

**RECEIVED**

DEC 28 2017

**CITY OF MUKILTEO**

**Wetland and Stream Delineation Report**

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

*for*  
**City of Mukilteo**

December 18, 2017

**GEOENGINEERS** 

600 Dupont Street  
Bellingham, Washington 98225  
360.647.1510

**Wetland and Stream Delineation Report**  
**Harbour Pointe Boulevard Widening Project**  
**Mukilteo County, Washington**

**File No. 5790-004-00**

**December 18, 2017**

Prepared for:

City of Mukilteo  
11930 Cyrus Way  
Mukilteo, Washington 98275

Attention: Challis Stringer

Prepared by:

GeoEngineers, Inc.  
600 Dupont Street  
Bellingham, Washington 98225  
360.647.1510



Jennifer L. Dadisman, PWS  
Wetlands Biologist



Fiona McNair, MS, PWS  
Wetlands Scientist



Joseph O. Callaghan, MS, PWS  
Associate Biologist

JLD:FMM:JOC:tn

Disclaimer: Any electronic form, facsimile or hard copy of the original document (email, text, table, and/or figure), if provided, and any attachments are only a copy of the original document. The original document is stored by GeoEngineers, Inc. and will serve as the official document of record.

## Table of Contents

<b>INTRODUCTION.....</b>	<b>1</b>
Project Location and Site Description .....	1
<b>PROJECT DESCRIPTION.....</b>	<b>1</b>
<b>WETLAND AND STREAM DELINEATION .....</b>	<b>2</b>
Data Research .....	2
Field Investigation.....	2
<b>SUMMARY .....</b>	<b>6</b>
<b>LIMITATIONS.....</b>	<b>6</b>
<b>REFERENCES .....</b>	<b>6</b>

### LIST OF FIGURES

Figure 1. Vicinity Map  
Figure 2. Site Plan

### APPENDICES

Appendix A. Site Photographs  
Appendix B. Background Maps  
Appendix C. Sample Plot Data Forms  
Appendix D. Wetland Rating Forms

## INTRODUCTION

GeoEngineers, Inc. (GeoEngineers) was contracted by City of Mukilteo (Mukilteo) to perform a wetland and stream investigation and delineation at the Cyrus Way and Harbour Pointe Boulevard intersection, for the proposed Harbour Pointe Boulevard Widening Project (project). Mukilteo is planning to widen the existing roadway and install new sidewalks. Field work for this wetland and stream delineation extended along Harbour Pointe Boulevard and Cyrus Way. This report has been written in accordance with City of Mukilteo Municipal Code (MMC) Chapter 17.52 Critical Areas.

## Project Location and Site Description

The project footprint is situated along road right-of-way (ROW) (Figure 1, Vicinity Map). The project extends approximately 1,600 feet west along Harbour Pointe Boulevard from Mukilteo Speedway, with a small northwest to southeast extension along Cyrus Way (Figure 2, Site Plan). The proposed project is located in Section 27 of Township 28 North and Range 4 East of the Willamette Meridian (W.M.). The project area is heavily developed with businesses, with a small forested section near the Cyrus Way and Harbour Pointe Boulevard intersection. Appendix A contains photographs of the site taken during the field visit.

## PROJECT DESCRIPTION

Mukilteo is proposing to widen Harbour Pointe Boulevard SW and upgrade the operational components of the Harbour Pointe Boulevard SW/Cyrus Way intersection within the City of Mukilteo, Washington. The Road Project is classified as a reconstruction project that will mitigate collisions and provide public benefit by reducing congestion, increasing safety, improving business access, and improving the level of service at the intersections of Cyrus Way. The project will extend along Harbour Pointe Boulevard from SR 525 to approximately 450 feet west of Cyrus Way (Figure 2).

Left turn pockets with left turn sign phases will be added to all four legs at the intersection of Cyrus Way allowing left turn movements to be protected/permissive. An elevated, 8-foot wide shared use path and 5-foot wide planter strip will be constructed on the south side of the boulevard to complete the sidewalk and bike path gap that currently exists. Adjacent to a previously delineated wetland (Wetland C), the planter strip will be eliminated, and the sidewalk narrowed to avoid impacts to the wetland.

Sidewalks along the east and west sides of Cyrus Way will be designed to draw pedestrians closer to the existing traveled way. At the intersection, proposed sidewalks will match against the back of curb. This is a standard design provision and is being done to minimize pedestrian crosswalk lengths, impacts to existing critical areas, and to avoid acquisition of new right-of-way. Roadway lane widths have been designed to best accommodate semi-truck turning movements as well as to minimize environmental impacts. Proposed paving limits have been minimized to reduce impacts on stormwater and downstream critical areas. Stormwater management will address both flow control and water quality in one combined wet vault/detention facility.

Project elements will provide comprehensive safety improvements that accommodate expected increases in traffic within the corridor. Overall outcomes will include increased corridor safety and capacity, reduced delay and congestion, increased freight mobility, and enhanced Americans with Disabilities Act (ADA) accessibility along this City arterial serving a combination of residential, commercial, industrial, and recreational users.

Delineation of aquatic critical areas (wetlands and streams) was conducted in accordance with guidelines presented in MMC Chapter 17.52 (Critical Areas Ordinance), which includes the use of the United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (Environmental Laboratory 1987) and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (USACE 2010).

GeoEngineers identified two wetlands (Wetlands A and B) within the assessment area. No streams were observed within or adjacent to the assessment area. We did not observe unmapped off-site features that would be impacted during construction. GeoEngineers placed survey flags marking wetland jurisdictional boundaries. These boundaries were surveyed and the survey is depicted on Figure 2. To make wetland identification, we established four formal data sample plots. We also rated each delineated wetland using the Washington State Wetland Rating System for Western Washington (Hruby 2014) as specified in MMC Chapter 17.52B.090 (Wetland rating and classification). Appendices C and D include sample plot data forms and wetland rating forms, respectively.

Tables 1 and 2 on the following pages summarize information regarding each wetland feature delineated within the assessment area.

