Site: | State | State Avenue | | | City/Co | unty: | nty: Snohomish | | | Sampling Date: 5/11/2017 | | 2017 | | | | |
|--------------------|--------------|---------------|----------------|-----------|----------------|----------|----------------|----------|--------|--------------------------|--------------|----------------|--------------|------------|------|--|
| Applicant/Owner: | : | City of Mary | sville | | | _ | | | State: | WA | | Sampling F | Point: SP 1- | -7 | | |
| Investigators: | Danie | elski/Dalzell | | | | | | Section | , Towr | nship, F | Range: | 16, 30N, 5E | = | | | |
| Landform (hillslop | pe, tei | rrace, etc.): | Depression | | | Lo | - cal Reli | ef (conc | ave, c | onvex, | none): | Concave | | Slope(%): | 0 | |
| Subregion (LRR) | : | A | | La | t: 48.0864 | | Long: | -122.1 | 73424 | | | Datum: | WGS84 | - | | |
| Soil Map Unit Na | ime: | Norma loam | ı | | | | - | | NWI C | lassific | ation: | Pss | | | | |
| Are climatic / hyd | - drologi | ic conditions | on the site ty | oical for | this time of y | /ear? | Yes | ; | No | Х | (If No | , explain in f | Remarks) | | | |
| Are Vegetation: | | Soil | or Hydrology | si | nificantly di | sturbed? | | Are "N | ormal | Circum | - istance | s" present? | Yes | X | No | |
| Are Vegetation: | | Soil | or Hydrology | na | turally probl | ematic? | | (If nee | ded, e | xplain a | any ans | wers in Rer | marks.) | | | |
| SUMMARY C |)F FI | NDINGS | - Attach a | site ma | ap showi | ng sam | pling | point | locat | tions, | , trans | sects, im | portant f | eatures, e | etc. | |
| Hydrophytic Vege | etatior | n Present? | Yes | Х | No | | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | Х | No | | Is the | Sampl | ed Are | ea | | | | | | |
| Wetland Hydrolog | gy Pre | esent? | Yes | Х | No | | withir | n a Wet | and? | | | Ye | s <u>X</u> | No | | |

Remarks:

Sample is located in wetland 1; plot meets all three wetland criteria. Area has above average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|--|------------|---------------------|-----------|----------------------------------|------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | int Specie | s | | |
| 1. | | | | That Are OBL, FA | CW, or FA | C: | 5 | (A) |
| 2. | | | | Total Number of D | ominant | _ | | |
| 3. | | | | Species Across All | Strata: | | 5 | (B) |
| 4. | | | | Percent of Domina | nt Specie | s | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | NC: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Lonicera involucrata | 40 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | ly by: | |
| 2. Cornus alba | 30 | Yes | FACW | OBL species | 15 | _x1= | 15 | |
| 3. Spiraea douglasii | 25 | Yes | FACW | FACW species | 70 | x2= | 140 | |
| 4. | | | | FAC species | 75 | x3= | 225 | |
| 5. | | | | FACU species | | x4= | 0 | |
| | 95 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 160 | (A) | 380 | (B) |
| 1. Tolmiea menziesii | 20 | Yes | FAC | | | | | |
| 2. Lysichiton americanus | 15 | Yes | OBL | Prevalence Inc | lex = B/A | = | 2.5 | 7 |
| 3. Phalaris arundinacea | 10 | No | FACW | Hydrophytic Vege | etation In | dicator | s: | |
| 4. Athyrium angustum | 5 | No | FAC | 1 - Rapid Te | st for Hyd | Irophytic | vegetatio | on |
| 5. Poa pratensis | 5 | No | FAC | X 2 - Dominan | ce Test is | \$ >50% | | |
| 6. Ranunculus repens | 5 | No | FAC | X 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. Impatiens noli-tangere | 5 | No | FACW | 4 - Morpholo | gical Ada | ptations | ¹ (Provide | ; |
| 8. | | | | data in F | Remarks | or on a s | separate s | sheet) |
| 9. | | | | 5 - Wetland | Non-Vaso | ular Pla | ints ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Veg | etation ¹ (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | y |
| | 65 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | X | No | |
| | | = Total Cover | | Present? | | | | _ |
| % Bare Ground in Herb Stratum 35 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | · I | | | | |
| Sample plot meets dominance test and prevale | nce index. | | | | | | | |

| Depth | Matrix | | Redo | x Feature | es | | | |
|--|--|---|---|---|--|-----------------------------------|--|--|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-6 | 2.5Y3/2 | 95 | 7.5YR4/6 | 5 | C | М | Sand | |
| 6-16 | 2.5Y 2.5/1 | 100 | | | | | Sandy Clay Loam | Alpha Positive |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| ype: C= C | oncentration, D= Deple | tion, RM=Redu | ced Matrix, CS=Covere | ed or Coa | ted Sand G | rains. | ² Loc | ation: PL=Pore Lining, M=Matrix |
| ydric Soil I | ndicators: (Applicabl | e to all LRRs, | unless otherwise not | ed.) | | | Indicators for Pro | blematic Hydric Soils ³ : |
| Histos | sol (A1) | | Sandy Redox (S5 |) | | | 2 cm Muck | (A10) |
| Histic | Epipedon (A2) | - | Stripped Matrix (S | 6) | | | Red Parent | Material (TF2) |
| Black | Histic (A3) | | Loamy Mucky Mir | neral (F1) | (except ML | RLA 1) | Very Shallo | w Dark Surface (TF12) |
| Hydro | gen Sulfide (A4) | | Loamy Gleyed Ma | atrix (F2) | | | X Other (Expl | ain in Remarks) |
| Deple | ted Below Dark Surface | e (A11) | Depleted Matrix (F | =3) | | | | |
| Thick | Dark Surface (A12) | _ | X Redox Dark Surfa | ice (F6) | | | ³ Indicators of hyd | Irophytic vegetation and |
| Sandy | / Mucky Mineral (S1) | _ | Depleted Dark Su | rface (F7) |) | | wetland hydrol | ogy must be present, |
| Sandy | / Gleyed Matrix (S4) | _ | Redox Depression | ns (F8) | | | unless disturbe | d or problematic. |
| Restrictive | Layer (if present): | | | | | | | |
| Туре: | | | | | | | | |
| Depth | (inches): | | | | | | | |
| oil meets hy | rdric soil indicator for D | epleted Matrix | F3). Soil tests positive | for Alpha | /alpha dipy | ridyl reac | Hydric Soil Pres | resence of ferrous iron. |
| oil meets hy IYDROLC Wetland H | rdric soil indicator for D DGY ydrology Indicators: | | | for Alpha | /alpha dipy | ridyl reac | tion indicating the p | resence of ferrous iron. |
| IYDROLC Wetland H | rdric soil indicator for D DGY ydrology Indicators: licators (minimum of or | | ck all that apply) | | | ridyl reac | tion indicating the p | resence of ferrous iron. ators (2 or more required) |
| oil meets hy IYDROLC Wetland H Primary Inc | PGY DGY vdrology Indicators: licators (minimum of or ce Water (A1) | | ck all that apply) | aves (B9) |) (except | idyl reac | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, |
| VYDROLC Wetland H Primary Inc Surfac X High V | odric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Nater Tables (A2) | | ck all that apply) Water-Stained Lea MRLA 1, 2, 4A | aves (B9) | except | ridyl reac | tion indicating the p Secondary Indica Water Stain 4A, and | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) |
| oil meets hy IYDROLC Wetland H Primary Inc Surfar X High V X Satura | Podric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) | | ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) | aves (B9) , and 4B) | except | ridyl reac | tion indicating the p Secondary Indica Water Stain 4A, and | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) |
| oil meets hy IYDROLC Wetland H Primary Inc Surfac X High N X Satura Water | PGY PGY ydrology Indicators: licators (minimum of or ce Water (A1) Nater Tables (A2) ation (A3) Marks (B1) | | water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) | aves (B9) , and 4B) ates (B13) |) | ridyl reac | tion indicating the p Secondary Indica Water Stain 4A, and Drainage Pa Dry-Seasor | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) |
| oil meets hy IYDROLC Wetland H Primary Inc Surfac X High V X Satura Water Sedin | Addic soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) nent Deposits (B2) | | CK all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide | aves (B9) , and 4B) ates (B13) Odor (C1 |) | | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) |
| VETIAND H Primary Inco X High V X Satura Water Sedim Drift D | Addic soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) | | Ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor |)) ng Living R | | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) |
| VYDROLC Wetland H Primary Inc Surfar Surfar X High V X Satura Water Sedim Drift C Algal | PGY PGY pdrology Indicators: licators (minimum of or ce Water (A1) Nater Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) | | Ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (|)) ng Living R (C4) | pots (C3) | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) |
| VYDROLC Wetland H Primary Inc Surfac Surfac X High I X Satura Water Sedim Drift D Algal Iron D | Addic soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) | | Ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti |)) ng Living R (C4) illed Soils ((| pots (C3) | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) |
| Vetland H Primary Inco X High V X Satura Water Sedim Drift D Algal Iron D Surfac | PGY PGY Pdrology Indicators: licators (minimum of or ce Water (A1) Nater Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) reposits (B5) | ne required; che - - - - - - - - - - - - - - - - - - - | Ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR | pots (C3) | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) I Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) |
| Vetland H Primary Inco Surfac X High V X Satura Water Drift D Algal Iron D Surfac Inund | Pogy pogy pogy porology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) ment Deposits (B2) Deposits (B3) Mat or Crust (B4) reposits (B5) ce Soil Cracks (B6) | ne required; che - - - - - - - - - - - - - - - - - - - | CK all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresso | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR | pots (C3) | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) at Test (D5) Mounds (D6) (LRR A) |
| Vetland H Primary Inco Surface X High V X Satura Water Drift D Algal Iron D Surface Inund | Pogy | ne required; che - - - - - - - - - - - - - - - - - - - | CK all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresso | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR | pots (C3) | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) at Test (D5) Mounds (D6) (LRR A) |
| VYDROLC Wetland H Primary Inc Surfac X High V X Satura Water Drift D Algal Iron D Surfac Surfac Spars | Pogy | ne required; che - - - - - - - - - - - - - - - - - - - | CK all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresso | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR | pots (C3) | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) at Test (D5) Mounds (D6) (LRR A) |
| VYDROLC Wetland H Primary Inc Surfac X High V X Satura Water Drift D Algal Iron D Surfac Surfac Spars | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) Marks (B1) Marks (B1) Mat or Crust (B2) Deposits (B3) Mat or Crust (B4) deposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave grvations: ater Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | ack all that apply) Water-Stained Let MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR | pots (C3) | tion indicating the p | resence of ferrous iron. ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) at Test (D5) Mounds (D6) (LRR A) |
| Vetland H Primary Inco Surface X High V X Satura Water Drift D Algal Iron D Surface Surface Wa | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) heposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave rvations: ater Present? Yes e Present? Yes | ne required; che | Ck all that apply) Water-Stained Lea MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresso Other (Explain in I Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |))) ng Living R (C4) illed Soils (((D1) (LRR | Doots (C3) C6) A) | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |
| Vetland H Primary Inc Surfac X High I X Satura Water Sedim Drift E Algal Iron D Surfac Surface Wa Water Tabl Saturation | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) heposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave rvations: ater Present? Yes e Present? Yes | ne required; che | ack all that apply) Water-Stained Lease MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants |)) ng Living R (C4) illed Soils (((D1) (LRR) 10.0 | Doots (C3) C6) A) | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |
| Vetland H Primary Inco Surfac X High V X Satura Water Sedim Drift D Algal Iron D Surfac Inund Spars Field Obse Surface Wa Water Tabl Saturation (includes ca | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) leposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave prvations: ater Present? Yes e Present? Yes Present? Yes apillary fringe) | magery (B Surface (B8) No X No X No | ack all that apply) Water-Stained Lex MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I Depth (inches): Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants Remarks) |)) ng Living R (C4) illed Soils (((D1) (LRR) 10.0 8.0 | Doots (C3) C6) A) Wetlan | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |
| Vetland H Primary Inco Surfac X High V X Satura Water Sedim Drift D Algal Iron D Surfac Inund Spars Field Obse Surface Wa Water Tabl Saturation (includes ca | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) leposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave prvations: ater Present? Yes e Present? Yes Present? Yes apillary fringe) | magery (B Surface (B8) No X No X No | ack all that apply) Water-Stained Lease MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants Remarks) |)) ng Living R (C4) illed Soils (((D1) (LRR) 10.0 8.0 | Doots (C3) C6) A) Wetlan | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |
| Vetland H Primary Inc Surfar X High V X Satura Water Sedin Drift D Algal Iron D Surfar Surfar Surfar Surfar Surfar Surfar Control Surfar Surfar Surfar Surfar Surfar Surfar Control Surfar Surf | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) leposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave prvations: ater Present? Yes e Present? Yes Present? Yes apillary fringe) | magery (B Surface (B8) No X No X No | ack all that apply) Water-Stained Lex MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I Depth (inches): Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants Remarks) |)) ng Living R (C4) illed Soils (((D1) (LRR) 10.0 8.0 | Doots (C3) C6) A) Wetlan | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |
| Vetland H Primary Inc Surfac X High V X Satura Water Sedim Drift D Algal Iron D Surfac Surface Wa Surface Wa Water Tabl Saturation (includes ca escribe Reco | Adric soil indicator for D DGY ydrology Indicators: licators (minimum of or ce Water (A1) Water Tables (A2) ation (A3) Marks (B1) hent Deposits (B2) Deposits (B3) Mat or Crust (B4) heposits (B5) ce Soil Cracks (B6) ation Visible on Aeriel I ley Vegetated Concave revations: ater Present? Yes e Present? Yes Present? Yes apillary fringe) corded Date (stream ga | ne required; che | ack all that apply) Water-Stained Lex MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizospi Presence of Redu Recent Iron Redu Stunted or Stresse Other (Explain in I Depth (inches): Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor iced Iron (ction in Ti ed Plants Remarks) evious ins |)) ng Living R (C4) illed Soils (((D1) (LRR <u>10.0</u> <u>8.0</u> spections), | bots (C3) C6) A) Wetlan | tion indicating the p | ators (2 or more required) ed Leaves (B9) (MRLA 1, 2, 4B) atterns (B10) i Water Table (C2) /isible on Aeriel Imagery (C9) c Position (D2) uitard (D3) al Test (D5) Mounds (D6) (LRR A) e Hummocks (D7) |

Sampling Site: SP 1-7



Photo Name: Photo_170511152547.jpg

Direction:

Caption:

| Project/Site: | t/Site: State Avenue | | City/Count | ty: Snoho | unty: Snohomish S | | Sampling Date: 5/4/2017 | | | | |
|--------------------|----------------------|-----------------------|--------------------|------------|-------------------|------------|-------------------------|----------------|-------------|------------|------|
| Applicant/Owner: | City of Ma | rysville | | | | State: W | VA | Sampling P | oint: SP 2- | -1 | |
| Investigators: | Danielski | | | | Sectior | ı, Townsł | nip, Range: | 16, 30N, 5E | | | |
| Landform (hillslop | oe, terrace, etc. | : Depression | | Local | Relief (cond | ave, con | vex, none): | Concave | | Slope(%): | 0 |
| Subregion (LRR): | A | | Lat: 48.087 | 7029 L | ong: -122.1 | 72775 | | Datum: | WGS84 | - | |
| Soil Map Unit Na | me: Norma loa | ım | | | | NWI Clas | ssification: | PEM | | | |
| Are climatic / hyd | rologic conditio | ns on the site typica | al for this time o | of year? | Yes | No | X (If No | , explain in F | (emarks) | | |
| Are Vegetation: | Soil | or Hydrology | significantly | disturbed? | Are "N | Iormal Cir | rcumstance | es" present? | Yes | s X | No |
| Are Vegetation: | Soil | or Hydrology | naturally pro | blematic? | (If nee | ded, exp | lain any ans | swers in Rem | narks.) | | |
| SUMMARY O | | S - Attach a sit | e map show | ving sampl | ing point | locatio | ons, tran | sects, imp | oortant f | eatures, e | etc. |
| Hydrophytic Vege | etation Present? | Yes X | (No | | | | | | | | |
| Hydric Soil Prese | nt? | Yes X | K No | ls | s the Sampl | ed Area | | | | | |
| Wetland Hydrolog | gy Present? | Yes X | K No | w | vithin a Wet | land? | | Yes | x | No | |