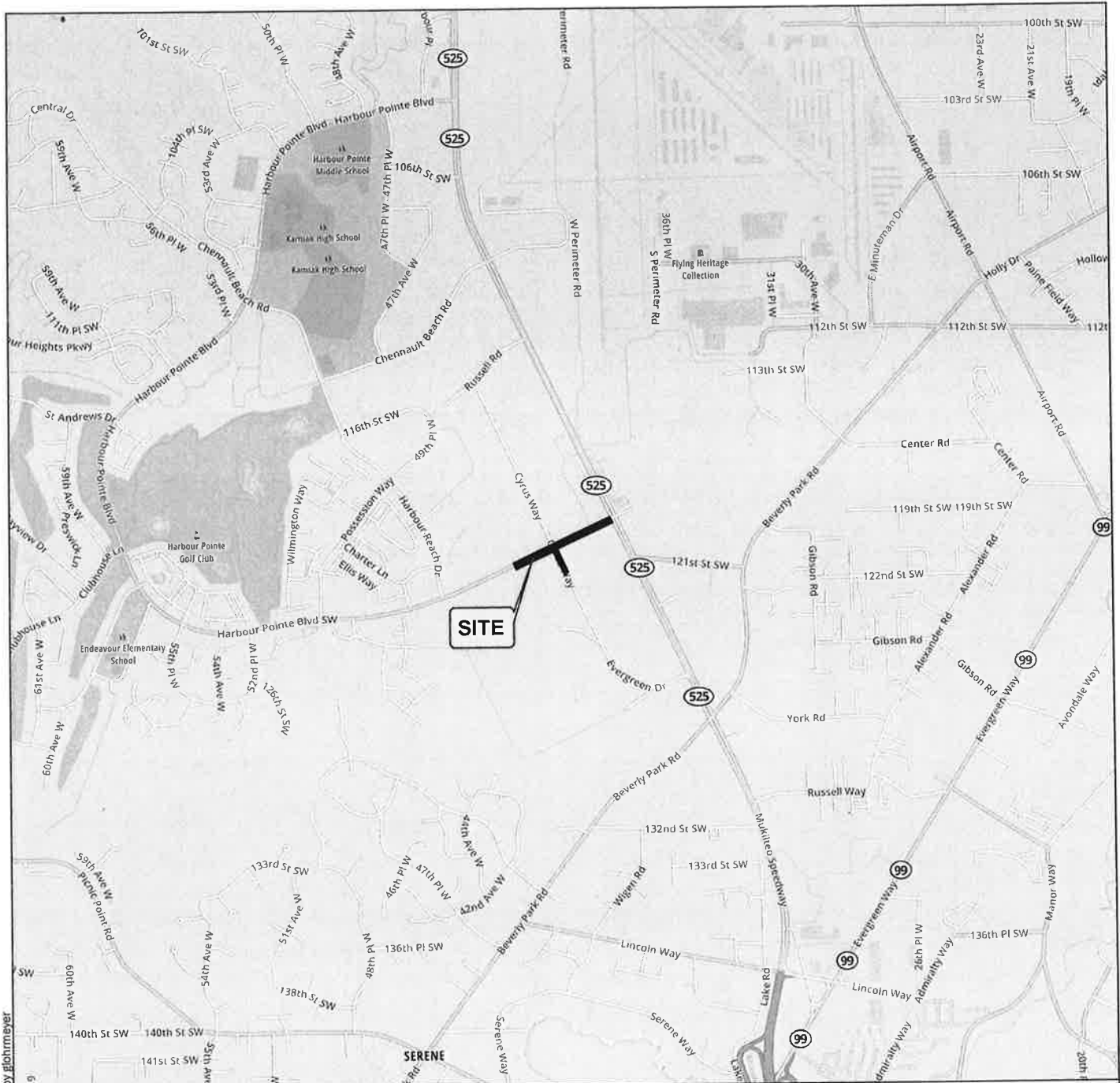
**TABLE 2. WETLAND B**

Wetland B - Information	
Location	East of Cyrus Way and south of Harbour Pointe Boulevard
WRIA	8 - Cedar-Sammamish
Local Jurisdiction	City of Mukilteo
Rating	IV (13 points) <sup>1</sup>
Buffer Width	40 feet <sup>2</sup>
Size	656 square feet
Cowardin Class	Palustrine Forested and Emergent
HGM Class	Slope
Photographs	Appendix A: 11 and 12
Data Forms	Appendix C: SP-3 (upland) and SP-4 (wetland)
Description Summary	
Vegetation	<p><b>Herbaceous:</b> Creeping buttercup (<i>Ranunculus repens</i>), Reed canarygrass (<i>Phalaris arundinacea</i>), slough sedge (<i>Carex obnupta</i>)</p> <p><b>Shrub:</b> Pacific willow (<i>Salix lasiandra</i>), Salmonberry (<i>Rubus spectabilis</i>), Himalayan blackberry (<i>Rubus armeniacus</i>)</p> <p><b>Tree:</b> Pacific willow (<i>Salix lasiandra</i>), Red alder (<i>Alnus rubra</i>) and black cottonwood (<i>Populus balsamifera</i>)</p>
Soils	Soils meet the criteria for hydric soil indicator Depleted matrix (F3)
Hydrology	<p><b>Indicators:</b> FAC neutral test and geomorphic position</p> <p><b>Source:</b> Direct precipitation, stormwater runoff and high water table</p>
Notes	Small system that slopes down to the road. No hydrology at the time of the site visit.
Western Washington Wetland Rating Functions Summary (Appendix D - 13 points total)	
Water Quality	<b>6 points:</b> due to vegetation coverage, being a sloping system and being within a watershed that has TMDL
Hydrologic	<b>4 points:</b> due to vegetation coverage and there being no flooding issues downstream.
Habitat	<b>3 points:</b> due to poor buffers with no connections to other upland or wetland areas, and having no special habitat features such as large wood debris.
Buffer Condition	Located in a highly developed area with no connections to other vegetated areas. Vegetated buffer area largely consists of red alder and Himalayan blackberry. Remaining portion of buffer consists of roadways and buildings.

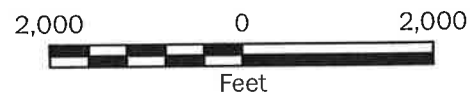
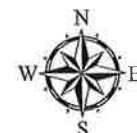
Notes:

- <sup>1</sup> Wetland rating in accordance with Washington State Wetlands Rating System for Western Washington, (Hruby, revised 2014).
- <sup>2</sup> MMC 17.52B.100 (Table 1) based on a rating score of points for habitat and wetland category. The final buffer width is subject to approval by the jurisdictional authority. Buffer width also assumes minimization measures will be applied.

- United States Army Corps of Engineers (USACE), 2010, Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region, ed. J.S. Wakeley, R. W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, MS: U.S. Army Engineer Research and Development Center.
- United States Army Corp of Engineers (USACE). 2016. Western Mountains, Valleys, and Coast 2016 Regional Wetland Plant List, US Army Corps of Engineers, Cold Regions Research and Engineering Laboratory.
- United States Department of Agriculture – National Resource Conservation Service (USDA-NRCS). 2013. Web Soil Survey. Available at: <http://websoilsurvey.nrcs.usda.gov/app/>.
- USDA-NRCS. 2015 National Hydric Soils List. Updated December 2015. Available at: [http://www.nrcs.usda.gov/wps/PA\\_NRCSConsumption/download?cid=stelprdb1248596&ext=xlsx](http://www.nrcs.usda.gov/wps/PA_NRCSConsumption/download?cid=stelprdb1248596&ext=xlsx).
- United States Fish and Wildlife Service (USFWS). 2016. Wetlands Mapper. Available at: <http://www.fws.gov/wetlands/Data/mapper.html>.
- Washington State Administrative Code. 2007. WAC 173-22-030. Definitions. Available at: <http://apps.leg.wa.gov/WAC/default.aspx?cite=173-22-030>.
- Washington State Administrative Code. 1997. WAC 222-16-030. Water Typing System. Available at: <http://apps.leg.wa.gov/WAC/default.aspx?cite=222-16-030>.
- Washington State Department of Fish and Wildlife (WDFW). 2016. Priority Habitats and Species (PHS) on the Web. Available at: <http://wdfw.wa.gov/mapping/phs/>.
- Washington State Department of Natural Resources (DNR). 2016. Forest Practices Application Review System (FPARS) Mapping Application. Available at: <https://fortress.wa.gov/dnr/protectiongis/fpamt/index.html?maptheme=WaterType&extent=-14385498.437950825,5552851.051296187,-12532664.872318646,6457865.466192433>.
- Wetland Resources, Inc. 2016. Critical Area Study and Buffer Averaging Plan for ICOM – Harbour Pointe Blvd, Mukilteo, WA. Wetland Resources, Inc. Project # 14060. Prepared for Mohammed Khan.



P:\515790004\GIS\515790004000\_F1\_VicinityMap.mxd Date Exported: 08/17/16 by ghehrmeyer



### Vicinity Map

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington



Figure 1

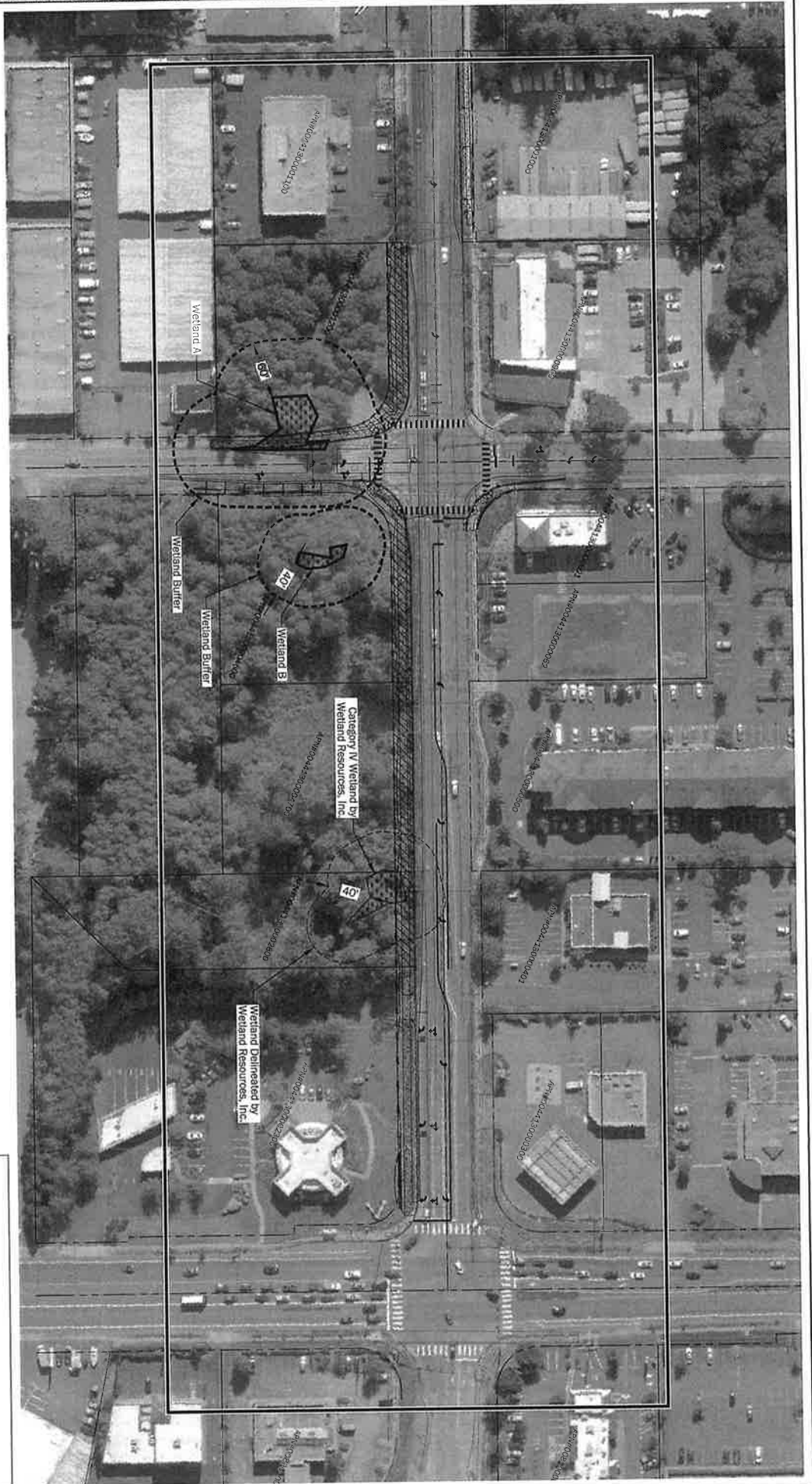
### Notes:

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

Data Source: Mapbox Open Street Map, 2016

Projection: NAD 1983 UTM Zone 10N





**Notes:**

1. The locations of all features shown are approximate.
2. This drawing is for information purposes. It is intended to assist in showing features discussed in an attached document. GeoEngineers, Inc. cannot guarantee the accuracy and content of electronic files. The master file is stored by GeoEngineers, Inc. and will serve as the official record of this communication.

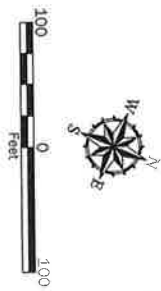
Vertical Datum: MLLW (NAVD 88).

Projection: NAD83 Washington State Planes, North Zone, US Feet.

Data Source: Basemap from White Street, Inc. dated 01/25/17. Base aerial photo for Microsoft Bing map server.

**Legend**

Project Area



**Site Plan**

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington



Figure 2

## **APPENDIX A**

### **Site Photographs**



Photograph 1. Google Earth *Street View* photograph, looking east along Harbour Pointe Boulevard near the west end of the project area.



Photograph 2. Google Earth *Street View* photograph, looking west along Harbour Pointe Boulevard near the east end of the project area.

### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

Appendix  
A-1



Photograph 3. Upland habitat adjacent to Wetland A on the west side of the project area.



Photograph 4. Typical uplands adjacent to Wetland A on the west side of the project site.

#### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

Appendix  
A-2



Photograph 5. Dominant vegetation in Wetland A, red alder and hardhack.



Photograph 6. Soils within sample plot for Wetland A.

#### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

Appendix  
A-3



Photograph 7. Google Earth Street View photograph, looking south along Cyrus Way towards Wetland A.



Photograph 8. Google Earth Street View photograph, looking north along Cyrus Way. Wetland A is on the left side of the photograph and Wetland B is in the trees on the right side of the photograph.

### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

Appendix  
A-4





Photograph 9. Upland habitat adjacent to Wetland B on the central to east side of the project area.



Photograph 10. Upland habitat adjacent to Wetland B on the central to east side of the project area.

### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

Appendix  
A-5



Photograph 11. Wetland B is dominated by a thick herbaceous understory of Slough sedge.



Photograph 12. Vegetation community at Sample Plot 4.