Remarks:

Sample plot is located in wetland 2; all 3 criteria are present. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|---|------------------|----------------------|-----------|-----------------------------------|------------|---------------|-----------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | nt Specie | s | | |
| 1 | | | | That Are OBL, FAC | W, or FA | C: | 3 | (A) |
| 2. | | | | Total Number of Do | ominant | | | |
| 3. | | | | Species Across All | Strata: | _ | 3 | (B) |
| 4. | | | | Percent of Dominar | nt Specie | s – | | |
| | | = Total Cover | | That Are OBL, FAC | W, or FA | C: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Salix sitchensis | 15 | Yes | FACW | Total % Cover of: | | <u>Multip</u> | ly by: | |
| 2. Rubus spectabilis | 5 | Yes | FAC | OBL species | | _x1= | | |
| 3. | | | | FACW species | 95 | x2= | 190 | |
| 4. | | | | FAC species | 5 | x3= | 15 | |
| 5. | | | | FACU species | | x4= | 0 | |
| | 20 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 100 | (A) | 205 | (B) |
| 1. Phalaris arundinacea | 80 | Yes | FACW | | | | | |
| 2. | | | | Prevalence Ind | ex = B/A= | = | 2.0 | 4 |
| 3. | | | | Hydrophytic Vege | tation In | dicator | s: | |
| 4. | | | | 1 - Rapid Tes | st for Hyd | rophytic | vegetatio | on |
| 5. | | | | X 2 - Dominand | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalenc | e Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | ¹ (Provide | |
| 8. | | | | data in R | emarks o | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland N | Non-Vasc | ular Pla | ints ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Vege | etation1 (E | xplain) |
| 11. | | | | ¹ Indicators of hydric | soil and | wetland | d hydrolog | у |
| | 80 | = Total Cover | | must be present, ur | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | ХМ | ٨o | |
| | | = Total Cover | | Present? | | | | _ |
| % Bare Ground in Herb Stratum | | over of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |
| Sample plot meets dominance test and prevalence | index for hvdrop | hytic vegetation. | | | | | | |

| r ofile Descr Depth | Matrix | | Rode | ox Feature | 25 | | | |
|---|---|---|--|--|--|----------------------|--|---|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-12 | 10YR2/2 | | | | | | Sandy Loam | Remains |
| 0-12 | 10 f R2/2 | 100 | | | | | | |
| | | | | | | | | |
| | | | | | | | <u> </u> | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| | | | | | | | | |
| ype: C=Co | ncentration, D= Deple | etion, RM=Redu | ced Matrix, CS=Cover | ed or Coa | ited Sand G | rains. | ² Location | : PL=Pore Lining, M=Matrix. |
| dric Soil Ir | ndicators: (Applicab | le to all LRRs, | unless otherwise not | ed.) | | | Indicators for Problem | natic Hydric Soils ³ : |
| Histos | ol (A1) | _ | Sandy Redox (S5 | 5) | | | 2 cm Muck (A10 |) |
| Histic I | Epipedon (A2) | _ | Stripped Matrix (S | 6) | | | Red Parent Mat | erial (TF2) |
| Black I | Histic (A3) | - | Loamy Mucky Mi | neral (F1) | (except ML | RLA 1) | Very Shallow Da | ark Surface (TF12) |
| — Hydrog | gen Sulfide (A4) | - | Loamy Gleyed M | atrix (F2) | | | X Other (Explain in | n Remarks) |
| Deplet | ed Below Dark Surfac | - ce (A11) | Depleted Matrix (| F3) | | | | |
| Thick I | Dark Surface (A12) | - | Redox Dark Surfa | ace (F6) | | | ³ Indicators of hydroph | ytic vegetation and |
| Sandy | Mucky Mineral (S1) | - | Depleted Dark Su | Irface (F7) |) | | wetland hydrology r | nust be present, |
| Sandy | Gleyed Matrix (S4) | - | Redox Depressio | ns (F8) | | | unless disturbed or | problematic. |
| Restrictive | Layer (if present): | | | | | | | |
| Type: | , , , | | | | | | | |
| | | | | | | | | |
| emarks: ils turned re | | to air indicating | presence of ferrous irc | n. | | | Hydric Soil Present | ? Yes <u>X</u> No |
| emarks: bils turned re YDROLO | edder upon exposure | to air indicating | presence of ferrous irc | n. | | | Hydric Soil Present | ? Yes <u>X</u> No |
| emarks: bils turned re YDROLO Wetland Hy | edder upon exposure | | - | n. | | | Hydric Soil Present | |
| emarks: iils turned re YDROLO Netland Hy Primary Indi | edder upon exposure GY rdrology Indicators: | | - | |) (except | | Secondary Indicators | |
| emarks: ils turned re YDROLO Vetland Hy Primary Indi Surfac | edder upon exposure GY rdrology Indicators: icators (minimum of o | | eck all that apply) | aves (B9) | • | | Secondary Indicators | (2 or more required) |
| marks: ils turned re YDROLO Vetland Hy Primary Indi Surfac X High V | edder upon exposure GY Idrology Indicators: Icators (minimum of o e Water (A1) | | eck all that apply) Water-Stained Le | aves (B9) | • | | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) |
| marks: ils turned re YDROLO Vetland Hy Primary Indi Surfac X High V X Satura | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A | aves (B9) , and 4B) | | | Secondary Indicators Water Stained L 4A, and 4B) | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) |
| marks: ils turned re YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water | edder upon exposure GY drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) | aves (B9) , and 4B) ates (B13) |) | | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) |
| YDROLO YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water Sedim | GY drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr | aves (B9) , and 4B) ates (B13) Odor (C1 |) | Dots (C3) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa | <i>(2 or more required)</i> eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) |
| Primarks: ils turned re YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water Sedim Drift D | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo |)) ng Living R | pots (C3) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) |
| YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal N | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) | | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor uced Iron |)) ng Living R (C4) | | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) |
| Primarks: A High V X Satura Water Sedim Drift D Algal N Iron Do | GY drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) | | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti |))g Living R (C4) illed Soils ((| 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitar FAC-Neutral Te | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) |
| Primary Indi X High V X Satura Water Sedim Drift D Algal M Surfac | edder upon exposure GY rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) | ne required; che - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitar FAC-Neutral Te | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| YDROLO YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal M Iron De Surfac Inunda | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitare FAC-Neutral Ter Raised Ant Mou | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal M Iron De Surfac Inunda Sparsl | edder upon exposure GY rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitare FAC-Neutral Ter Raised Ant Mou | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal M Iron Da Surfac Surfac | edder upon exposure GY rdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebr Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitare FAC-Neutral Ter Raised Ant Mou | (2 or more required) eaves (B9) (MRLA 1, 2 , ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| Primary Indi Surfac X High V X Satura Vater Sedim Drift D Algal M Iron Do Surfac Surfac Field Obset Surface Wa | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR | 26) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitare FAC-Neutral Ter Raised Ant Mou | (2 or more required) eaves (B9) (MRLA 1, 2 , ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| Primary Indi Surfac X High V X Satura Vater Sedim Drift D Algal M Iron Do Surfac Surfac Field Obse Surface Wa Water Table | edder upon exposure GY drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tition Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes e Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR) | C6) A) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitare FAC-Neutral Ter Raised Ant Mou | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) |
| emarks: pils turned re Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal M Iron De Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F | edder upon exposure GY drology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tition Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes e Present? Yes | ne required; che - - - - - - - - - - - - - - - - - - - | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alo uced Iron uction in Ti ed Plants |) ng Living R (C4) illed Soils (((D1) (LRR) 10.0 | C6) A) | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitar FAC-Neutral Te Raised Ant Mou Frost-Heave Hu | (2 or more required) eaves (B9) (MRLA 1, 2, hs (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7) |
| Primary Indi Surfac X High V X Satura Vater Sedim Drift D Algal M Iron Do Surfac Surfac Surfac Surfac Surfac Surfac Surface Wa Water Table Saturation F (includes ca | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes Present? Yes pillary fringe) | ne required; che | eck all that apply) Water-Stained Lee MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor uced Iron action in Ti ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR)) <u>10.0</u> 6.0 | C6) A) Wetland | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitard FAC-Neutral Te Raised Ant Mou Frost-Heave Hu | (2 or more required) eaves (B9) (MRLA 1, 2, ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7) |
| Primary Indi Surfac X High V X Satura Vater Sedim Drift D Algal M Iron Do Surfac Surfac Surfac Surfac Surfac Surfac Surface Wa Water Table Saturation F | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes Present? Yes pillary fringe) | ne required; che | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor uced Iron action in Ti ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR)) <u>10.0</u> 6.0 | C6) A) Wetland | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitard FAC-Neutral Te Raised Ant Mou Frost-Heave Hu | (2 or more required) eaves (B9) (MRLA 1, 2, hs (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7) |
| Primarks: iils turned re YDROLO Vetland Hy Primary Indi Surfac X High V X Satura Water Sedim Drift D Algal M Iron Do Surfac Inunda Sparsl Field Obset Surface Wa Water Table Saturation F includes ca | edder upon exposure GY vdrology Indicators: icators (minimum of o e Water (A1) Vater Tables (A2) tion (A3) Marks (B1) ent Deposits (B2) eposits (B3) Mat or Crust (B4) eposits (B5) e Soil Cracks (B6) tion Visible on Aeriel ey Vegetated Concav rvations: ter Present? Yes Present? Yes pillary fringe) | ne required; che | eck all that apply) Water-Stained Le MRLA 1, 2, 4A Salt Crust (B11) Aquatic Invertebra Hydrogen Sulfide Oxidized Rhizosp Presence of Redu Recent Iron Redu Stunted or Stress Other (Explain in Depth (inches): Depth (inches): | aves (B9) , and 4B) ates (B13) Odor (C1 heres alor uced Iron action in Ti ed Plants Remarks) |) ng Living R (C4) illed Soils (((D1) (LRR)) <u>10.0</u> 6.0 | C6) A) Wetland | Secondary Indicators Water Stained L 4A, and 4B) Drainage Patter Dry-Season Wa Saturation Visib Geomorphic Pos Shallow Aquitard FAC-Neutral Te Raised Ant Mou Frost-Heave Hu | (2 or more required) eaves (B9) (MRLA 1, 2 , ns (B10) ter Table (C2) e on Aeriel Imagery (C9) sition (D2) d (D3) st (D5) nds (D6) (LRR A) mmocks (D7) |

Sampling Site: SP 2-1



Photo Name: Photo_170504144230.jpg

Direction: North

Caption: SP 2-1 wetland plot in north end of Wetland 2

| Project/Site: | Site: State Avenue | | City/County: Snohomish | | | Sampling D | ate: 5/4/2 | 017 |)17 | | | | | | | |
|--------------------|--------------------|--------------|------------------------|-----------|---------------|------------|---------------|---------|---------|---------|----------|----------------|-------------|------------|----------|--|
| Applicant/Owner: | : (| City of Mary | sville | | | | | | State: | WA | | Sampling P | oint: SP 2- | -2 | | |
| Investigators: | Danie | elski | | | | | | Sectio | n, Towi | nship, | Range: | 16, 30N, 5E | | | | |
| Landform (hillslop | pe, ter | race, etc.): | Hillslope | | | Lo | _ cal Reli | ef (con | cave, c | onvex | , none): | Convex | | Slope(%): | 10 | |
| Subregion (LRR) |): / | 4 | | La | t: 48.0869 | 14 | Long: | -122.1 | 172600 |) | | Datum: | WGS84 | | | |
| Soil Map Unit Na | ame: I | Norma loam | 1 | | | | | | NWI C | Classif | ication: | None | | | | |
| Are climatic / hyd | drologi | c conditions | on the site ty | pical for | this time of | year? | Yes | 6 | No | Х | (If No | , explain in F | Remarks) | | | |
| Are Vegetation: | | Soil | or Hydrology | si | gnificantly d | sturbed? | | Are "I | Normal | Circu | mstance | es" present? | Yes | s X | No | |
| Are Vegetation: | | Soil | or Hydrology | na | turally prob | lematic? | | (If nee | eded, e | xplair | any ang | swers in Ren | narks.) | | | |
| SUMMARY C | of fii | NDINGS | - Attach a | site m | ap showi | ng sam | pling | point | loca | tions | s, trans | sects, imp | portant f | eatures, e | etc. | |
| Hydrophytic Vege | etation | Present? | Yes | Х | No | | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | | No X | | Is the | Samp | led Are | ea | | | | | | |
| Wetland Hydrolog | gy Pre | sent? | Yes | | No X | | withi | n a We | tland? | | | Yes | š | No | <u>X</u> | |

Remarks:

Sample plot is not located in a wetland; 2 out of 3 criteria are absent. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|--|----------|---------------------|-----------|----------------------------------|------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | int Specie | S | | |
| 1 | | | | That Are OBL, FAC | CW, or FA | C: | 2 | (A) |
| 2. | | | | Total Number of Do | ominant | | | |
| 3. | | | | Species Across All | Strata: | _ | 3 | (B) |
| 4. | | | | Percent of Domina | nt Specie | s – | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 67 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Rubus spectabilis | 70 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | <u>ly by:</u> | |
| 2. | | | | OBL species | | _x1= | | _ |
| 3. | | | | FACW species | 1 | x2= | 2 | |
| 4. | | | | FAC species | 70 | x3= | 210 | |
| 5. | | | | FACU species | 1 | x4= | 4 | |
| | 70 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 72 | (A) | 216 | (B) |
| 1. Galium aparine | 1 | Yes | FACU | | | | | |
| 2. Phalaris arundinacea | 1 | Yes | FACW | Prevalence Ind | lex = B/A= | = | 3.0 | 0 |
| 3. | | | | Hydrophytic Vege | etation In | dicator | s: | |
| 4. | | | | 1 - Rapid Te | st for Hyd | rophytic | c Vegetatio | n |
| 5. | | | | X 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | s1 (Provide | |
| 8. | | | | data in F | Remarks o | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland | Non-Vasc | ular Pla | ints ¹ | |
| 10. | | | | Problematic | Hydrophy | tic Veg | etation ¹ (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | у |
| | 2 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1 | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | X | No | |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 98 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |
| Comple plot monto dominanos test er director | | hudia un matation | | | | | | |

Sample plot meets dominance test and prevalence index for hydrophytic vegetation.