### Site Photographs

Harbour Pointe Boulevard Widening Project  
Mukilteo, Washington

**GEOENGINEERS** 

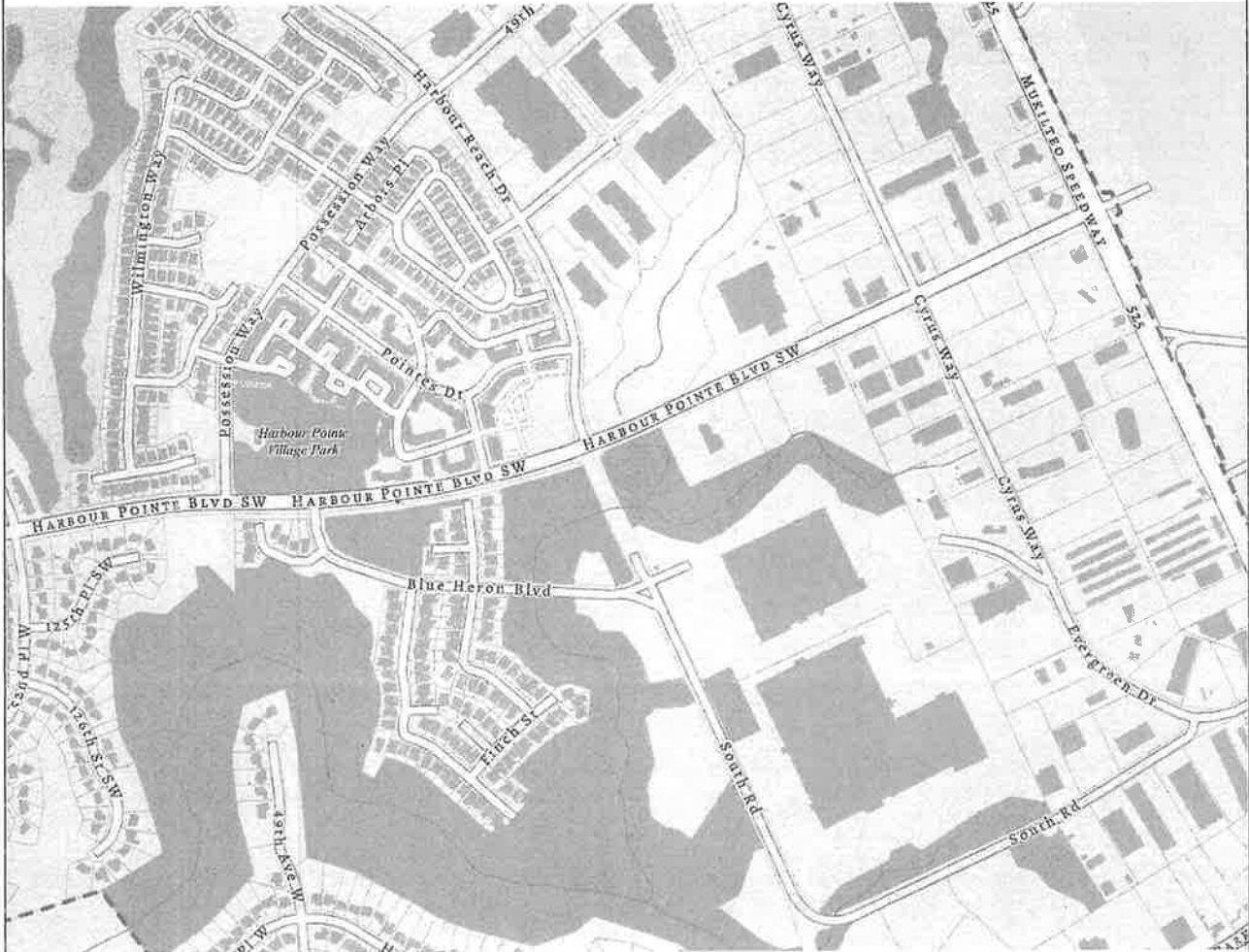
Appendix  
A-6



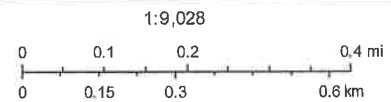
## **APPENDIX B**

### **Background Maps**

# Harbour Pointe Boulevard Widening



December 1, 2017





### Legend

#### Drain Features

- Outfalls (Dis. included)
- Catch Basin Type I
- Catch Basin Type II
- Vault (Access)
- CB Other

- Pipe In
- Pipe Out
- Overflow
- Detention Pond (pt)
- Ditch
- Bioswale
- Other Feature

- Detention Ponds

- Dual Function

#### Drainage Network

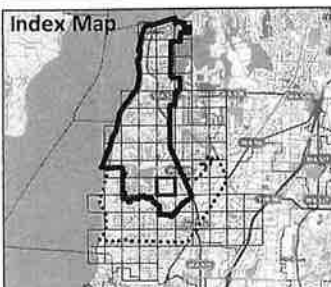
- Arrows indicate flow direction in network
- Pipe Diameter 12 & Under
- Pipe Diameter 13 - 21

- Pipe Diameter 24-30
- Pipe Diameter 35 & greater
- Undetermined Pipe Diameter
- Open Channel System
- Streams

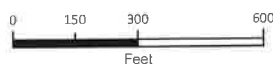
#### Base Map Features

- Parcels
- Parks/Public
- 20' Contours
- Railroad

This inventory includes primarily the City maintained and public components of the stormwater system. Private facilities and plans are included wherever possible.



MAP DATE: 6/27/2013



Data Source(s): Mukilteo-GIS(R)  
Author: M.J.L.  
Map Version: Version 3.0

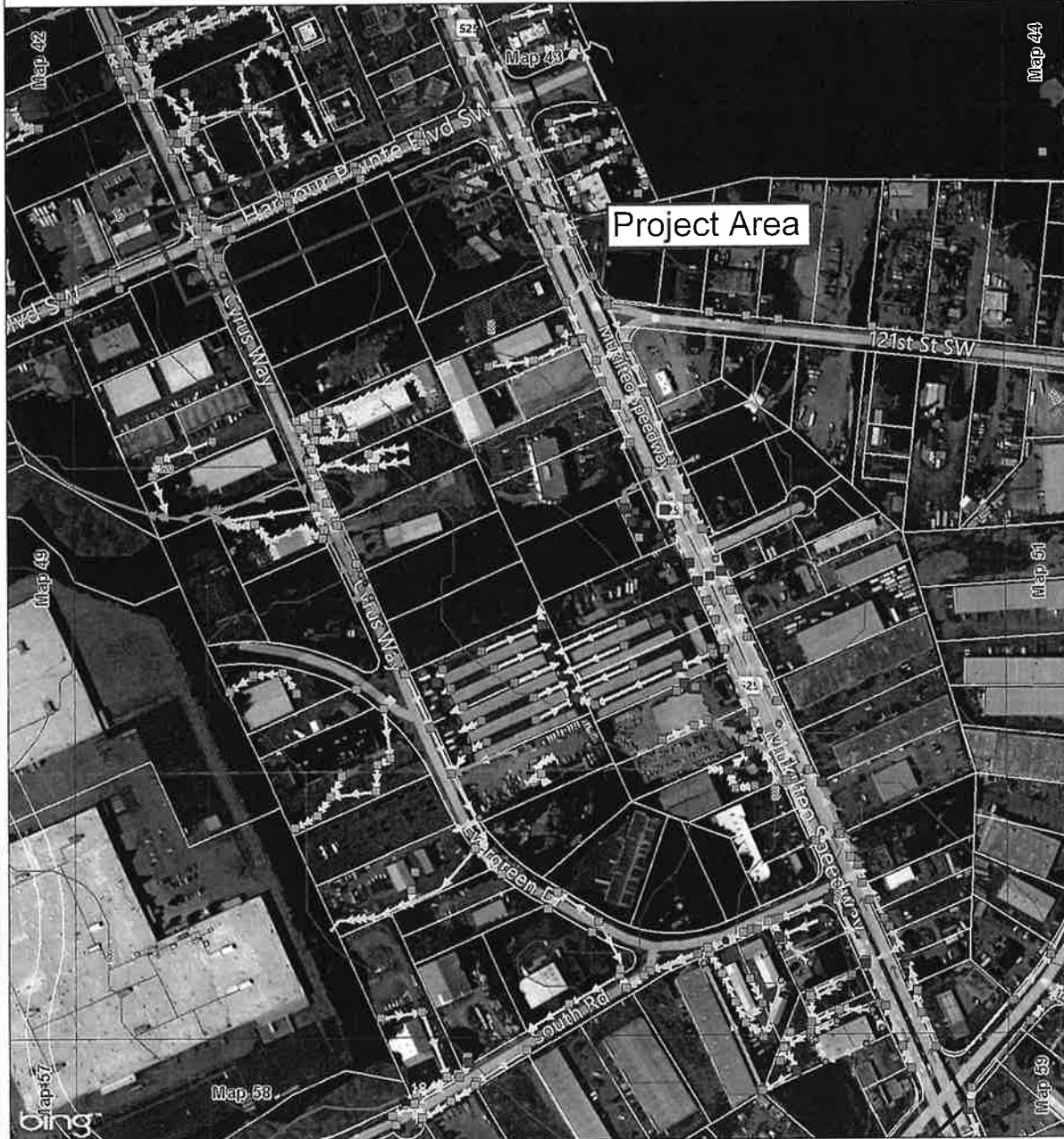


Data Source: ESA, 2013; Snohomish County, 2010; Mukilteo, 2012; WSDOT, 2007; BING Air Photo, 2012.

The City of Mukilteo disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either expressed or implied. No representation or warranty is made concerning the accuracy, completeness, or quality of data depicted on this map. Any user of this map assumes all responsibility for the use thereof, and further agrees to hold the City of Mukilteo harmless from and against any damages, loss or liability arising from any use of this map.

For More Information, Contact:  
City of Mukilteo Planning Department  
11930 Cyrus Way  
Mukilteo, WA, 98275

PHONE: (425) 263-8042  
FAX: (425) 212-2068



### Legend

#### Drain Features

- Outfalls (DIA included)
- Catch Basin Type I
- Catch Basin Type II
- Vault (Access)
- CB Other

- Pipe In
- Pipe Out
- Overflow
- Detention Pond (pt)
- Ditch
- Bioswale
- Other Feature

- Detention Ponds

- Dual Function

#### Drainage Network

- Arrows indicate flow direction in network

- Pipe Diameter 12 & Under
- Pipe Diameter 13 -21

- Pipe Diameter 24-30

- Pipe Diameter 35 & greater

- Undetermined Pipe Diameter

- Open Channel

- System

- Streams

- network connections

#### Base Map Features

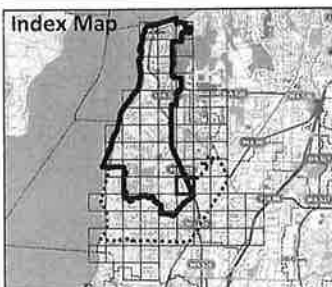
##### Parcels

- Parks/Public

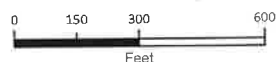
- 20' Contours

- Railroad

This Inventory includes primarily the City maintained and public components of the stormwater system. Private facilities and plans are included wherever possible.



MAP DATE: 6/27/2013



Data Source(s): Mukilteo-GIS(R)  
Author: M.J.L.  
Map Version: Version 3.0



Data Source: ESA, 2013; Snohomish County, 2010; Mukilteo, 2012; WSDOT, 2007; BING Air Photo, 2012.

The City of Mukilteo disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either expressed or implied. No representation or warranty is made concerning the accuracy, completeness, or quality of data depicted on this map. Any user of this map assumes all responsibility for the use thereof, and further agrees to hold the City of Mukilteo harmless from and against any damages, loss or liability arising from any use of this map.

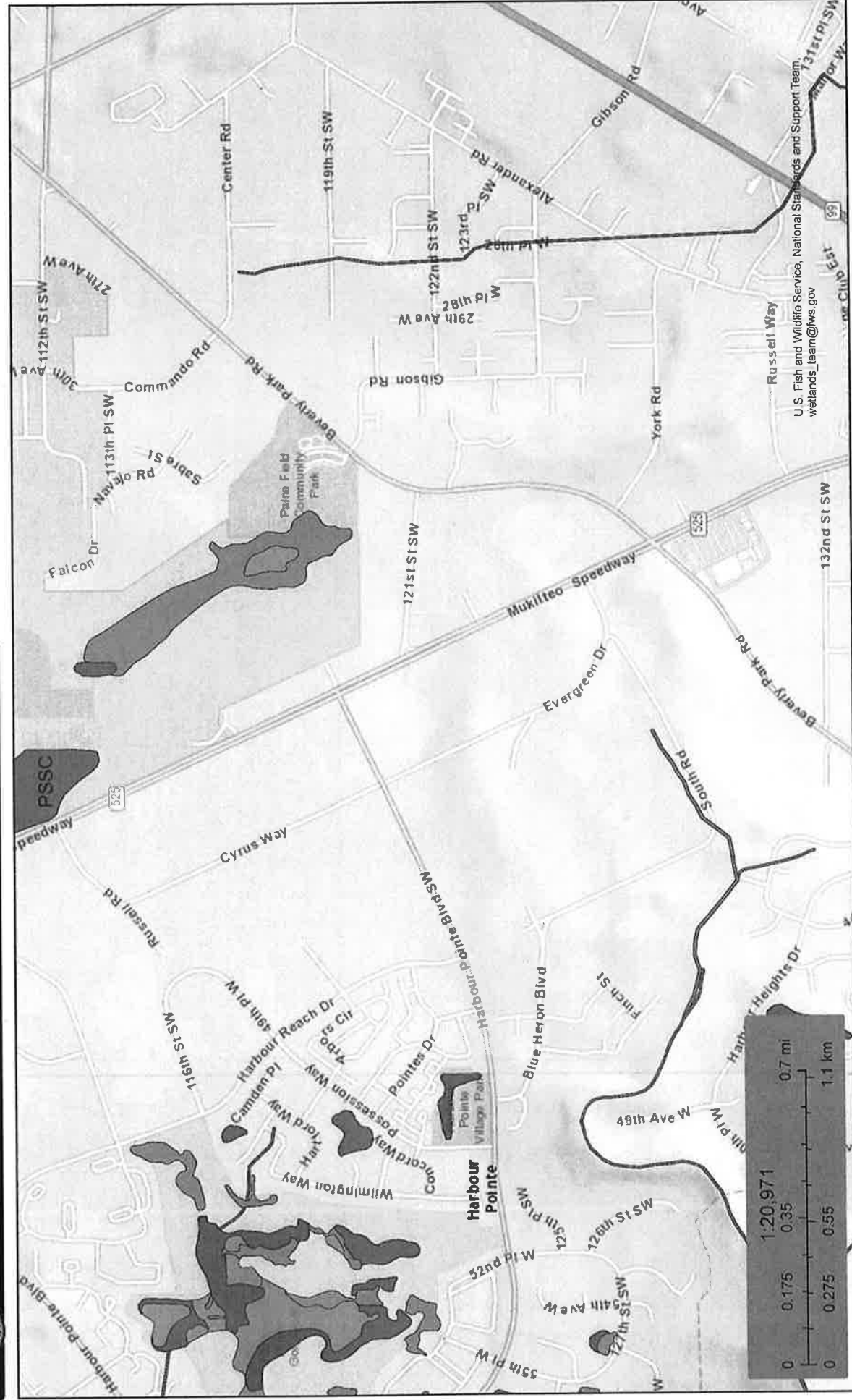
For More Information Contact:  
City of Mukilteo Planning Department  
11500 Cyrus Way  
Mukilteo, WA, 98275

PHONE: (425) 263-6042  
FAX: (425) 212-2068



# National Wetlands Inventory

# Harbour Pointe Boulevard Widening Project



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

July 26, 2016

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





# WASHINGTON DEPARTMENT OF FISH AND WILDLIFE PRIORITY HABITATS AND SPECIES REPORT

SOURCE DATASET: PHSPlusPublic  
REPORT DATE: 12/01/2017 5.25

Query ID: P171201172446

Common Name Scientific Name	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Biodiversity Areas And	SW SNOH. CO. OPEN SPACE. PHSREGION 902694	Terrestrial Habitat N/A <a href="http://wdfw.wa.gov/publications/pub.php?">http://wdfw.wa.gov/publications/pub.php?</a>	1/4 mile (Quarter	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Freshwater Emergent	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Emergent	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Emergent	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa.">http://www.ecy.wa.</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons









Common Name Scientific Name	Site Name Source Dataset Source Record Source Date	Priority Area Occurrence Type More Information (URL) Mgmt Recommendations	Accuracy	Federal Status State Status PHS Listing Status	Sensitive Data Resolution	Source Entity Geometry Type
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa">http://www.ecy.wa</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa">http://www.ecy.wa</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa">http://www.ecy.wa</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Forested/Shrub	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa">http://www.ecy.wa</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Freshwater Pond	N/A NW/Wetlands	Aquatic Habitat Aquatic habitat <a href="http://www.ecy.wa">http://www.ecy.wa</a>	NA	N/A N/A PHS Listed	N AS MAPPED	US Fish and Wildlife Service Polygons
Wetlands	BIG GULCH WETLANDS PHSREGION 902709	Aquatic Habitat N/A <a href="http://www.ecy.wa">http://www.ecy.wa</a>	1/4 mile (Quarter)	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Wetlands	LAKE STICKNEY WETLANDS PHSREGION 902708	Aquatic Habitat N/A <a href="http://www.ecy.wa">http://www.ecy.wa</a>	1/4 mile (Quarter)	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons
Wetlands	MUKILTEO WETLANDS PHSREGION 902613	Aquatic Habitat N/A <a href="http://www.ecy.wa">http://www.ecy.wa</a>	1/4 mile (Quarter)	N/A N/A PHS LISTED	N AS MAPPED	WA Dept. of Fish and Wildlife Polygons

DISCLAIMER. This report includes information that the Washington Department of Fish and Wildlife (WDFW) maintains in a central computer database. It is not an attempt to provide you with an official agency response as to the impacts of your project on fish and wildlife. This information only documents the location of fish and wildlife resources to the best of our knowledge. It is not a complete inventory and it is important to note that fish and wildlife resources may occur in areas not currently known to WDFW biologists, or in areas for which comprehensive surveys have not been conducted. Site specific surveys are frequently necessary to rule out the presence of priority resources. Locations of fish and wildlife resources are subject to variation caused by disturbance, changes in season and weather, and other factors. WDFW does not recommend using reports more than six months old.