| Depth | ription: (Describe to t Matrix | he depth nee | ded to document the i | ndicator | | the abse | ence of indicators. |) | | | |
|----------------------|-----------------------------------|----------------|----------------------------|-------------|-------------------|------------------|-------------------------------|--------------|----------------------|---------|----|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | | Remark | re. | |
| · , | . , | | | | | | Loam | | Reman | .0 | |
| 0-17 | 10YR2/2 | 100 | | | | | LUain | Call taut | | | |
| 17-21 | 10YR 3/2 | 98 | 7.5YR 4/6 | 2 | C | M | | Solitextu | ire was not r | ecoraea | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |
| Type: C= C | oncentration, D= Deple | tion, RM=Red | uced Matrix, CS=Cover | ed or Coa | ted Sand G | rains. | ² Loo | ation: PL= | Pore Lining, | M=Matri | х. |
| Hydric Soil I | ndicators: (Applicabl | e to all LRRs | , unless otherwise not | ed.) | | | Indicators for Pro | blematic H | Hydric Soils | 3: | |
| Histos | sol (A1) | | Sandy Redox (S5 | 5) | | | 2 cm Muck | (A10) | | | |
| Histic | Epipedon (A2) | | Stripped Matrix (S | | | | Red Paren | . , | TF2) | | |
| | Histic (A3) | | Loamy Mucky Mi | neral (F1) | (except ML | .RLA 1) | | ` | rface (TF12) | | |
| | ogen Sulfide (A4) | | Loamy Gleyed M | | 、 1 | , | Other (Exp | | | | |
| | ted Below Dark Surface | e (A11) | Depleted Matrix (| | | | | | | | |
| | Dark Surface (A12) | | Redox Dark Surfa | | | | ³ Indicators of hy | drophytic ve | egetation and | ł | |
| | y Mucky Mineral (S1) | | Depleted Dark Su | |) | | wetland hydrol | | - | - | |
| | y Gleyed Matrix (S4) | | Redox Depressio | | / | | unless disturbe | | | | |
| | | | | | | | | | | | |
| | e Layer (if present): | | | | | | | | | | |
| Type: | | | | | | | | | | | V |
| Depth | i (inches): | | | | | | Hydric Soil Pre | sent? | Yes | No | X |
| HYDROLC Wetland H | ydrology Indicators: | | | | | | | | | | |
| Primary Inc | dicators (minimum of or | e required; ch | eck all that apply) | | | | Secondary Indic | ators (2 or | more require | d) | |
| Surfa | ce Water (A1) | | Water-Stained Le | aves (B9) | (except | | Water Stair | ned Leaves | s (B9) (MRLA | 1, 2, | |
| High \ | Water Tables (A2) | | MRLA 1, 2, 4A | , and 4B) | | | 4A, and | 4B) | | | |
| Satura | ation (A3) | | Salt Crust (B11) | | | | Drainage F | atterns (B1 | 0) | | |
| Water | r Marks (B1) | | Aquatic Invertebra | ates (B13) |) | | Dry-Seaso | n Water Ta | ble (C2) | | |
| Sedin | nent Deposits (B2) | | Hydrogen Sulfide | Odor (C1 |) | | Saturation | Visible on A | Aeriel Image | у (С9) | |
| Drift D | Deposits (B3) | | Oxidized Rhizosp | heres alo | ng Living R | oots (C3) | Geomorphi | c Position (| (D2) | | |
| Algal | Mat or Crust (B4) | | Presence of Redu | uced Iron | (C4) | | Shallow Ac | uitard (D3) | | | |
| Iron D | Deposits (B5) | | Recent Iron Redu | ction in T | illed Soils (| C6) | FAC-Neutr | al Test (D5 |) | | |
| Surfa | ce Soil Cracks (B6) | | Stunted or Stress | ed Plants | (D1) (LRR | A) | Raised Ant | Mounds (D | 06) (LRR A) | | |
| Inund | ation Visible on Aeriel I | magery (B | Other (Explain in | Remarks) |) | | Frost-Heav | e Hummoc | ks (D7) | | |
| Spars | ley Vegetated Concave | e Surface (B8) | | | | | | | | | |
| Field Obse | ervations: | | | | | | | | | | |
| Surface Wa | ater Present? Yes | No | X Depth (inches): | | | | | | | | |
| Water Tabl | | No – | X Depth (inches): | | | | | | | | |
| Saturation | | X No | Depth (inches): | | 18.0 | Wetlan | d Hydrology Pres | ent? | Yes | No | х |
| | apillary fringe) | | · · · / - | | | | | | | | |
| | | una manitaria | a well carial shotages | | nactiona) | f ovoilobl | <u>.</u> | | | | |
| Describe Red | corded Date (stream ga | uge, monitorir | ng well, aerial photos, pr | evious ins | spections), | r avallabi | e: | | | | |
| | | | | | | | | | | | |
| Remarks: | | | | | | | | | | | |
| No wetland h | ydrology indicators are | present in the | sample plot. Saturation | n is too de | ep for time | of year a | nd antecedent rain | all. | | | |
| | | | | | | | | | | | |
| | | | | | | | | | | | |

Sampling Site: SP 2-2



Photo Name: Photo_170504145838.jpg

Direction:

Caption: SP2-2 pit

| Project/Site: | State A | Avenue | | | | City/Co | unty: | Snohomis | sh | | | Sampling Da | te: 5/11/ | 2017 | |
|--------------------|------------|-------------|-------------------|-------------|--------------|---------|----------|-------------|-------|----------|--------|---------------|-----------|-----------|------|
| Applicant/Owner | r: C | ity of Mary | sville | | | - | | Sta | te: | WA | | Sampling Poi | int: SP 2 | -5 | |
| Investigators: | Daniel | ski, Dalzel | l | | | | | Section, To | own | ship, R | ange: | 16, 30N, 5E | | | |
| Landform (hillslo | ope, terra | ace, etc.): | Hillslope | | | Loc | al Relie | ef (concave | e, co | nvex, n | none): | Concave | | Slope(%): | 10 |
| Subregion (LRR) |): A | | | Lat: | 48.08640 | -)7 | Long: | -122.1709 | 952 | | | Datum: | WGS84 | - | |
| Soil Map Unit Na | ame: R | agnar fine | sandy loam, 0 to | 8 perce | nt slopes | | • | NW | /I CI | assifica | ation: | None | | | |
| Are climatic / hyd | drologic | conditions | on the site typic | al for this | s time of ye | ear? | Yes | ; | No | Х | (If No | explain in Re | emarks) | | |
| Are Vegetation: | S | oil | or Hydrology | signif | icantly dis | turbed? | | Are "Norn | nal C | Circums | stance | s" present? | Yes | s X | No |
| Are Vegetation: | S | oil | or Hydrology | natur | ally proble | ematic? | | (If needed | d, ex | plain a | ny ans | wers in Rema | arks.) | | _ |
| SUMMARY C | OF FIN | IDINGS | - Attach a sit | e map | showin | g sam | pling | point lo | cat | ions, | trans | sects, impo | ortant f | eatures, | etc. |
| Hydrophytic Veg | getation | Present? | Yes | No | Х | | | | | | | | | | |
| Hydric Soil Prese | ent? | | Yes | No | Х | | Is the | Sampled | Area | а | | | | | |
| Wetland Hydrold | ogy Pres | ent? | Yes | No | X | | withir | n a Wetland | d? | | | Yes | | No | x |
| | | | | | | | | | | | | | | | |

Remarks:

Sample plot is not located in a wetland; all 3 criteria are absent. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|-------------------------------------|----------|---------------------|-----------|----------------------------------|-------------|---------------|-----------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | int Specie | S | | |
| 1. | | | | That Are OBL, FAC | CW, or FA | C: | 1 | (A) |
| 2. | | | | Total Number of De | ominant | _ | | - |
| 3. | | | | Species Across All | Strata: | | 4 | (B) |
| 4. | | | | Percent of Domina | nt Specie | s – | | - |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 25 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Rubus spectabilis | 15 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | <u>ly by:</u> | |
| 2. Sambucus racemosa | 10 | Yes | FACU | OBL species | | x1= | | |
| 3. | _ | | | FACW species | | x2= | 0 | - |
| 4. | _ | | | FAC species | 15 | x3= | 45 | - |
| 5. | _ | | | FACU species | 90 | | 360 | - |
| | 25 | = Total Cover | | UPL species | 10 | x5= | 50 | - |
| Herb Stratum (Plot size:) | | | | Column Totals: | 115 | (A) | 455 | (B) |
| 1. Convolvulus arvensis | 10 | Yes | UPL | | | | | - |
| 2. | | | | Prevalence Ind | lex = B/A= | = | 3.96 | 6 |
| 3. | | | | Hydrophytic Vege | etation Inc | dicator | s: | |
| 4. | | | | 1 - Rapid Te | st for Hyd | rophytic | · Vegetatio | n |
| 5. | | | | 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | 3 - Prevalen | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | ¹ (Provide | |
| 8. | | | | data in F | Remarks o | or on a s | separate sl | neet) |
| 9. | | | | 5 - Wetland | Non-Vasc | ular Pla | nts¹ | |
| 10. | | | | Problematic | Hydrophy | tic Vege | etation1 (Ex | (plain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | hydrology | / |
| | 10 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | tic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. Hedera helix | 80 | Yes | FACU | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | 1 | No X | |
| | 80 | = Total Cover | | Present? | | | | - |
| % Bare Ground in Herb Stratum 90 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |

Hydrophytic vegetation is not dominant in the sample plot.

| Profile Descr | iption: (Describ | e to the depth ne | eded to document the i | indicator | or confirm | the abse | ence of indicators.) | | | |
|--------------------------|----------------------------------|----------------------|-----------------------------|-------------|-------------------|------------------|----------------------|---------------------------|----------------------|------|
| Depth | М | atrix | Red | ox Feature | es | | | | | |
| (inches) | Color (moist | .) % | Color (moist) | % | Type ¹ | Loc ² | Texture | Re | marks | |
| 0-15 | 10YR2/1 | 100 | | | | | Sandy Loam | Fine Sandy Loar | n | |
| 15-21 | 10YR2/2 | 100 | | | | | Sandy Loam | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| ¹ Type: C= Co | ncentration, D= | Depletion, RM=Re | duced Matrix, CS=Cover | red or Coa | ted Sand G | rains. | ² Loc | ation: PL=Pore Li | ning, M=Mati | rix. |
| Hydric Soil Ir | ndicators: (App | licable to all LRR | s, unless otherwise no | ted.) | | | Indicators for Pro | blematic Hydric S | Soils ³ : | |
| Histos | ol (A1) | | Sandy Redox (S | 5) | | | 2 cm Muck | (A10) | | |
| Histic I | Epipedon (A2) | | Stripped Matrix (| S6) | | | Red Parent | Material (TF2) | | |
| Black I | Histic (A3) | | Loamy Mucky Mi | ineral (F1) | (except ML | RLA 1) | Very Shallo | w Dark Surface (T | F12) | |
| Hydrog | gen Sulfide (A4) | | Loamy Gleyed M | latrix (F2) | | | Other (Expl | ain in Remarks) | | |
| | ed Below Dark S | · · · · | Depleted Matrix | (F3) | | | | | | |
| | Dark Surface (A1 | , | Redox Dark Surf | () | | | - | Irophytic vegetatio | | |
| | Mucky Mineral (| | Depleted Dark S | |) | | - | ogy must be prese | nt, | |
| Sandy | Gleyed Matrix (| S4) | Redox Depression | ons (F8) | | | unless disturbe | d or problematic. | | |
| Restrictive | Layer (if prese | nt): | | | | | | | | |
| Туре: | | | _ | | | | | | | |
| Depth | (inches): | | _ | | | | Hydric Soil Pres | sent? Yes | No | X |
| HYDROLO Wetland Hy | GY drology Indicat | ors: | | | | | | | | |
| Primary Indi | icators (minimun | n of one required; o | check all that apply) | | | | Secondary Indica | ators (2 or more re | quired) | |
| Surfac | e Water (A1) | | Water-Stained Le | eaves (B9) | (except | | Water Stain | ed Leaves (B9) (N | IRLA 1, 2, | - |
| High W | Vater Tables (A2 |) | MRLA 1, 2, 44 | A, and 4B) | | | 4A, and | 4B) | | |
| Satura | tion (A3) | | Salt Crust (B11) | | | | Drainage Pa | atterns (B10) | | |
| | Marks (B1) | | Aquatic Invertebr | . , | | | | Water Table (C2) | | |
| | ent Deposits (B2 | 2) | Hydrogen Sulfide | | | | | /isible on Aeriel Im | agery (C9) | |
| | eposits (B3) | | Oxidized Rhizosp | | | oots (C3) | | c Position (D2) | | |
| | Mat or Crust (B4) |) | Presence of Red | | . , | | Shallow Aq | | | |
| | eposits (B5) e Soil Cracks (B | 6) | Recent Iron Redu | | | | FAC-Neutra | Mounds (D6) (LR | D A) | |
| | | eriel Imagery (B | Other (Explain in | | | A) | | e Hummocks (D7) | (A) | |
| | | oncave Surface (B | | i temarks) | | | | | | |
| Field Obser | | | 5) | | | <u> </u> | | | | |
| | | Yes No | X Depth (inches): | | | | | | | |
| Water Table | | Yes X No | Depth (inches): | | 20.0 | | | | | |
| Saturation F | | Yes X No | Depth (inches): | | 17.0 | Wetlan | d Hydrology Prese | ent? Yes | No | x |
| | pillary fringe) | | | | | | , ,, | | | |
| Describe Reco | orded Date (stre | am gauge, monito | ring well, aerial photos, p | revious ins | spections), i | l f availabl | le: | | | |
| Remarks: | | | | | | | | | | |
| No wetland hy | /drology indicato | rs are present in th | ne sample plot. Saturation | n is too de | ep for time (| of year a | nd heavy anteceder | nt rainfall. | | |
| | | | | | | | | | | |
| | | | | | | | | | | |

Sampling Site: SP 2-5



Photo Name: Photo_170511105949.jpg

Direction: Southwest

Caption: SP 2-5 upland plot



Photo Name: Photo_170511104956.jpg Direction: Caption: SP2-5 pit

| Applicant/Owner: City of Marysville State: WA Sampling Point: SP 2-6 Investigators: Danielski Section, Township, Range: 16, 30N, 5E Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%): 10 Subregion (LRR): A Lat: 48.085926 Long: -122.171425 Datum: WGS84 Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes NWI Classification: PSS1 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks) Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) No SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydrophytic Vegetation Present? Yes X No Is the Sampled Area Yes X No <td< th=""><th>Project/Site:</th><th>State</th><th>Avenue</th><th></th><th></th><th></th><th></th><th>City/Co</th><th>unty:</th><th>Snohom</th><th>nish</th><th></th><th></th><th>Sampling D</th><th>ate: 5/1</th><th>1/20</th><th>)17</th><th></th><th></th></td<> | Project/Site: | State | Avenue | | | | | City/Co | unty: | Snohom | nish | | | Sampling D | ate: 5/1 | 1/20 |)17 | | |
|--|--------------------|--------------|---------------|---------------|--------|---------|--------------|----------|----------------|-----------|--------|----------|--------------|----------------|----------|-------|-----------|------|--|
| Landform (hillslope, terrace, etc.): Hillslope Local Relief (concave, convex, none): Concave Slope(%): 10 Subregion (LRR): A Lat: 48.085926 Long: -122.171425 Datum: WGS84 Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes NWI Classification: PSS1 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks) Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) No SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Is the Sampled Area | Applicant/Owner | : | City of Mary | sville | | | | - | | S | itate: | WA | | Sampling P | oint: SP | 2-6 | | | |
| Subregion (LRR): A Lat: 48.085926 Long: -122.171425 Datum: WGS84 Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes NWI Classification: PSS1 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks) Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydro Soil Present? Yes X No Is the Sampled Area | Investigators: | Danie | elski | | | | | | _ | Section, | Towr | nship, l | Range: | 16, 30N, 5E | | | | | |
| Soil Map Unit Name: Ragnar fine sandy loam, 0 to 8 percent slopes NWI Classification: PSS1 Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks) Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) No SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydrophytic Soil Present? Yes X No Hydric Soil Present? Yes X No | Landform (hillslo | pe, tei | rrace, etc.): | Hillslope | | | | Loc | - cal Relie | ef (conca | ve, c | onvex, | none): | Concave | | ę | Slope(%): | 10 | |
| Are climatic / hydrologic conditions on the site typical for this time of year? Yes No X (If No, explain in Remarks) Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) No SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydroic Soil Present? Yes X No Is the Sampled Area | Subregion (LRR) |): | A | | | Lat: | 48.08592 | 26 | Long: | -122.17 | 1425 | | | Datum: | WGS84 | ł | | | |
| Are Vegetation: Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Is the Sampled Area | Soil Map Unit Na | ame: - | Ragnar fine | sandy loam | 0 to 8 | perce | ent slopes | | - | N | IWI C | lassific | cation: | PSS1 | | | | | |
| Are Vegetation: Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Is the Sampled Area | Are climatic / hyd | - drologi | c conditions | on the site t | ypical | for thi | s time of ye | ear? | Yes | ; | No | Х | (If No | , explain in R | Remarks |) | | | |
| SUMMARY OF FINDINGS - Attach a site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Hydric Soil Present? Yes X No Is the Sampled Area | Are Vegetation: | | Soil | or Hydrolog | IУ | signi | ficantly dis | sturbed? | | Are "No | rmal | Circun | - nstance | s" present? | Y | 'es | Х | No | |
| Hydrophytic Vegetation Present? Yes X No Is the Sampled Area Hydric Soil Present? Yes X No Is the Sampled Area | Are Vegetation: | | Soil | or Hydrolog | ıу | natu | rally proble | ematic? | | (If need | ed, e | xplain | any ans | swers in Rem | narks.) | _ | | - | |
| Hydric Soil Present? Yes X No Is the Sampled Area | SUMMARY C | OF FI | NDINGS | - Attach a | site | map | showin | ig sam | pling | point l | oca | tions | , trans | sects, imp | oortan | t fea | atures, e | etc. | |
| | Hydrophytic Veg | etatior | n Present? | Yes | s X | No |) | | | | | | | | | | | | |
| Wetland Hydrology Present? Yes X No within a Wetland? Yes X No | Hydric Soil Prese | ent? | | Yes | X | - No | , | | Is the | Sample | d Are | a | | | | | | | |
| | Wetland Hydrolo | gy Pre | esent? | Yes | 5 X | No |) | | withir | n a Wetla | nd? | | | Yes | <u>х</u> | | No | | |