# WDFW Test Map



December 1, 2017

-  PHS Report Clip Area
-  PT
-  LN
-  POLY
-  AS MAPPED
-  SECTION
-  QTR-TWP
-  TOWNSHIP

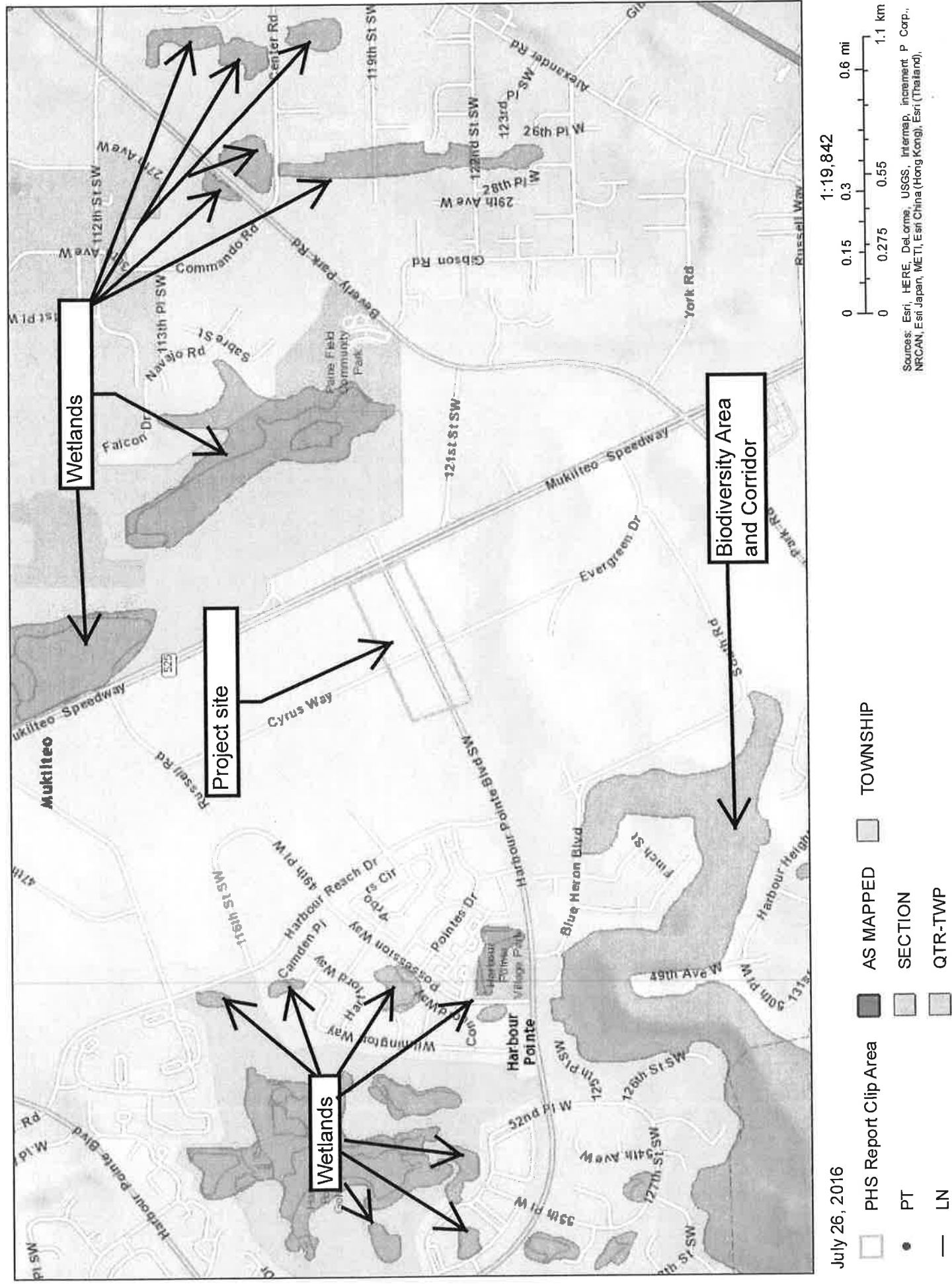
1:21,272



Source: Esri, DigitalGlobe, GeoEye, Earthstar Geographics, CNES/Airbus DS, USDA, USGS, AeroGRID, IGN, and the GIS User Community



# WDFW Test Map

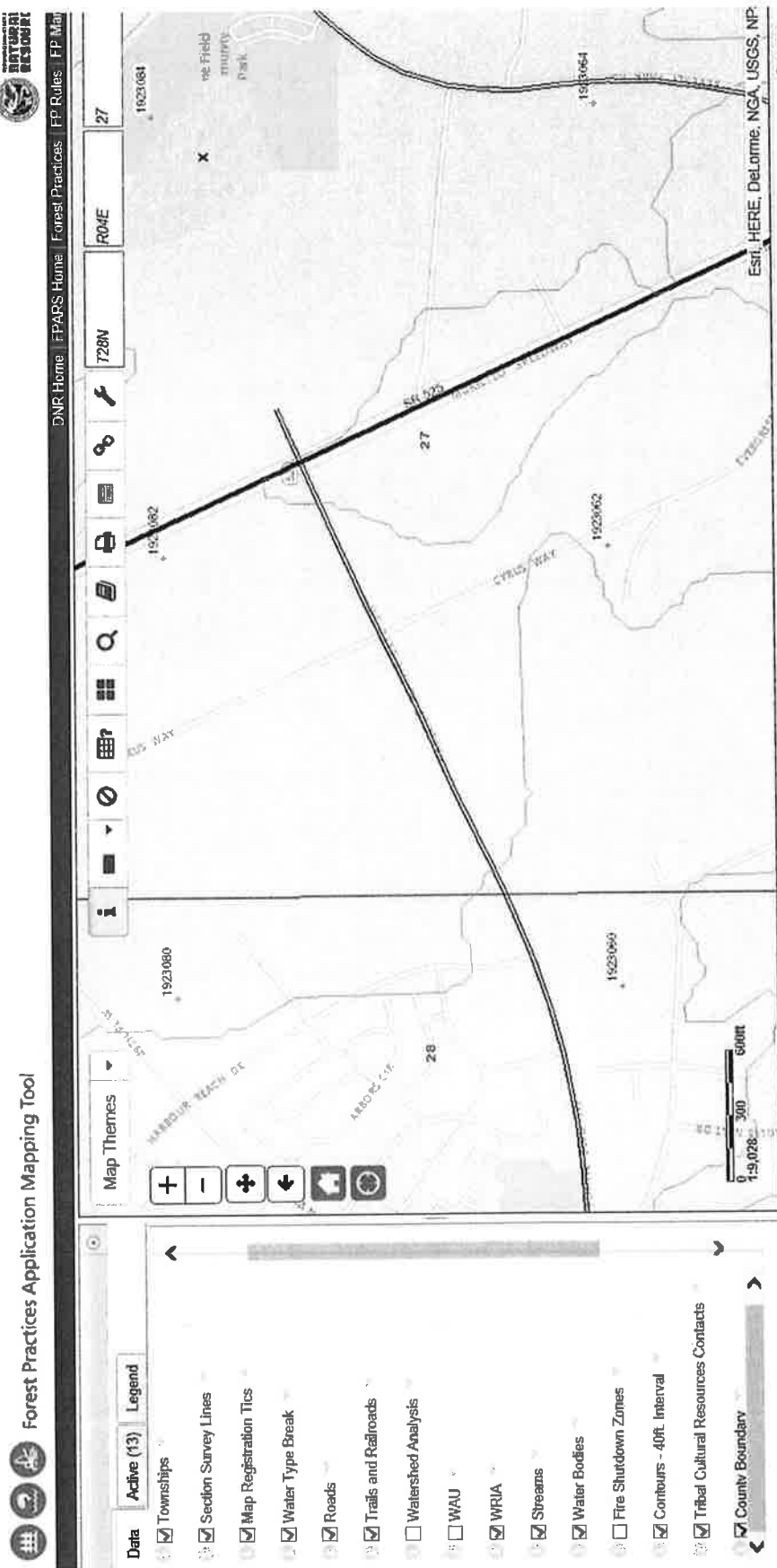




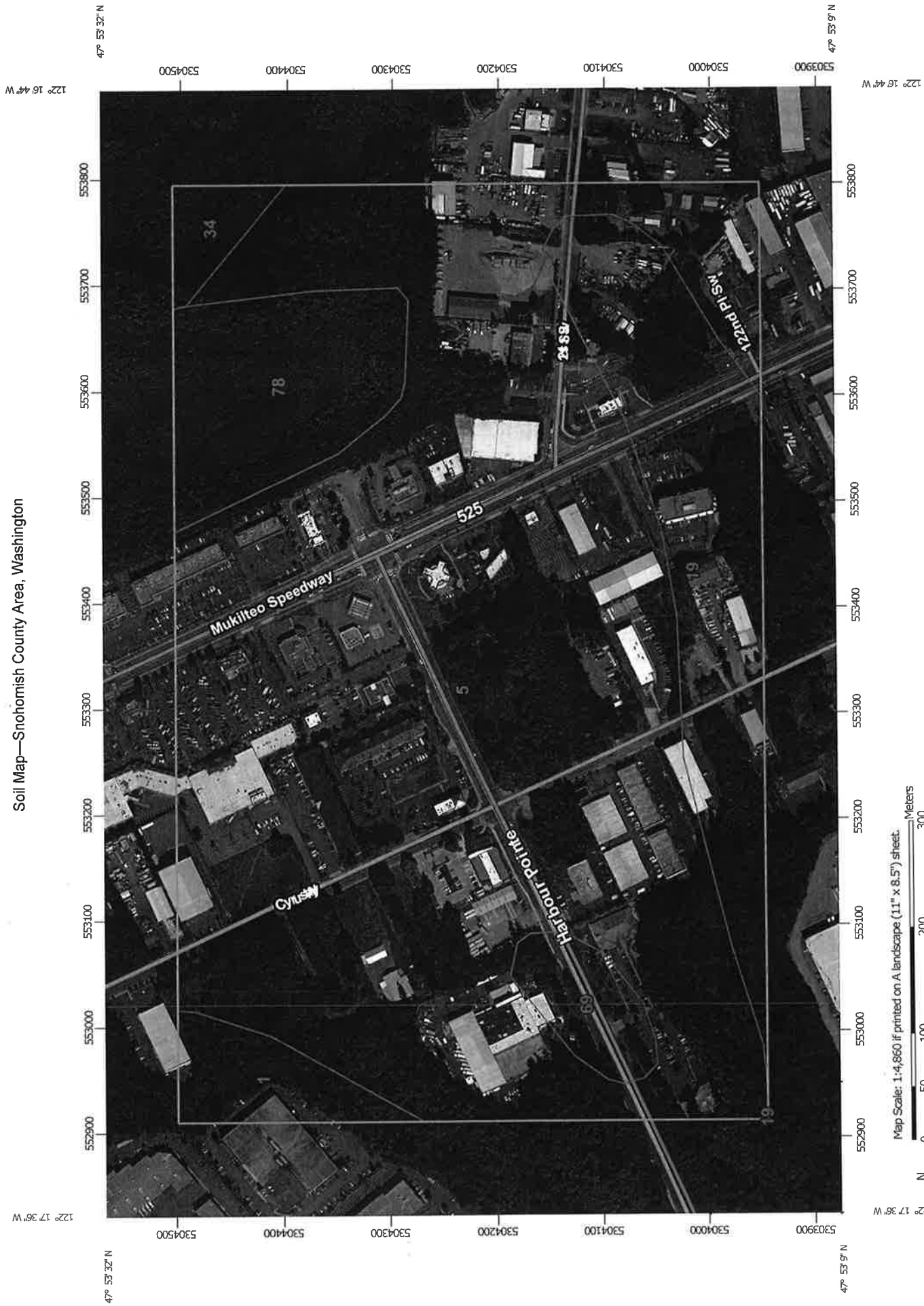




**NATURAL  
RESOURCES**  
U.S. DEPARTMENT OF THE INTERIOR



# Soil Map—Snohomish County Area, Washington



Map Scale: 1:4,860 if printed on A landscape (11" x 8.5") sheet.



Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 10N WGS84

## MAP LEGEND

## MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

**Warning:** Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

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

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

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

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

Soil Survey Area: Snohomish County Area, Washington  
Survey Area Data: Version 13, Sep 15, 2015

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

Date(s) aerial images were photographed: Jul 7, 2014—Jul 8, 2014

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

**Area of Interest (AOI)**

Area of Interest (AOI)

**Soils**

Soil Map Unit Polygons

Soil Map Unit Lines

Soil Map Unit Points

**Special Point Features**

Blowout

Borrow Pit

Clay Spot

Closed Depression

Gravel Pit

Gravelly Spot

Landfill

Lava Flow

Marsh or swamp

Mine or Quarry

Miscellaneous Water

Perennial Water

Rock Outcrop

Saline Spot

Sandy Spot

Severely Eroded Spot

Sinkhole

Slide or Slip

Sodic Spot

**Water Features**

Streams and Canals

**Transportation**

Rails

Interstate Highways

US Routes

Major Roads

Local Roads

**Background**

Aerial Photography

**Soils**

Spoil Area

Stony Spot

Very Stony Spot

Wet Spot

Other

Special Line Features

## Map Unit Legend

Snohomish County Area, Washington (WA661)			
Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
1	Alderwood gravelly sandy loam, 0 to 8 percent slopes	3.5	2.9%
5	Alderwood-Urban land complex, 2 to 8 percent slopes	88.4	72.7%
19	Everett very gravelly sandy loam, 15 to 30 percent slopes	16.0	13.2%
34	Mukilteo muck	1.7	1.4%
69	Terric Medisaprists, nearly level	2.9	2.4%
78	Urban land	9.1	7.5%
<b>Totals for Area of Interest</b>		<b>121.6</b>	<b>100.0%</b>