Remarks:

Sample plot located in Wetland 2; all 3 criteria are present. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|-------------------------------------|----------|---------------------|-----------|----------------------------------|------------|-----------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | int Specie | s | | |
| 1. | | | | That Are OBL, FAC | CW, or FA | C: | 5 | (A) |
| 2. | | | | Total Number of Do | ominant | - | | - |
| 3. | | | | Species Across All | Strata: | _ | 6 | (B) |
| 4. | | | | Percent of Domina | nt Specie | s | | |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 83 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Rubus armeniacus | 10 | Yes | FAC | Total % Cover of: | | Multip | <u>oly by:</u> | |
| 2. Rubus spectabilis | 10 | Yes | FAC | OBL species | 5 | _x1= | 5 | _ |
| 3. | | | | FACW species | 5 | x2= | 10 | |
| 4. | | | | FAC species | 25 | x3= | 75 | |
| 5. | | | | FACU species | 60 | x4= | 240 | |
| | 20 | = Total Cover | | UPL species | | x5= | 0 | |
| Herb Stratum (Plot size:) | | | | Column Totals: | 95 | (A) | 330 | (B) |
| 1. Athyrium cyclosorum | 5 | Yes | FAC | | | | | |
| 2. Equisetum telmateia | 5 | Yes | FACW | Prevalence Ind | lex = B/A | = | 3.4 | 7 |
| 3. Lysichiton americanus | 5 | Yes | OBL | Hydrophytic Vege | etation In | dicator | s: | |
| 4. | | | | 1 - Rapid Te | st for Hyd | Irophytic | c Vegetatio | n |
| 5. | | | | X 2 - Dominan | ce Test is | \$ >50% | | |
| 6. | | | | 3 - Prevalence | ce Index i | s ≤3.0¹ | | |
| 7. | | | | 4 - Morpholo | gical Ada | ptations | s¹ (Provide | |
| 8. | | | | data in F | Remarks | or on a s | separate s | heet) |
| 9. | | | | 5 - Wetland | Non-Vaso | ular Pla | ants ¹ | |
| 10. | | | | Problematic | Hydrophy | /tic Veg | etation ¹ (E | xplain) |
| 11. | | | | ¹ Indicators of hydri | c soil and | wetland | d hydrolog | y |
| | 15 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | atic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1. Hedera helix | 60 | Yes | FACU | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | ΝХ | No | |
| | 60 | = Total Cover | | Present? | | | | _ |
| % Bare Ground in Herb Stratum 85 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | | | | | | | | |

Sample plot meets dominance test for hydrophytic vegetation.

| Depth | Matrix | | Rede | ox Feature | S | | | |
|-------------|-----------------------------|----------------|----------------------|-------------|-------------------|------------------|--------------------------------------|---------------------------------|
| (inches) | Color (moist) | % | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-7 | 10YR 2/1 | 100 | | | | | Sandy Loam | |
| 7-14 | 10YR 4/2 | 90 | 7.5YR | 10 | | | Sandy Loam | |
| | | | | | | | | |
| | | | | _ | _ | | | |
| <i>7</i> 1 | ncentration, D= Depletion | , | , | | ted Sand G | | | PL=Pore Lining, M=Matrix |
| | dicators: (Applicable to | o all LRRs, un | | | | | Indicators for Problemat | tic Hydric Soils ³ : |
| Histoso | | | Sandy Redox (St | , | | | 2 cm Muck (A10) | |
| Histic E | Epipedon (A2) | | Stripped Matrix (| S6) | | | Red Parent Materi | al (TF2) |
| Black H | Histic (A3) | | Loamy Mucky Mi | neral (F1) | (except ML | .RLA 1) | Very Shallow Dark | Surface (TF12) |
| Hydrog | gen Sulfide (A4) | | Loamy Gleyed M | atrix (F2) | | | Other (Explain in F | Remarks) |
| Deplet | ed Below Dark Surface (A | .11) X | Depleted Matrix (| F3) | | | | |
| Thick [| Dark Surface (A12) | | Redox Dark Surfa | ace (F6) | | | ³ Indicators of hydrophyt | ic vegetation and |
| Sandy | Mucky Mineral (S1) | | Depleted Dark Su | urface (F7) |) | | wetland hydrology mu | ist be present, |
| Sandy | Gleyed Matrix (S4) | | Redox Depressio | ns (F8) | | | unless disturbed or pr | oblematic. |
| Restrictive | Layer (if present): | | | | | | | |
| Type: | | | | | | | | |
| Depth | (inches): | | | | | | Hydric Soil Present? | Yes X No |
| emarks: | | | | | | | | |
| | neets indicator for Deplete | d Matrix (F3). | Soils throughout pit | immediate | ely started t | urning rea | dder when exposed to air i | indicating presence of ferro |

HYDROLOGY

| Wetland Hydrology Indicators: | | |
|---|---|---|
| Primary Indicators (minimum of one required; ch | eck all that apply) | Secondary Indicators (2 or more required) |
| X Surface Water (A1) | Water-Stained Leaves (B9) (except | Water Stained Leaves (B9) (MRLA 1, 2, |
| X High Water Tables (A2) | MRLA 1, 2, 4A, and 4B) | 4A, and 4B) |
| X Saturation (A3) | Salt Crust (B11) | Drainage Patterns (B10) |
| Water Marks (B1) | Aquatic Invertebrates (B13) | Dry-Season Water Table (C2) |
| Sediment Deposits (B2) | Hydrogen Sulfide Odor (C1) | Saturation Visible on Aeriel Imagery (C9) |
| Drift Deposits (B3) | Oxidized Rhizospheres along Living Roots (C3 | Geomorphic Position (D2) |
| Algal Mat or Crust (B4) | Presence of Reduced Iron (C4) | Shallow Aquitard (D3) |
| Iron Deposits (B5) | Recent Iron Reduction in Tilled Soils (C6) | FAC-Neutral Test (D5) |
| Surface Soil Cracks (B6) | Stunted or Stressed Plants (D1) (LRR A) | Raised Ant Mounds (D6) (LRR A) |
| Inundation Visible on Aeriel Imagery (B | Other (Explain in Remarks) | Frost-Heave Hummocks (D7) |
| Sparsley Vegetated Concave Surface (B8) | | |
| Field Observations: | | |
| Surface Water Present? Yes X No | Depth (inches): 0.50 | |
| Water Table Present? Yes X No | Depth (inches): 0.0 | |
| Saturation Present? Yes X No | Depth (inches): 0.0 Wetlar | nd Hydrology Present? Yes X No |
| (includes capillary fringe) | | |
| Describe Recorded Date (stream gauge, monitorir | ng well, aerial photos, previous inspections), if availab | ple: |
| | | |
| Remarks: | | |
| Sample plot meets hydrology indicator for Surface | Saturation (A3), presence of Surface Water (A1), an | d a High Water Table (A2). |
| | | |
| | | |

Sampling Site: SP 2-6



Photo Name: Photo_170511111856.jpg

Direction: West

Caption: SP 2-6 wetland plot on SE end of wetland

| Project/Site: | State Avenue | | | | City/Co | ounty: | Snohomish | | | Sampling Da | ate: 5/11/2 | 2017 | | |
|---------------------|--------------------|------------------|---------|-----------------|-----------|---------------|--------------|----------|--------------|----------------|-------------|------------|------|--|
| Applicant/Owner: | City of Mar | ysville | | | | | State | : WA | | Sampling Po | oint: SP 2- | 7 | | |
| Investigators: | Danielski | | | | | | Section, Tov | /nship, | Range: | 16, 30N, 5E | | | | |
| Landform (hillslop | e, terrace, etc.): | Depression | | | Lo | - cal Reli | ef (concave, | convex | , none): | Concave | | Slope(%): | 0 | |
| Subregion (LRR): | А | | | Lat: 48.0866 | 62 | Long: | -122.17235 | 6 | | Datum: | WGS84 | | | |
| Soil Map Unit Nam | ne: Ragnar fine | e sandy loam, 8 | 3 to 15 | percent slope | es | | NWI | Classifi | cation: | PSS1 | | | | |
| Are climatic / hydr | ologic condition | s on the site ty | pical f | or this time of | year? | Yes | s N | o X | (If No | , explain in R | emarks) | | | |
| Are Vegetation: | Soil | or Hydrology | | significantly d | isturbed? | | Are "Norma | I Circur | - nstance | es" present? | Yes | Х | No | |
| Are Vegetation: | Soil | or Hydrology | | naturally prob | lematic? | | (If needed, | explain | any an | swers in Rem | arks.) | | | |
| SUMMARY O | F FINDINGS | - Attach a | site ı | nap showi | ng sam | pling | point loca | ations | s, tran | sects, imp | ortant fo | eatures, e | etc. | |
| Hydrophytic Veget | ation Present? | Yes | Х | No | | | | | | | | | | |
| Hydric Soil Preser | it? | Yes | Х | No | | Is the | Sampled Ar | ea | | | | | | |
| Wetland Hydrolog | y Present? | Yes | Х | No | | withir | n a Wetland? | , | | Yes | Х | No | | |

Remarks:

Sample plot is located in Wetland 2; all 3 criteria are present. Representative PSS1 plot in middle of wetland. Area has received more than average rainfall over the past 3 months (Feb-April).

VEGETATION – Use scientific names of plants.

| | Absolute | Dominant | Indicator | Dominance Test | Workshe | et: | | |
|---|---------------------|---------------------|-----------|-----------------------------------|-------------|---------------|-------------------------|---------|
| Tree Statum (Plot size:) | % Cover | Species? | Status | Number of Domina | nt Specie | S | | |
| 1. | | | | That Are OBL, FAC | CW, or FA | C: | 3 | (A) |
| 2. | | | | Total Number of Do | ominant | _ | | - |
| 3. | | | | Species Across All | Strata: | | 3 | (B) |
| 4. | | | | Percent of Domina | nt Species | s – | | - |
| | | = Total Cover | | That Are OBL, FAC | CW, or FA | C: | 100 | (A/B) |
| Sapling/Shrub Stratum (Plot size:) | | | | Prevalence Index | workshe | et: | | |
| 1. Lonicera involucrata | 50 | Yes | FAC | Total % Cover of: | | <u>Multip</u> | <u>ly by:</u> | |
| 2. Physocarpus capitatus | 10 | No | FACW | OBL species | 25 | _x1= | 25 | _ |
| 3. | | | | FACW species | 30 | x2= | 60 | |
| 4. | | | | FAC species | 55 | x3= | 165 | |
| 5. | | | | FACU species | | x4= | 0 | |
| | 60 | = Total Cover | | UPL species | | _x5= _ | 0 | _ |
| Herb Stratum (Plot size:) | | | | Column Totals: | 110 | (A) | 250 | (B) |
| 1. Lysichiton americanus | 25 | Yes | OBL | | | | | |
| 2. Phalaris arundinacea | 15 | Yes | FACW | Prevalence Ind | lex = B/A= | : | 2.27 | 7 |
| 3. Athyrium cyclosorum | 5 | No | FAC | Hydrophytic Vege | tation Ind | dicator | s: | |
| 4. Cornus alba | 5 | No | FACW | X 1 - Rapid Te | st for Hyd | rophytic | c Vegetatio | n |
| 5 | | | | X 2 - Dominan | ce Test is | >50% | | |
| 6. | | | | X 3 - Prevalence | ce Index is | s ≤3.0¹ | | |
| 7 | | | | X 4 - Morpholo | gical Ada | otations | s1 (Provide | |
| 8 | | | | data in F | Remarks c | or on a s | separate sl | heet) |
| 9 | | | | X 5 - Wetland | Non-Vasc | ular Pla | ints ¹ | |
| 10 | | | | X Problematic | Hydrophy | tic Vege | etation ¹ (E | xplain) |
| 11 | | | | ¹ Indicators of hydric | c soil and | wetland | d hydrolog | y |
| | 50 | = Total Cover | | must be present, u | nless dist | urbed o | r problema | itic. |
| Woody Vine Stratum (Plot size:) | | | | | | | | |
| 1 | | | | Hydrophytic | | | | |
| 2. | | | | Vegetation | Yes | <u> </u> | No | _ |
| | | = Total Cover | | Present? | | | | |
| % Bare Ground in Herb Stratum 50 | % Co | ver of Biotic Crust | | | | | | |
| Remarks: | - | | | - | | | | |
| Sample plot meets dominance test and prevalence | ce index for hydrop | hytic vegetation. | | | | | | |

| Profile Descr | iption: (Descri | ibe to th | ne dej | oth neede | ed to document the | indicator | or confirm | the abse | ence of indicators.) | |
|----------------|-------------------|-----------|----------|------------|-------------------------|----------------|-------------------|------------------|----------------------------------|-------------------------------------|
| Depth | n | Matrix | | | Red | lox Feature | es | | | |
| (inches) | Color (mois | st) | 9 | , 0 | Color (moist) | % | Type ¹ | Loc ² | Texture | Remarks |
| 0-5 | 10YR2/1 | | 10 | 00 | | | | | Sandy Loam | |
| 5-12 | 2.5Y 3/2 | | 10 | 00 | | | · | | Sandy Loam | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| | | | | | | | · | | | |
| | | | | | | | · | | | |
| | | · | | | | | | | | |
| | ncentration D- | - Donlot | ion P | M-Roduc | ed Matrix, CS=Cove | | ted Sand G | raine | 2 | tion: PL=Pore Lining, M=Matrix. |
| | | | | | Inless otherwise no | | | | | lematic Hydric Soils ³ : |
| Histos | | plicable | e 10 a | 1 LNN5, U | Sandy Redox (S | - | | | 2 cm Muck (A | • |
| | Epipedon (A2) | | | _ | Stripped Matrix (| | | | Red Parent M | • |
| | Histic (A3) | | | _ | Loamy Mucky M | . , | (except MI | | | Dark Surface (TF12) |
| | gen Sulfide (A4 | <u>۱</u> | | _ | Loamy Gleyed N | | (except ML | NLA I) | X Other (Explai | |
| | ed Below Dark | | . (Δ11 | \ | Depleted Matrix | | | | | in in Kenaks) |
| · | Dark Surface (A | | ; (711 |) _ | Redox Dark Surf | | | | ³ Indicators of hydro | ophytic vegetation and |
| | Mucky Mineral | , | | - | Depleted Dark S | |) | | • | gy must be present, |
| | Gleyed Matrix | | | _ | Redox Depression | |) | | unless disturbed | |
| | | | | | | | | | | |
| | Layer (if prese | ent): | | | | | | | | |
| Type: | (i.e. a.h. a.a.). | | | | | | | | Ukudula Call Duana | |
| Depth | (inches): | | | | | | | | Hydric Soil Prese | nt? Yes <u>X</u> No |
| Remarks: | | | | | | | | | | |
| Redox is not f | ormed but soil | color ch | anges | to redde | r hue in 5-12" layer ir | ndicates fer | rrous iron pr | esent. | | |
| | | | | | | | | | | |
| | | | | | | | | | | |
| HYDROLO | GY | | | | | | | | | |
| Wetland Hy | drology Indica | ators: | | | | | | | | |
| Primary Indi | cators (minimu | m of on | e requ | ired; che | ck all that apply) | | | | Secondary Indicate | ors (2 or more required) |
| X Surfac | e Water (A1) | | | | Water-Stained L | eaves (B9) |) (except | | Water Staine | d Leaves (B9) (MRLA 1, 2, |
| X High W | Vater Tables (A | 2) | | | MRLA 1, 2, 4/ | A, and 4B) |) | | 4A, and 4E | 3) |
| X Satura | tion (A3) | | | | Salt Crust (B11) | | | | Drainage Pat | · , |
| Water | Marks (B1) | | | _ | Aquatic Inverteb | | | | ` | Nater Table (C2) |
| Sedim | ent Deposits (B | 32) | | _ | Hydrogen Sulfide | | | | | sible on Aeriel Imagery (C9) |
| Drift D | eposits (B3) | | | | Oxidized Rhizos | pheres alo | ng Living Ro | oots (C3) | Geomorphic I | Position (D2) |
| Algal N | /lat or Crust (B4 | 4) | | _ | Presence of Red | luced Iron | (C4) | | Shallow Aquit | tard (D3) |
| | eposits (B5) | | | _ | Recent Iron Red | uction in T | illed Soils (C | 6) | FAC-Neutral | Test (D5) |
| Surfac | e Soil Cracks (I | B6) | | _ | Stunted or Stress | sed Plants | (D1) (LRR | A) | Raised Ant M | lounds (D6) (LRR A) |
| Inunda | tion Visible on | Aeriel Ir | nager | у (В | Other (Explain in | n Remarks) |) | | Frost-Heave | Hummocks (D7) |
| Sparsl | ey Vegetated C | Concave | Surfa | ce (B8) | | | | | | |
| Field Obser | rvations: | | | | | | | | | |
| Surface Wa | ter Present? | Yes | Х | No | Depth (inches): | | 1.00 | | | |
| Water Table | Present? | Yes | Х | No | Depth (inches): | | 0.0 | | | |
| Saturation F | Present? | Yes | Х | No | Depth (inches): | | 0.0 | Wetland | d Hydrology Presen | t? Yes <u>X</u> No |
| (includes ca | pillary fringe) | | | | | | | | | |
| Describe Reco | orded Date (str | eam gau | uge, n | nonitoring | well, aerial photos, p | previous ins | spections), i | f availabl | e: | |
| | | | | | | | | | | |
| Domorius | | | | | | | | | | |
| Remarks: | | udrola | الم من ب | otoro for | propaga of Cuntara | \/\c+~= (^ 4) |) of 1" o L"- | h Mater | Toble (AQ) at the set " | ourfood and ourfood Saturation |
| (A3). | ieets wetland h | iyuroloğ | y india | alors tor | presence of Sufface | vvater (A1) | jati", a Hig | n vvater | i able (AZ) at the soll | surface, and surface Saturation |
| | | | | | | | | | | |
| | | | | | | | | | | |

Sampling Site: SP 2-7



Photo Name: Photo_170511121125.jpg

Direction: Southwest

Caption: Sp 2-7 representative plot in west portion of Wetland 2

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APPENDIX B

WETLAND RATING FORMS

RATING SUMMARY – Western Washington

 Name of wetland (or ID #):
 Wetland 1
 Date of site visit: 5/4/2017

 Rated by
 L Danielski
 Trained by Ecology?
 Yes
 No Date of training 10/13

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

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

OVERALL WETLAND CATEGORY [I] (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 | |
|---------------------------|----------------------------|---------------|-------------------|------|
| | Line Line (| Circle the ap | propriate ratings | |
| Site Potential | H M√L | H ☐ M ☐ L 🖌 | H _ M√ L | |
| Landscape Potential | H M V L | H✔ M□L | H M L ✓ | |
| Value | H✔M□L□ | H✔M□L | H✔ M☐ L | ΤΟΤΑ |
| Score Based on Ratings | 7 | 7 | 6 | 20 |

Score for each function based on three ratings (order of ratings is not important) 9 = H,H,H

8 = H,H,M 7 = H,H,L 7 = H,M,M 6 = H,M,L 6 = M,M,M 5 = H,L,L

5 = M,M,L 4 = M,L,L

3 = L,L,L

2. Category based on SPECIAL CHARACTERISTICS of wetland

| CHARACTERISTIC | CATEGORY |
|------------------------------------|----------|
| Estuarine | I II |
| Wetland of High Conservation Value | Ι |
| Bog | I |
| Mature Forest | I |
| Old Growth Forest | I |
| Coastal Lagoon | I II II |
| 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 | 1-D1 |
| Hydroperiods | D 1.4, H 1.2 | 1-D1 |
| Location of outlet (can be added to map of hydroperiods) | D 1.1, D 4.1 | 1-D1 |
| Boundary of area within 150 ft of the wetland (can be added to another figure) | D 2.2, D 5.2 | 1-D2 |
| Map of the contributing basin | D 4.3, D 5.3 | 1-D3 |
| 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 | 1-D4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 1-D5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 1-D6 |

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 | H 2.1, H 2.2, H 2.3 | |
| | 121122 | |
| | , | |
| | H 2.1, H 2.2, H 2.3 L 3.1, L 3.2 L 3.3 | |

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

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

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

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

✓ 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)?

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.

 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?
 - \checkmark The wetland is on a slope (*slope can be very gradual*),
 - ✓ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 - ✓ The water leaves the wetland **without being impounded**.

🗌 NO – go to 5

YES – The wetland class is **Slope**

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

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

Wetland 1 Wetland name or number

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.

 \square NO – go to 7

YES – The wetland class is **Depressional**

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

🗌 NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

| DEPRESSIONAL AND FLATS WETLANDS Water Quality Functions - Indicators that the site functions to improve water quality | | |
|---|---|--|
| D 1.0. Does the site have the potential to improve water quality? | , | |
| D 1.1. Characteristics of surface water outflows from the wetland: | | |
| D 1.1. <u>Characteristics of surface water outflows from the wetland</u> : 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 | 1 | |
| ✓ 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 🗸 | o = 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 | s): | |
| Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area points = 3 | 5 | |
| Wetland has persistent, ungrazed plants > $^{1}/_{10}$ of areapoints = 1Wetland has persistent, ungrazed plants < $^{1}/_{10}$ of areapoints = 0 | | |
| D 1.4. <u>Characteristics of seasonal ponding or inundation</u> : <i>This is the area that is ponded for at least 2 months. See description in manual.</i> | _ | |
| Area seasonally ponded is $> \frac{1}{2}$ total area of wetland points = 4 | 2 | |
| Image: Area seasonally ponded is > ¼ total area of wetlandpoints = 2Image: Area seasonally ponded is < ¼ total area of wetland | | |
| Total for D 1Add the points in the boxes above | 8 | |
| Rating of Site Potential If score is: $12-16 = H$ $\sqrt{6-11} = M$ $0-5 = L$ Record the rating on the first | | |
| | st puge | |
| D 2.0. Does the landscape have the potential to support the water quality function of the site? | | |
| | 0 = 0 1 | |
| D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? \checkmark Yes = 1 No | 9 = 0 1 | |
| D 2.3. Are there septic systems within 250 ft of the wetland? $Ves = 1$ Ves $Ves = 1$ | 0 = 0 | |
| D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? SourceYes = 1 v No | 0 = 0 | |
| Total for D 2Add the points in the boxes above | 2 | |
| Rating of Landscape Potential If score is: $3 \text{ or } 4 = H$ $1 \text{ or } 2 = M$ $0 = L$ Record the rating on the | ne 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? | 0 = 0 1 | |
| D 3.2. Is the wetland in a basin or sub-basin where an aquatic resource is on the 303(d) list? \checkmark Yes = 1 \square No | 0 = 0 1 | |
| D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YE if there is a TMDL for the basin in which the unit is found)? | $\frac{1}{2}$ $\frac{1}{2}$ $\frac{1}{2}$ | |
| Total for D 3 Add the points in the boxes above | 4 | |
| Rating of Value If score is: $\boxed{2}$ -4 = H $\boxed{1}$ = M $\boxed{0}$ = 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 | | | on |
| D 4.0. Does the site have the potential to reduce flooding and erosion? | | | |
| D 4.1. <u>Characteristics of surface water outflows from the wetland</u> : Wetland is a depression or flat depression with no surface water leaving it (no outlet) Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flow Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | point | ints = 2 s = 1 | 0 |
| D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outwith 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 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet The wetland is a "headwater" wetland Wetland is flat but has small depressions on the surface that trap water Marks of ponding less than 0.5 ft (6 in) | utlet. For we points = points = points = points = points = points = | 7 5 3 3 1 | 3 |
| D 4.3. <u>Contribution of the wetland to storage in the watershed</u>: <i>Estimate the ratio of the area of upstrecontributing surface water to the wetland to the area of the wetland unit itself.</i> □ The area of the basin is less than 10 times the area of the unit □ The area of the basin is 10 to 100 times the area of the unit □ The area of the basin is more than 100 times the area of the unit □ Entire wetland is in the Flats class | eam basin points = points = points = points = | 3 0 | 0 |
| Total for D 4 Add the points in the | | | 3 |
| Rating of Site Potential If score is: $12-16 = H$ $6-11 = M$ $\checkmark 0-5 = L$ Reco | rd the rating | g on the j | first page |
| D 5.0. Does the landscape have the potential to support hydrologic functions of the site? | | | |
| D 5.1. Does the wetland receive stormwater discharges? | es = 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? V | es = 1 | No = 0 | 1 |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land u >1 residence/ac, urban, commercial, agriculture, etc.)? | | tial at No = 0 | 1 |
| Total for D 5Add the points in the | e boxes abov | /e | 3 |
| Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L Reco | rd the rating | g on the j | first page |
| D 6.0. Are the hydrologic functions provided by the site valuable to society? | | | |
| D 6.1. <u>The unit is in a landscape that has flooding problems</u>. <i>Choose the description that best matches the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one conc</u>. The wetland captures surface water that would otherwise flow down-gradient into areas where damaged human or natural resources (e.g., houses or salmon redds):</i> ✓ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. ■ Surface flooding problems are in a sub-basin farther down-gradient. ■ Flooding from groundwater is an issue in the sub-basin. The existing or potential outflow from the wetland is so constrained by human or natural condit ■ water stored by the wetland cannot reach areas that flood. <i>Explain why</i> ■ There are no problems with flooding downstream of the wetland. | dition is met flooding ha points = points = points = | s 1 1 e 0 | 2 |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional floo | | an? No = 0 | 0 |
| Total for D 6 Add the points in the | e boxes abov | /e | 2 |
| Rating of Value If score is: 2-4 = H 1 = M 0 = L Reco | rd the rating | g on the j | first page |

| These questions apply to wetlands of all HGM classes. | |
|--|---|
| HABITAT FUNCTIONS - Indicators that site functions to provide important habitat | |
| H 1.0. Does the site have the potential to provide habitat? | |
| H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. Aquatic bed 4 structures or more: points = 4 ✓ Emergent 3 structures: points = 2 ✓ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: ✓ points = 1 Image: Forested (areas where trees have > 30% cover) 1 structure: points = 0 If the unit has a Forested class, check if: The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon | 1 |
| H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods). | 2 |
| H 1.3. Richness of plant species Count the number of plant species in the wetland that cover at least 10 ft ² . Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle If you counted: > 19 species points = 2 5 - 19 species points = 1 < 5 species | 1 |
| H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points | 2 |

Wetland 1 Wetland name or number

20-33% of 1 km Polygon

10% of 1 km Polygon

Calculate:

Total for H 2

10-19% of 1 km Polygon

Undisturbed habitat > 50% of Polygon

H 2.3. Land use intensity in 1 km Polygon: If

Undisturbed habitat 10-50% and in 1-3 patches

Undisturbed habitat 10-50% and > 3 patches

✓ > 50% of 1 km Polygon is high intensity land use

Rating of Landscape Potential If score is: 4-6 = H 1-3 = M

 \leq 50% of 1 km Polygon is high intensity

Undisturbed habitat < 10% of 1 km Polygon

| H 1.5. Special habitat features: | 4 |
|--|----------------|
| Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | |
| Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). | |
| \checkmark 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) | |
| Total for H 1Add the points in the boxes above | 10 |
| Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L Record the rating on the statement of the s | the first page |
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
| H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). | 0 |
| <i>Calculate:</i> % undisturbed habitat $\frac{0.70}{10}$ + [(% moderate and low intensity land uses)/2] $\frac{0.00}{10}$ = $\frac{0.70}{100}$ % | 0 |
| If total accessible habitat is: | |
| points = 3 | |
| | |

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

Rating of Value If score is: $\boxed{\sqrt{2}} = H$ $\boxed{1} = M$ $\boxed{0} = L$

Site does not meet any of the criteria above

points = 0

Record the rating on the first page

Add the points in the boxes above

points = 2

points = 1

points = 1

points = 0

points = (-2)

points = 0

Record the rating on the first page

2

-2

0

| 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: It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species It is a Wetland of High Conservation Value as determined by the Department of Natural Resources It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m | 2 |

points = 0 H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. % undisturbed habitat $\frac{26.00}{1.00}$ + [(% moderate and low intensity land uses)/2] $\frac{2.50}{1.00}$ = $\frac{28.50}{1.000}$ % points = 3 points = 2

WDFW Priority Habitats

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

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

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

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

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

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

- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- ✓ Riparian: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).
- ✓ **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).

Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

Cliffs: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

Talus: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

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

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

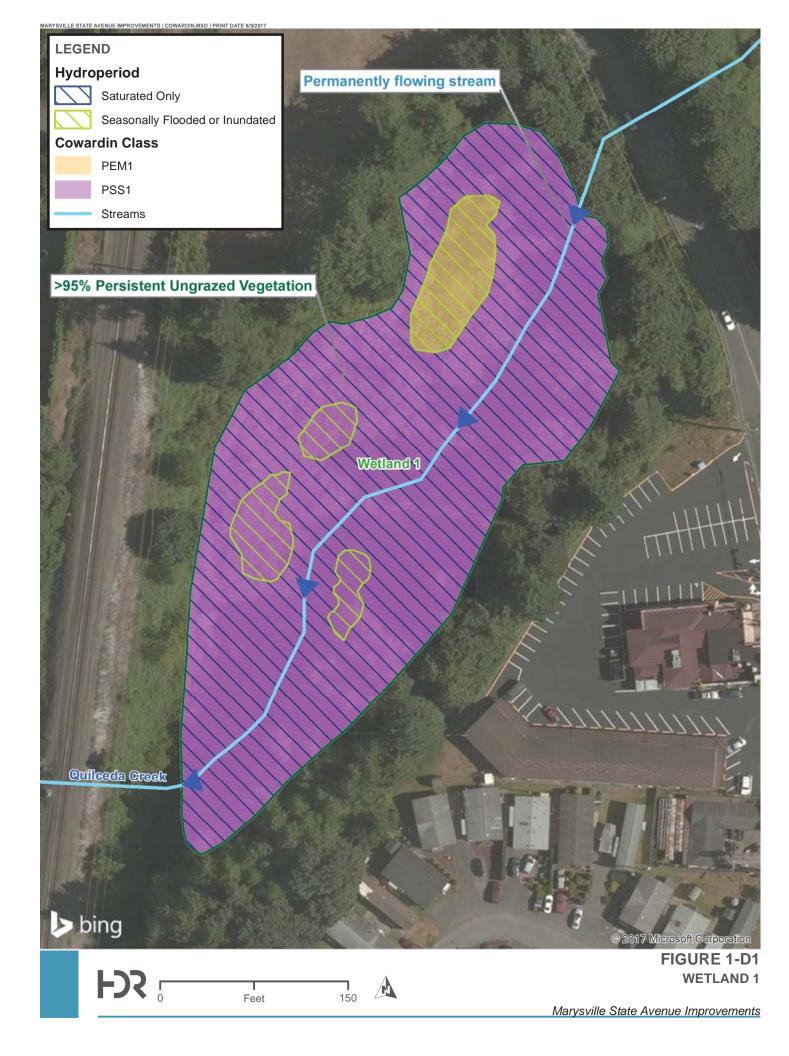
CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| Wetland Type | Category |
|--|----------|
| Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met. | |
| SC 1.0. Estuarine wetlands | |
| Does the wetland meet the following criteria for Estuarine wetlands? | |
| The dominant water regime is tidal, | |
| Vegetated, and | |
| With a salinity greater than 0.5 ppt Yes –Go to SC 1.1 Vo= Not an estuarine wetland | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area | |
| Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? | Cat. I |
| Yes = Category I No - Go to SC 1.2 | |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? | |
| Hard the wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less | Cat. I |
| than 10% cover of non-native plant species. (If non-native species are <i>Spartina</i> , see page 25) | |
| HAt least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- mowed grassland. | |
| The wetland has at least two of the following features: tidal channels, depressions with open water, or | Cat. II |
| contiguous freshwater wetlands. | |
| | 1 |
| 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? | Cat. I |
| SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? | |
| Yes = Category I I No = Not a WHCV | r |
| SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? | |
| http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf | |
| Yes – Contact WNHP/WDNR and go to SC 2.4 LNo = Not a WHCV | |
| SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on | |
| their website? Yes = Category I No = Not a WHCV | <u> </u> |
| SC 3.0. Bogs Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key | |
| below. If you answer YES you will still need to rate the wetland based on its functions. | |
| SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or | |
| more of the first 32 in of the soil profile? | |
| SC 3.2. Does an area within the wetland unit have organic soils, either peats or mucks, that are less than 16 in deep | |
| over bedrock, or an impermeable hardpan such as clay or volcanic ash, or that are floating on top of a lake or | |
| pond? \Box Yes – Go to SC 3.3 \Box 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. | Cat. I |
| SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, | |
| western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the | |
| species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? | |
| Yes = Is a Category I bog No = Is not a bog | |

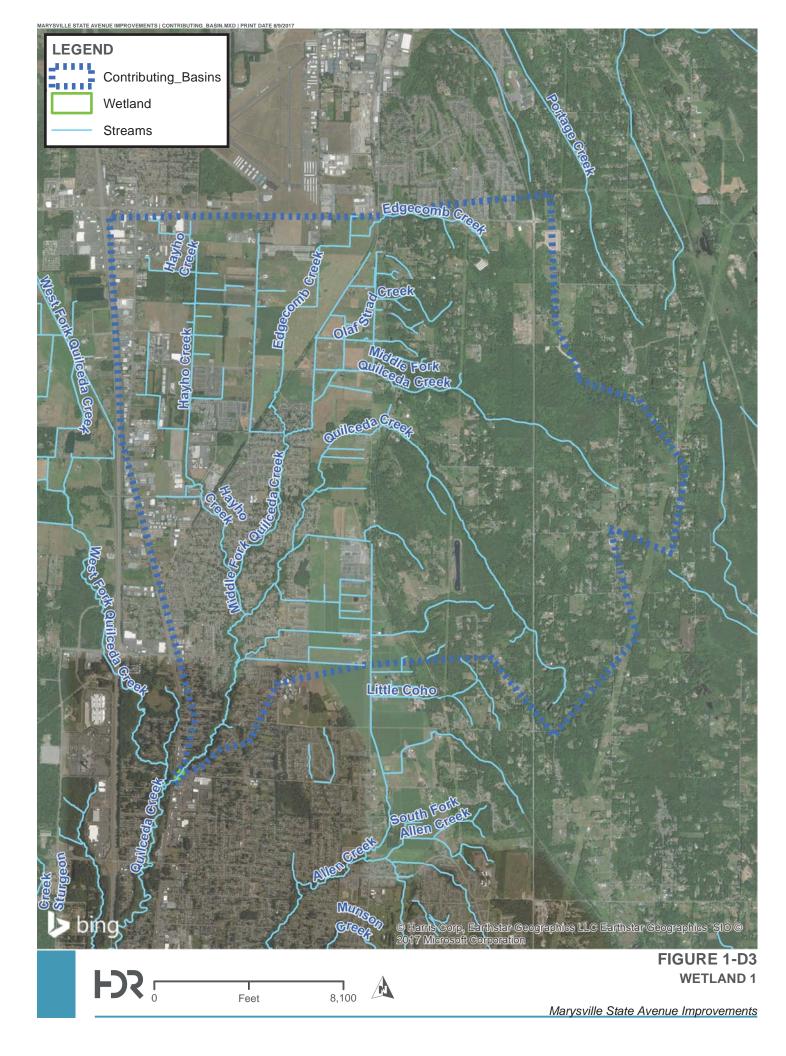
| SC 4.0. Forested Wetlands | |
|---|----------|
| Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate</i> <i>the wetland based on its functions.</i> | |
| Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. | |
| Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). | Cat. I |
| Yes = Category I Vo = 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 | Cat. I |
| 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- | Cat. II |
| mowed grassland. | |
| The wetland is larger than $1/_{10}$ ac (4350 ft ²) | |
| Yes = Category I Vo = Category I | |
| SC 6.0. Interdunal Wetlands Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If you answer yes you will still need to rate the wetland based on its habitat functions. In practical terms that means the following geographic areas: | |
| Long Beach Peninsula: Lands west of SR 103 | |
| Grayland-Westport: Lands west of SR 105 | Cat I |
| Ocean Shores-Copalis: Lands west of SR 115 and SR 109 Yes – Go to SC 6.1 V 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)? | Cat. II |
| SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger? Yes = Category II No – Go to SC 6.3 | Cat. III |
| SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV | Cat. IV |
| Category of wetland based on Special Characteristics | |
| If you answered No for all types, enter "Not Applicable" on Summary Form | NA |

Wetland name or number _____

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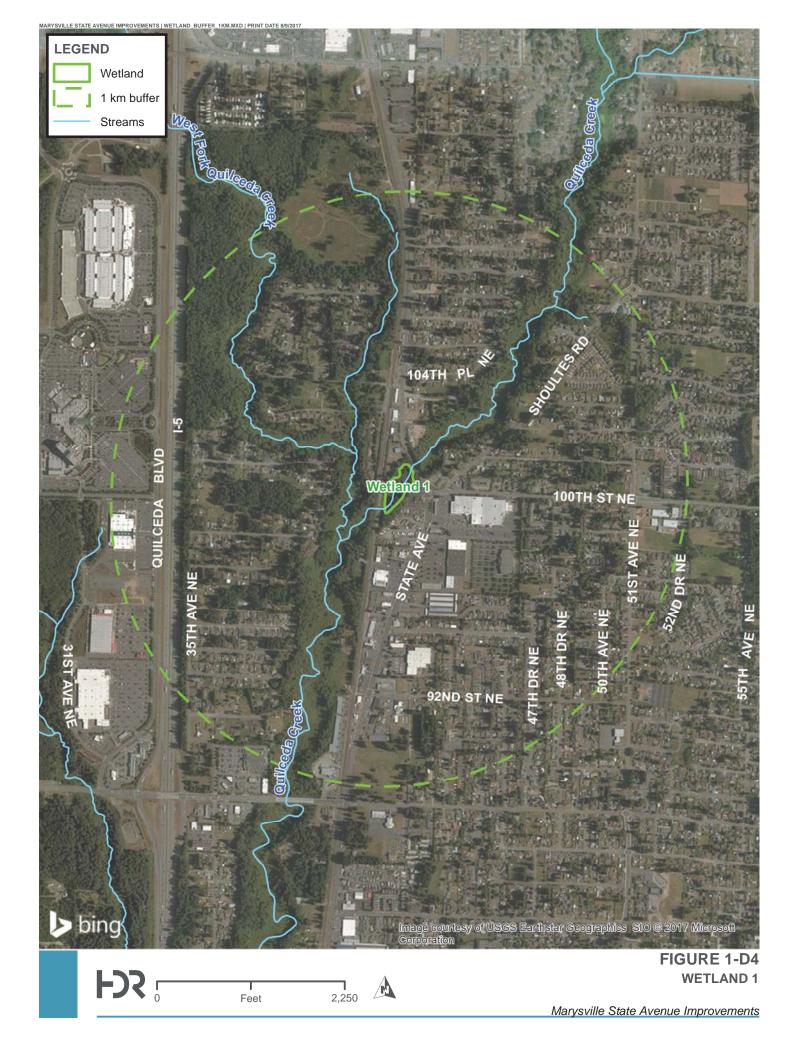
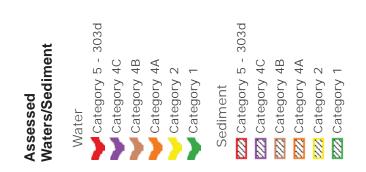
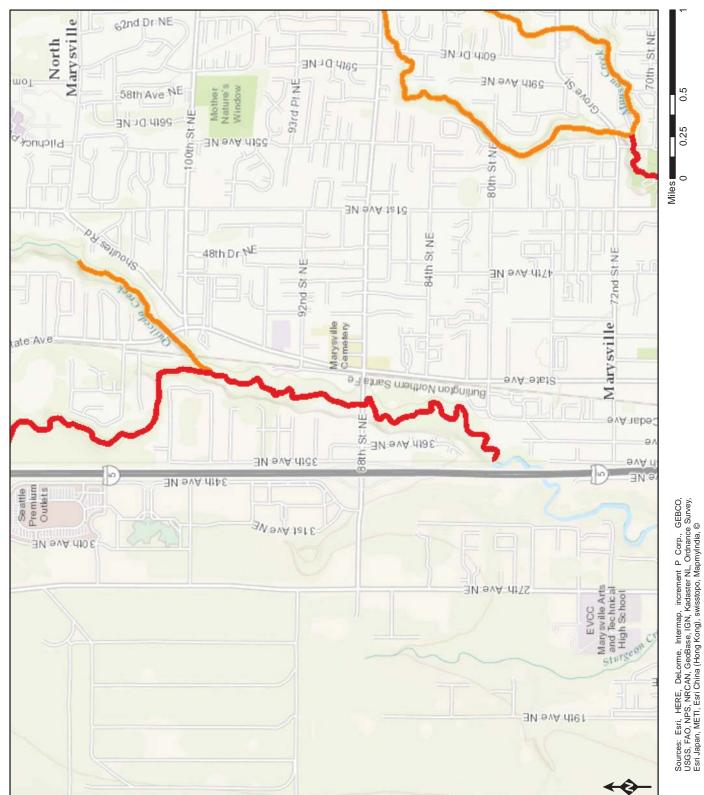




Figure 1-D5 303d Wetland 1





ECOLOGY State of Washington Figure 1D-6



WRIAs in Snohomish County

• WRIA 3 - Lower Skagit-Samish

- WRIA 4 Upper Skagit
- <u>WRIA 5</u> Stillaguamish
 <u>WRIA 7</u> Snohomish
- WRIA 8 Cedar-Sammamish

| Water-body Name | Pollutants | Status | TMDL Leads | |
|---|---|--|--------------------------------|--|
| <u>Ballinger Lake</u> | Total Phosphorus | EPA approved | Tricia Shoblom 425-649-7288 | |
| Bear-Evans Creek Basin | Fecal Coliform | EPA approved | <u>Joan Nolan</u> | |
| | Dissolved Oxygen Temperature | EPA approved | 425-649-4425 | |
| <u>Lake Ketchum</u> | Total Phosphorus | Under development as a straight to implementation project | Tricia Shoblom 425-649-7288 | |
| Lake Loma | Total Phosphorus | Straight to implementation project under development | Tricia Shoblom 425-649-7288 | |
| <u>Little Bear Creek</u> Tributaries: Trout Stream Great Dane Creek Cutthroat Creek | Fecal Coliform | EPA approved | Ralph Svrjcek 425-649-7165 | |
| North Creek | Fecal Coliform | EPA approved Has an implementation plan | Ralph Svrjcek 425-649-7165 | |
| Old Stillaguamish Channel | Dissolved Oxygen | On hold | Ralph Svricek 425-649-7165 | |
| Snohomish River | French Creek / Pilchuck River Dissolved Oxygen Temperature | Under development | Ralph Svricek 425-649-7165 | |
| | Dioxin | EPA approved | Ralph Svricek 425-649-7165 | |
| | Estuary • Ammonia • BOD | EPA approved | Ralph Svricek 425-649-7165 | |
| | Tributaries • Fecal Coliform Tributaries: | EPA approved | Ralph Svricek 425-649-7165 | |

| | Allen Creek Quilceda Creek French Creek Woods Creek Pilchuck River Marshlands (Wood Creek) {2} | | |
|---------------------|---|---|-------------------------------|
| | Snoqualmie River • Ammonia-N • BOD (5-day) • Fecal Coliform Temperature | EPA approved EPA approved Has an implementation plan | Ralph Svricek 425-649-7165 |
| Stillaguamish River | Arsenic Dissolved Oxygen Fecal Coliform Mercury pH Temperature | EPA approved Has an implementation plan | Ralph Svrjcek 425-649-7165 |
| Swamp Creek | Fecal Coliform | EPA approved Has an implementation plan | Ralph Svricek 425-649-7165 |

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Last updated March 2016

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RATING SUMMARY – Western Washington

| Name of wetland (or ID #): | Marysville State | Ave - Wetland 2 | Date of site visit: <u>5/11/</u> 17 |
|---------------------------------|------------------|-------------------------|-------------------------------------|
| Rated by ^L Danielski | | Trained by Ecology? ✓ Y | es No Date of training 10/13 |
| HGM Class used for rating_ | Depressional | Wetland has multi | ple HGM classes? 🗹 Y 🔲 N |

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

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 | Hydrologic | Habitat | |
|---------------------------|---------------|---------------|-------------------|-------|
| | Water Quality | | | |
| | | Circle the ap | propriate ratings | |
| Site Potential | H□M√L□ | H □ M □ L 🖌 | H✔M□L□ | |
| Landscape Potential | H✔M□L□ | H✔M□L | H□ M□ L√ | |
| Value | H☑M□L□ | H☑M□L□ | H☑ M□ L□ | TOTAL |
| Score Based on Ratings | 8 | 7 | 7 | 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 | I II |
| Wetland of High Conservation Value | I |
| Bog | Ι |
| Mature Forest | Ι |
| Old Growth Forest | I |
| Coastal Lagoon | I II |
| 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 | 2-D1 |
| Hydroperiods | D 1.4, H 1.2 | 2-D1 |
| Location of outlet (can be added to map of hydroperiods) | D 1.1, D 4.1 | 2-D1 |
| Boundary of area within 150 ft of the wetland (can be added to another figure) | D 2.2, D 5.2 | 2-D2 |
| Map of the contributing basin | D 4.3, D 5.3 | 2-D3 |
| 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 | 2-D4 |
| Screen capture of map of 303(d) listed waters in basin (from Ecology website) | D 3.1, D 3.2 | 2-D5 |
| Screen capture of list of TMDLs for WRIA in which unit is found (from web) | D 3.3 | 2-D6 |

Riverine Wetlands

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

Lake Fringe Wetlands

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

Slope Wetlands

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

HGM Classification of Wetlands in Western Washington

| P | | 1 7 | 11 | and the second second | described | | 1 | 1 | | 1. | | - I I |
|----------|-----------|-------|-----|-----------------------|-----------|-------|---------------|--------|--------|--------|---------------------|-------|
| HORD | ILACTIONC | 1 - / | TNO | Critoria | adcerinda | miler | 2 n n W T (| η τη Δ | ONTIRO | пліт п | $\Delta n \sigma r$ | DATE |
| TUT U | ucsuons | 1-/ - | uit | UITCIIA | uescribeu | musi | abbiv u | Juic | | umu | CILLEI | alcu. |
| | | | | | | | | | | | | |

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

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

✓ NO – go to 2

- **YES** the wetland class is **Tidal Fringe** go to 1.1
- 1.1 Is the salinity of the water during periods of annual low flow below 0.5 ppt (parts per thousand)?

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.

 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?
 - \checkmark The wetland is on a slope (*slope can be very gradual*),
 - ✓ The water flows through the wetland in one direction (unidirectional) and usually comes from seeps. It may flow subsurface, as sheetflow, or in a swale without distinct banks,
 - ✓ The water leaves the wetland **without being impounded**.

🗌 NO – go to 5

YES – The wetland class is **Slope**

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

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

Wetland 2 Wetland name or number

 \square 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.

 \Box NO – go to 7

YES – The wetland class is **Depressional**

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

🗌 NO – go to 8

YES – The wetland class is **Depressional**

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

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

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

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

| DEPRESSIONAL AND FLATS WETLANDS | | | |
|---|------------------|--|--|
| Water Quality Functions - Indicators that the site functions to improve water quality | | | |
| D 1.0. Does the site have the potential to improve water quality? | | | |
| D 1.1. Characteristics of surface water outflows from the wetland: | | | |
| Wetland is a depression or flat depression (QUESTION 7 on key) with no surface water leaving it (no outlet). | | | |
| Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. points = 2 | 1 | | |
| 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 \square No | = 0 0 | | |
| D 1.3. Characteristics and distribution of persistent plants (Emergent, Scrub-shrub, and/or Forested Cowardin classes) | : | | |
| Wetland has persistent, ungrazed, plants > 95% of area points = 5 | | | |
| Wetland has persistent, ungrazed, plants > $\frac{1}{2}$ of area points = 3 | 5 | | |
| Wetland has persistent, ungrazed plants $> \frac{1}{10}$ of area points = 1 | | | |
| Wetland has persistent, ungrazed plants $<^{1}/_{10}$ of area points = 0 | | | |
| D 1.4. Characteristics of seasonal ponding or inundation: | | | |
| This is the area that is ponded for at least 2 months. See description in manual. | | | |
| \checkmark Area seasonally ponded is > $\frac{1}{2}$ total area of wetland points = 4 | 4 | | |
| Area seasonally ponded is > ¼ total area of wetland points = 2 | | | |
| Area seasonally ponded is < ¼ total area of wetland points = 0 | | | |
| Total for D 1Add the points in the boxes above | 10 | | |
| Rating of Site Potential If score is: $12-16 = H$ $\sqrt{6-11} = M$ $0-5 = L$ 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? Ves = 1 No = | ^{= 0} 1 | | |
| D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants? \bigvee Yes = 1 \bigvee No = | = 0 1 | | |
| D 2.3. Are there septic systems within 250 ft of the wetland? \bigvee Yes = 1 \bigvee No = | = 0 1 | | |
| D 2.4. Are there other sources of pollutants coming into the wetland that are not listed in questions D 2.1-D 2.3? SourceYes = 1 \sqrt{V} No = | 0 | | |
| Total for D 2 Add the points in the boxes above | 3 | | |
| Rating of Landscape Potential If score is: $\boxed{\sqrt{3}}$ or $4 = H$ $\boxed{1}$ or $2 = M$ $\boxed{0} = L$ 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? | 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 (<i>answer YES if there is a TMDL for the basin in which the unit is found</i>)? Yes = 2 No | 2 | | |
| Total for D 3 Add the points in the boxes above | 4 | | |
| Rating of Value If score is: $\boxed{2}$ -4 = H $\boxed{1}$ = M $\boxed{0}$ = L Record the rating on the first page | | | |

D.2.3 Marysville Sewer GIS shows many adjoining residences not on sewer lines

| 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. <u>Characteristics of surface water outflows from the wetland</u> : Wetland is a depression or flat depression with no surface water leaving it (no outlet) Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flow Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing | points | nts = 2 0 = 1 | |
| D 4.2. Depth of storage during wet periods: Estimate the height of ponding above the bottom of the outwith 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 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet The wetland is a "headwater" wetland Wetland is flat but has small depressions on the surface that trap water Marks of ponding less than 0.5 ft (6 in) | utlet. For weth points = 7 points = 3 points = 3 points = 1 points = 0 | 7 5 3 3 4 | |
| D 4.3. <u>Contribution of the wetland to storage in the watershed</u>: Estimate the ratio of the area of upstrecontributing 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 The area of the basin is 10 to 100 times the area of the unit The area of the basin is more than 100 times the area of the unit Entire wetland is in the Flats class | points = 5 points = 5 points = 3 points = 0 points = 5 | | |
| Total for D 4 Add the points in the | e boxes above | e 3 | |
| Rating of Site Potential If score is: $12-16 = H$ $6-11 = M$ $\checkmark 0-5 = L$ Reco | rd the rating | on the first page | |
| D 5.0. Does the landscape have the potential to support hydrologic functions of the site? | | - | |
| D 5.1. Does the wetland receive stormwater discharges? | es = 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? V | es = 1 | No = 0 1 | |
| D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land u >1 residence/ac, urban, commercial, agriculture, etc.)? | | al at No = 0 1 | |
| Total for D 5Add the points in the | e boxes above | e 3 | |
| Rating of Landscape Potential If score is: 3 = H 1 or 2 = M 0 = L Reco | rd the rating | on the first page | |
| D 6.0. Are the hydrologic functions provided by the site valuable to society? | | | |
| D 6.1. <u>The unit is in a landscape that has flooding problems</u>. <i>Choose the description that best matches the wetland unit being rated. Do not add points. <u>Choose the highest score if more than one cond</u>. The wetland captures surface water that would otherwise flow down-gradient into areas where damaged human or natural resources (e.g., houses or salmon redds):</i> ✓ • Flooding occurs in a sub-basin that is immediately down-gradient of unit. ■ Surface flooding problems are in a sub-basin farther down-gradient. ■ Flooding from groundwater is an issue in the sub-basin. The existing or potential outflow from the wetland is so constrained by human or natural condit ■ water stored by the wetland cannot reach areas that flood. <i>Explain why</i> ■ There are no problems with flooding downstream of the wetland. | <u>dition is met</u> . flooding has points = 2 points = 1 points = 1 | 2 L 2 L | |
| D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional floo | | in? No = 0 | |
| Total for D 6 Add the points in the | e boxes above | e 2 | |
| Rating of Value If score is: 2-4 = H 1 = M 0 = L Reco | rd the rating | on the first page | |

| These questions apply to wetlands of all HGM classes. | |
|---|---|
| HABITAT FUNCTIONS - Indicators that site functions to provide important habitat | |
| H 1.0. Does the site have the potential to provide habitat? | |
| H 1.1. Structure of plant community: Indicators are Cowardin classes and strata within the Forested class. Check the Cowardin plant classes in the wetland. Up to 10 patches may be combined for each class to meet the threshold of ¼ ac or more than 10% of the unit if it is smaller than 2.5 ac. Add the number of structures checked. ✓ Aquatic bed 4 structures or more: ✓ points = 4 ✓ Emergent 3 structures: □ points = 2 ✓ Scrub-shrub (areas where shrubs have > 30% cover) 2 structures: □ points = 1 ✓ Forested (areas where trees have > 30% cover) 1 structure: □ points = 0 If the unit has a Forested class, check if: ✓ ✓ The Forested class has 3 out of 5 strata (canopy, sub-canopy, shrubs, herbaceous, moss/ground-cover) that each cover 20% within the Forested polygon | 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). Image: Permanently flooded or inundated 4 or more types present: Image: Points = 3 Image: Permanently flooded or inundated 3 types present: Image: Points = 2 Image: Permanently flooded or inundated 3 types present: Image: Points = 2 Image: Permanently flooded or inundated 2 types present: Image: Points = 1 Image: Permanently flooded or inundated 2 types present: Image: Points = 0 Image: Permanently flooded or inundated 1 type present: Image: Points = 0 Image: Permanently flowing stream or river in, or adjacent to, the wetland 2 points = 0 Image: Permanently flowing stream in, or adjacent to, the wetland 2 points Image: Pershwater tidal wetland 2 points | 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 | 1 |
| H 1.4. Interspersion of habitats Decide from the diagrams below whether interspersion among Cowardin plants classes (described in H 1.1), or the classes and unvegetated areas (can include open water or mudflats) is high, moderate, low, or none. <i>If you</i> <i>have four or more plant classes or three classes and open water, the rating is always high.</i> None = 0 points All three diagrams in this row are HIGH = 3points | 3 |

Wetland name or number

| H 1.5. Special habitat features: | 5 |
|---|----------------|
| Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> | 0 |
| 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) | |
| Total for H 1Add the points in the boxes above | |
| Rating of Site Potential If score is: 15-18 = H 7-14 = M 0-6 = L Record the rating on the ratio of the rating on the rating on the rating on the ratio of the rating on the ratio of the rating on the rating on the ratio of the rating on the ratio of the rating on the rating on the ratio of the ratio of the rating on the ratio of the rating on the ratio of the ratio of the rating on the ratio of the ratio of the ratio of the ratio of the rating on the ratio of the ratin of the ratio of the ratio of the ratio of t | the first page |
| H 2.0. Does the landscape have the potential to support the habitat functions of the site? | |
| | |
| H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit). | 0 |
| | 0 |
| 0.00 | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{1.70}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{1.70}$ = $\frac{3.90}{1.70}$ %If total accessible habitat is: | 0 |
| Calculate: % undisturbed habitat $\frac{2.20}{1.70}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{1.70}$ = $\frac{3.90}{.000}$ % If total accessible habitat is: | 0 |
| Calculate:% undisturbed habitat $^{2.20}$ + [(% moderate and low intensity land uses)/2] $^{1.70}$ = $^{3.90}$ %If total accessible habitat is: $2^{-1}/_{3}$ (33.3%) of 1 km Polygonpoints = 3 | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{1.70}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{1.70}$ = $\frac{3.90}{.000}$ %If total accessible habitat is: $1/3$ (33.3%) of 1 km Polygon $20-33\%$ of 1 km Polygonpoints = 3 $20-33\%$ of 1 km Polygonpoints = 2 | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{1.70}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{1.70}$ = $\frac{3.90}{.000}$ %If total accessible habitat is:> $\frac{1}{3}$ (33.3%) of 1 km Polygon $20-33\%$ of 1 km Polygonpoints = 3 $10-19\%$ of 1 km Polygonpoints = 1 | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{2.20}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{2.20}$ = $\frac{3.90}{2.20}$ %If total accessible habitat is: $9^{-1}/3$ (33.3%) of 1 km Polygon $20-33\%$ of 1 km Polygonpoints = 3 $20-33\%$ of 1 km Polygonpoints = 2 $10-19\%$ of 1 km Polygonpoints = 1 $\sqrt{10\%}$ of 1 km Polygonpoints = 0H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{2.20}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{2.20}$ = $\frac{3.90}{2.20}$ %If total accessible habitat is: $9^{-1}/3$ (33.3%) of 1 km Polygon $20-33\%$ of 1 km Polygonpoints = 3 $20-33\%$ of 1 km Polygonpoints = 2 $10-19\%$ of 1 km Polygonpoints = 1 $\sqrt{10\%}$ of 1 km Polygonpoints = 0H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. | 0 |
| Calculate:% undisturbed habitat $\frac{2.20}{2.20}$ + [(% moderate and low intensity land uses)/2] $\frac{1.70}{2.20}$ = $\frac{3.90}{2.20}$ %If total accessible habitat is: $1^{1/3}$ (33.3%) of 1 km Polygon $20-33\%$ of 1 km Polygonpoints = 3 $20-33\%$ of 1 km Polygonpoints = 2 $10-19\%$ of 1 km Polygonpoints = 1 $\sqrt{10\%}$ of 1 km Polygonpoints = 0H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. 27.00 + [(% moderate and low intensity land uses)/2] 3.10 = 30.10 % | 0 |

| | in starts 2 | |
|--|-----------------------------------|---------------|
| Undisturbed habitat 10-50% and in 1-3 patches | points = 2 | |
| ✓ Undisturbed habitat 10-50% and > 3 patches | points = 1 | |
| Undisturbed habitat < 10% of 1 km Polygon | points = 0 | |
| H 2.3. Land use intensity in 1 km Polygon: If | | -2 |
| ✓ > 50% of 1 km Polygon is high intensity land use | points = (- 2) | -2 |
| Some set a state of 1 km Polygon is high intensity | points = 0 | |
| Total for H 2 | Add the points in the boxes above | -1 |
| Rating of Landscape Potential If score is: 4-6 = H 1-3 = M 1 < 1 = L | Record the rating on th | he first page |

| H 3.0. Is the habitat provided by the site valuable to society? | |
|--|----------------|
| H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? Choose only the highest score that applies to the wetland being rated. Site meets ANY of the following criteria: points = 2 It has 3 or more priority habitats within 100 m (see next page) It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) It is mapped as a location for an individual WDFW priority species 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 points = 1 Site does not meet any of the criteria above points = 0 | 2 |
| Rating of Value If score is: $\boxed{\sqrt{2}} = H $ $\boxed{1} = M $ $\boxed{0} = L$ Record the rating on | the first page |

1

WDFW Priority Habitats

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

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

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

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

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

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

- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 see web link above*).
- **Riparian**: The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- Westside Prairies: Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 see web link above*).

Instream: The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.

Nearshore: Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page).*

Caves: A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.

Cliffs: Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.

Talus: Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.

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

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

CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

| Wetland Type | Category |
|---|----------|
| Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met. | |
| SC 1.0. Estuarine wetlands | |
| Does the wetland meet the following criteria for Estuarine wetlands? | |
| The dominant water regime is tidal, | |
| Vegetated, and | |
| With a salinity greater than 0.5 ppt | |
| SC 1.1. Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area | |
| Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151? | Cat. I |
| Yes = Category I No - Go to SC 1.2 | |
| SC 1.2. Is the wetland unit at least 1 ac in size and meets at least two of the following three conditions? | |
| The wetland is relatively undisturbed (has no diking, ditching, filling, cultivation, grazing, and has less than 10% cover of non-native plant species. (If non-native species are Spartina, see page 25) | Cat. I |
| 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. | |
| LIThe wetland has at least two of the following features: tidal channels, depressions with open water, or | Cat. II |
| contiguous freshwater wetlands. | |
| SC 2.0. Wetlands of High Conservation Value (WHCV) | |
| SC 2.1. Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High | |
| Conservation Value? Yes – Go to SC 2.2 No – Go to SC 2.3 | Cat. I |
| SC 2.2. Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? | |
| Yes = Category I I No = Not a WHCV SC 2.3. Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? | |
| http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf | |
| Yes – Contact WNHP/WDNR and go to SC 2.4 ONO = Not a WHCV | |
| SC 2.4. Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on | |
| their website? Yes = Category I No = Not a WHCV | |
| SC 3.0. Bogs | |
| Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? Use the key | |
| below. If you answer YES you will still need to rate the wetland based on its functions. SC 3.1. Does an area within the wetland unit have organic soil horizons, either peats or mucks, that compose 16 in or | |
| more of the first 32 in of the soil profile? \Box Yes – Go to SC 3.3 \Box 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 Vo = 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. | Cat. I |
| SC 3.4. Is an area with peats or mucks forested (> 30% cover) with Sitka spruce, subalpine fir, western red cedar, | |
| western hemlock, lodgepole pine, quaking aspen, Engelmann spruce, or western white pine, AND any of the | |
| species (or combination of species) listed in Table 4 provide more than 30% of the cover under the canopy? Yes = Is a Category I bog \square No = Is not a bog | |
| | |

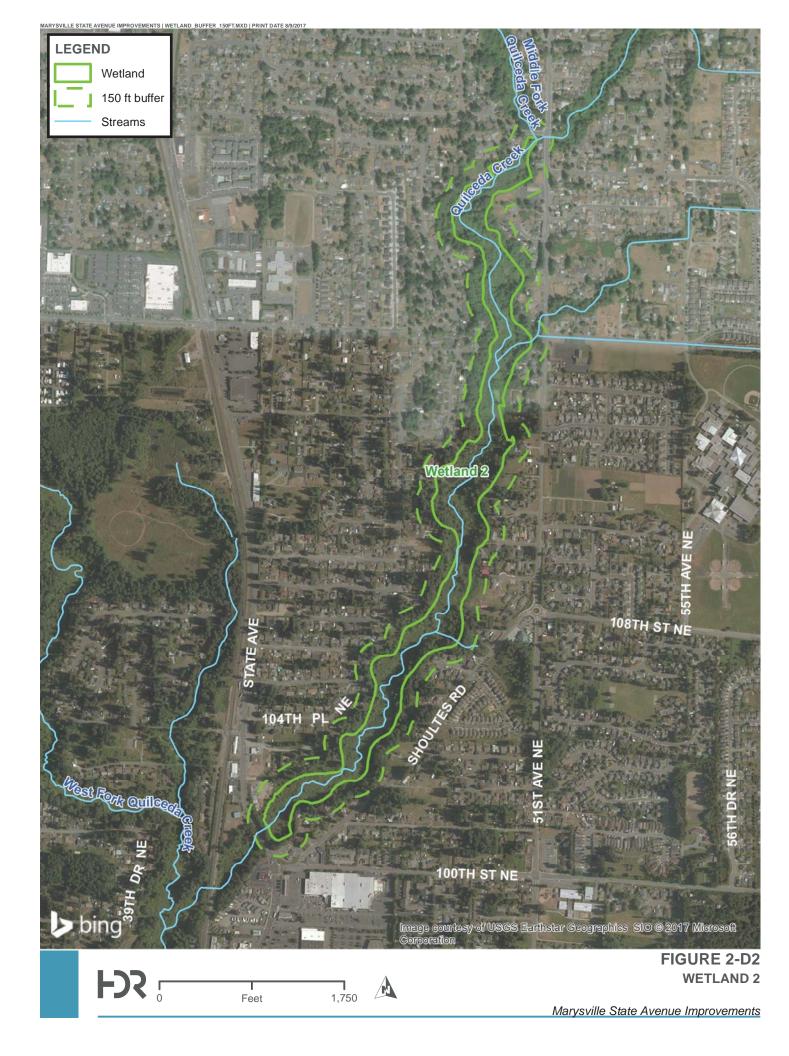
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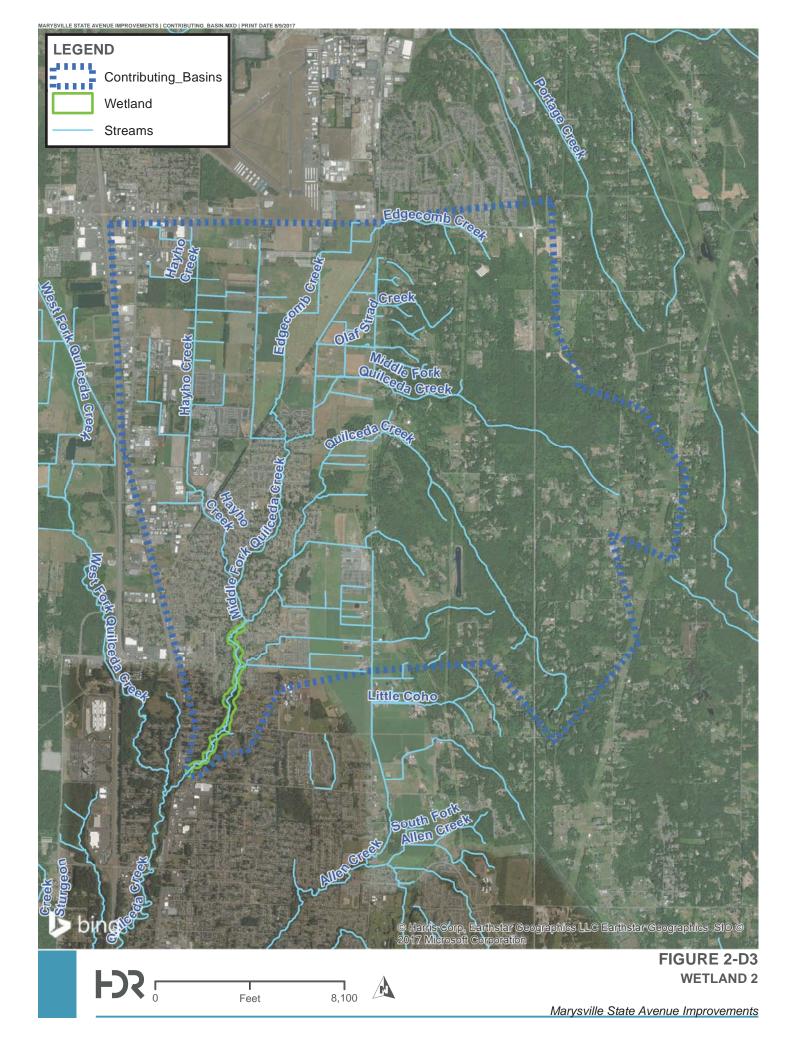
| SC 4.0. Forested Wetlands | |
|--|----------|
| Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA | |
| Department of Fish and Wildlife's forests as priority habitats? If you answer YES you will still need to rate | |
| the wetland based on its functions. | |
| Old-growth forests (west of Cascade crest): Stands of at least two tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) that are at least 200 years of | |
| age OR have a diameter at breast height (dbh) of 32 in (81 cm) or more. | |
| Mature forests (west of the Cascade Crest): Stands where the largest trees are 80- 200 years old OR the | |
| species that make up the canopy have an average diameter (dbh) exceeding 21 in (53 cm). | |
| Yes = Category I Vo = Not a forested wetland for this section | Cat. I |
| SC 5.0. Wetlands in Coastal Lagoons | |
| Does the wetland meet all of the following criteria of a wetland in a coastal lagoon? | |
| The wetland lies in a depression adjacent to marine waters that is wholly or partially separated from | |
| marine waters by sandbanks, gravel banks, shingle, or, less frequently, rocks | |
| └└┘The lagoon in which the wetland is located contains ponded water that is saline or brackish (> 0.5 ppt) | • · · 🗂 |
| during most of the year in at least a portion of the lagoon (needs to be measured near the bottom) | Cat. I |
| $\boxed{ Yes - Go to SC 5.1 } \qquad \checkmark 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). | Cat. II |
| \square At least $\frac{3}{4}$ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un- | |
| mowed grassland. | |
| The wetland is larger than $1/_{10}$ ac (4350 ft ²) | |
| Yes = Category I Average Avera | |
| SC 6.0. Interdunal Wetlands | |
| Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? If | |
| you answer yes you will still need to rate the wetland based on its habitat functions. | |
| In practical terms that means the following geographic areas: | |
| Long Beach Peninsula: Lands west of SR 103 Grayland-Westport: Lands west of SR 105 | Cat I |
| \square Ocean Shores-Copalis: Lands west of SR 115 and SR 109 $_$ | |
| \Box Yes – Go to SC 6.1 \Box 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 | Cat. II |
| for the three aspects of function)? \Box Yes = Category I \Box 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? | |
| \Box Yes = Category II \Box No – Go to SC 6.3 | Cat. III |
| SC 6.3. Is the unit between 0.1 and 1 ac, or is it in a mosaic of wetlands that is between 0.1 and 1 ac? Yes = Category III No = Category IV | |
| | Cat. IV |
| Category of wetland based on Special Characteristics | |
| If you answered No for all types, enter "Not Applicable" on Summary Form | NA |

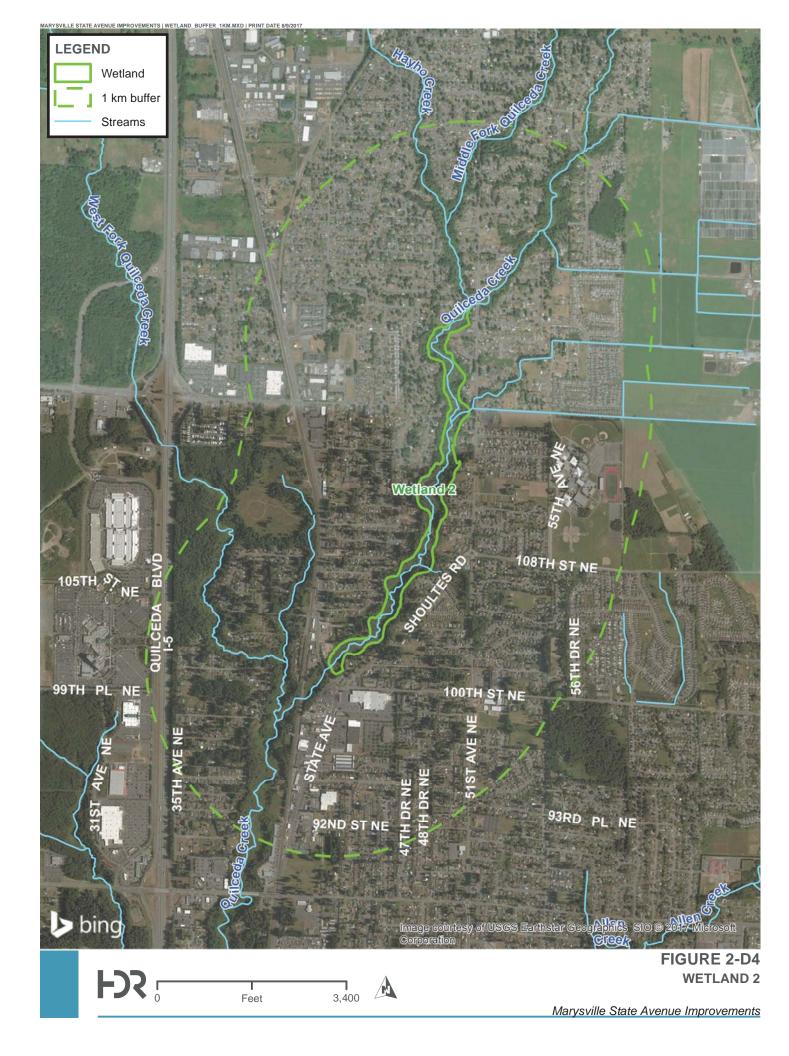
Wetland name or number _____

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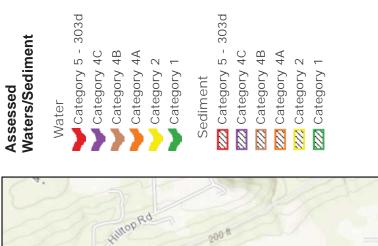




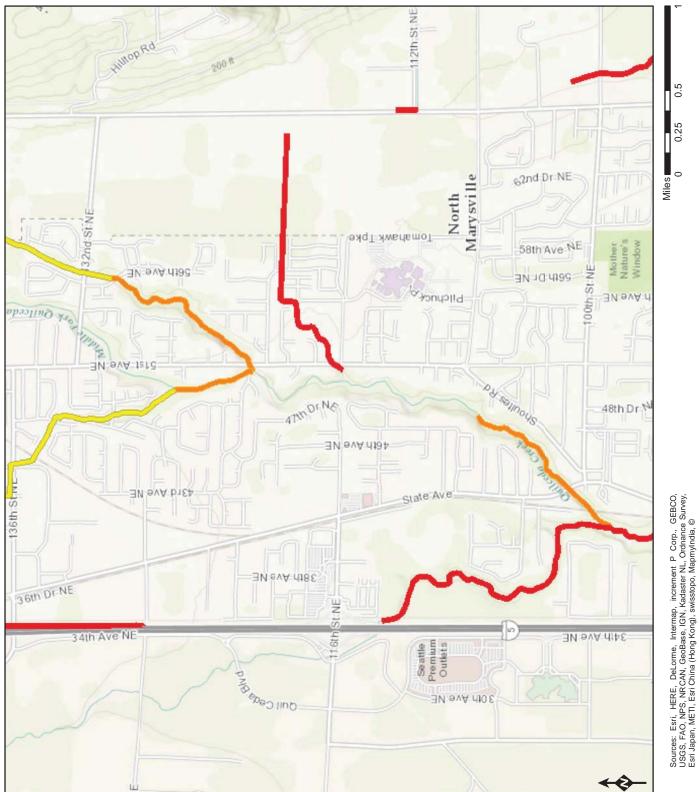




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Figure 2D-6



Water Quality Improvement Projects (TMDLs)

<u>Water Quality Improvement</u> > <u>Water Quality Improvement Projects by County</u> > Snohomish County

Snohomish County projects

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

To get additional information about the water bodies in Snohomish County please use the Water Quality Assessment Query Tool.

WRIAs in Snohomish County

• WRIA 3 - Lower Skagit-Samish

- WRIA 4 Upper Skagit
- <u>WRIA 5</u> Stillaguamish
 <u>WRIA 7</u> Snohomish
- WRIA 8 Cedar-Sammamish

| Water-body Name | Pollutants | Status | TMDL Leads |
|--|---|--|-----------------------------------|
| <u>Ballinger Lake</u> | Total Phosphorus | EPA approved | Tricia Shoblom 425-649-7288 |
| Bear-Evans Creek Basin | Fecal Coliform | EPA approved | <u>Joan Nolan</u> 425-649-4425 |
| | Dissolved Oxygen Temperature | EPA approved | |
| Lake Ketchum | Total Phosphorus | Under development as a straight to implementation project | Tricia Shoblom 425-649-7288 |
| Lake Loma | Total Phosphorus | Straight to implementation project under development | Tricia Shoblom 425-649-7288 |
| Little Bear Creek Tributaries: Trout Stream Great Dane Creek Cutthroat Creek | Fecal Coliform | EPA approved | Ralph Svrjcek 425-649-7165 |
| North Creek | Fecal Coliform | EPA approved Has an implementation plan | Ralph Svrjcek 425-649-7165 S |
| Old Stillaguamish Channel | Dissolved Oxygen | On hold | Ralph Svricek 425-649-7165 |
| <u>Snohomish River</u> | French Creek / Pilchuck River Dissolved Oxygen Temperature | Under development | Ralph Svricek 425-649-7165 |
| | Dioxin | EPA approved | Ralph Svricek 425-649-7165 |
| | Estuary • Ammonia • BOD | EPA approved | Ralph Svrjcek 425-649-7165 |
| | Tributaries • Fecal Coliform Tributaries: | EPA approved | Ralph Svricek 425-649-7165 |



| | Allen Creek Quilceda Creek French Creek Woods Creek Pilchuck River Marshlands (Wood Creek) {2} | | |
|----------------------------|---|---|-------------------------------|
| | Snoqualmie River • Ammonia-N • BOD (5-day) • Fecal Coliform Temperature | EPA approved EPA approved Has an implementation plan | Ralph Svricek 425-649-7165 |
| <u>Stillaguamish River</u> | Arsenic Dissolved Oxygen Fecal Coliform Mercury pH Temperature | EPA approved Has an implementation plan | Ralph Svrjcek 425-649-7165 |
| Swamp Creek | Fecal Coliform | EPA approved Has an implementation plan | Ralph Svrjcek 425-649-7165 |

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APPENDIX C STREAM PHOTOGRAPHS

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Stream photos



Photo 1: Quil Ceda Creek upstream of State Ave culvert.



Photo 2: Quil Ceda Creek at culvert exit downstream of State Ave.



Photo 3: Quil Ceda Creek in downstream reach of study area.