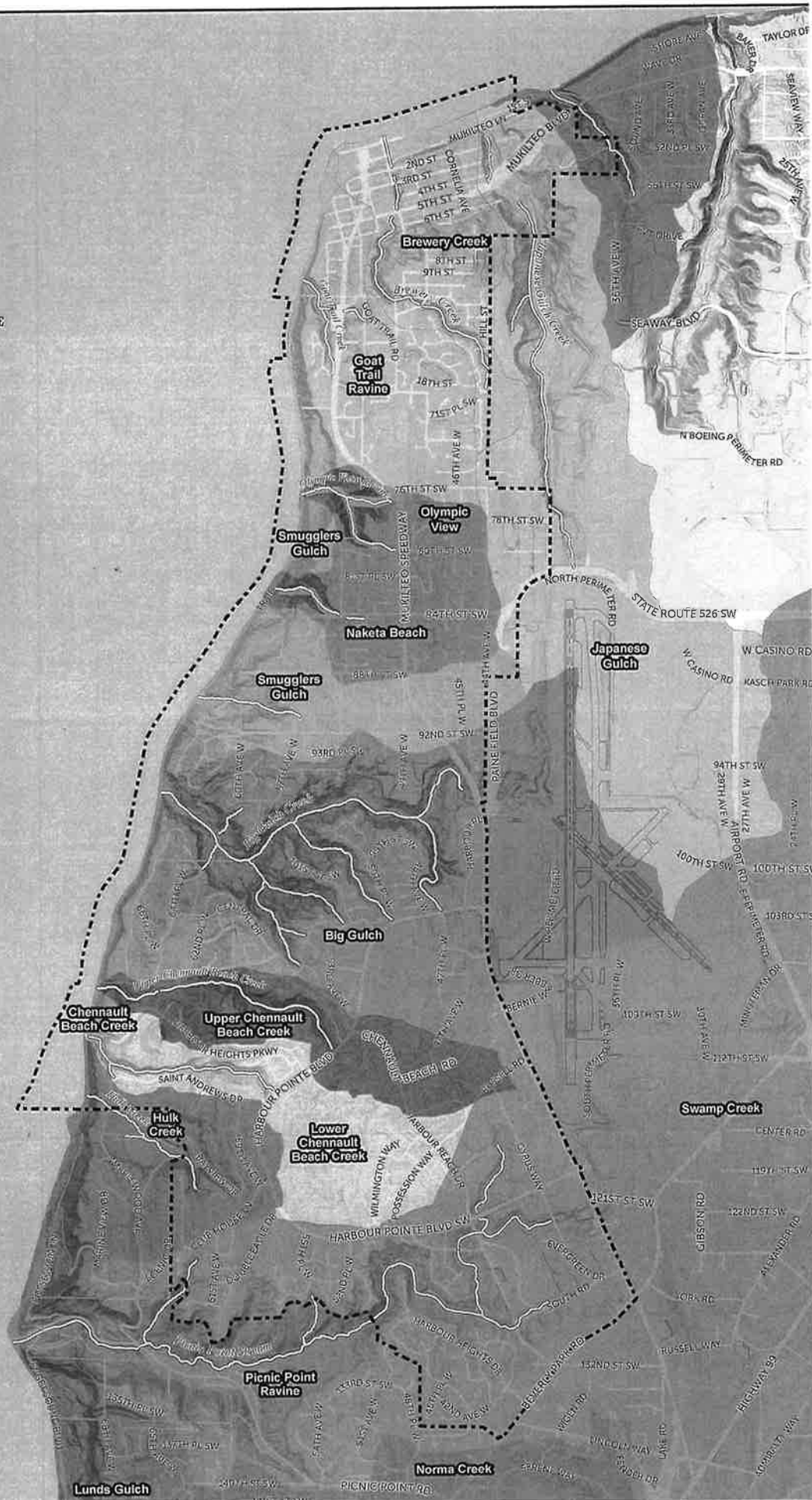
CITY OF  
**MUKILTEO**

# Streams and Watersheds

Revised 8/30/2017 Scale = 1:25,500

0 0.25 0.5 Miles  
[Scale bar]

The City of Mukilteo disclaims any warranty of merchantability or warranty of fitness of this map for any particular purpose, either expressed or implied. No representation of warranty is made concerning the accuracy, completeness, or quality of data depicted on this map. Any user of this map assumes all responsibility for the use thereof, and further agrees to hold the City of Mukilteo harmless from and against any damages, loss or liability arising from any use of this map.





# Wetlands Streams and Watersheds

Available at: <http://mukilteo.wa.gov/wp-content/uploads/2016/01/map-streams.pdf>



## **APPENDIX C**

### **Sample Plot Data Forms**

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

Project/Site: Harbour Pointe Boulevard City/County: Mukilteo Sampling Date: 7/12/2016

Applicant/Owner: City of Mukilteo State: WA Sampling Point: SP1

Investigator(s): A. Wright Section/Township/Range: S27/T28N/R04E

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): concave Slope (%): 3

Subregion (LLR): A Lat: 47.888503 Long: -122.288155 Datum: WGS 84

Soil Map Unit Name: Alderwood-Urban land complex, 2-8% slopes NWI Classification: N/A

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

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "normal circumstances" present? ☒ Yes ☐ No

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

## SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sampled area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks:		

## VEGETATION - Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b> Number of dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <i>Black Cottonwood (Populus balsamifera)</i>	20	yes	FAC	
2. <i>Red Alder (Alnus rubra)</i>	70	yes	FAC	
3. <i>Western red cedar (Thuja plicata)</i>	15	no	FAC	
4.	105	= Total Cover		<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>80</u> Multiply by: OBL Species <u>0</u> x 1 = <u>0</u> FACW Species <u>0</u> x 2 = <u>0</u> FAC Species <u>0</u> x 3 = <u>0</u> FACU Species <u>0</u> x 4 = <u>0</u> UPL Species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B) Prevalence Index = B/A = <u>#DIV/0!</u>
<b>Sapling/Shrub Stratum</b>				
1. <i>Hardhack (Spiraea douglasii)</i>	40	yes	FACW	
2. <i>Himalayan Blackberry (Rubus armeniacus)</i>	10	no	FAC	
3. <i>Salmonberry (Rubus spectabilis)</i>	30	yes	FAC	<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet.) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problem Hydrophytic Vegetation (Explain) <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
4.				
5.	80	= Total Cover		
<b>Herb Stratum</b>				
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.	0	= Total Cover		
<b>Woody Vine Stratum</b>				
1.				
2.				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>10</u>				
Remarks:				

## SOIL

Sampling Point: SP1

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-4	10YR 4/3	100						
4-8	10YR 6/2	90	10YR 5/8	10	D	M	loam	

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

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

<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: packed with gravel/cobbles

Depth (inches): 8

Hydric Soil Present? ☒ Yes ☐ No

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturated Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduction Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			
<b>Field Observations:</b>		Wetland Hydrology Present?	
Surface Water Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches):	
Water Table Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches):	
Saturation Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Depth (inches):	
(includes capillary fringe)			
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:			
Remarks:			

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

Project/Site: Harbour Pointe Boulevard City/County: Mukilteo Sampling Date: 7/12/2016

Applicant/Owner: City of Mukilteo State: WA Sampling Point: SP2

Investigator(s): A. Wright Section/Township/Range: S27/T28N/R04E

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

Subregion (LLR): A Lat: 47.888494 Long: -122.288368 Datum: WGS 84

Soil Map Unit Name: Alderwood-Urban land complex, 2-8% slopes NWI Classification: N/A

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

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "normal circumstances" present? ☒ Yes ☐ No

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

## SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sampled area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Remarks:		

## VEGETATION - Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test Worksheet:</b> Number of dominant Species That are OBL, FACW, or FAC: <u>3</u> (A)  Total Number of Dominant Species Across All Strata: <u>3</u> (B)  Percent of dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <i>Black Cottonwood (Populus balsamifera)</i>	60	yes	FAC	
2. <i>Red Alder (Alnus rubra)</i>	30	yes	FAC	
3. <i>Western red cedar (Thuja plicata)</i>	15	no	FAC	
4.	105	= Total Cover		
<b>Sapling/Shrub Stratum</b>				
1. <i>Scotch Broom (Cytisus scoparius)</i>	5	no	NI	<b>Prevalence Index Worksheet:</b> Total % Cover of: <u>90</u> Multiply by: OBL Species <u>0</u> x 1 = <u>0</u> FACW Species <u>0</u> x 2 = <u>0</u> FAC Species <u>0</u> x 3 = <u>0</u> FACU Species <u>0</u> x 4 = <u>0</u> UPL Species <u>0</u> x 5 = <u>0</u> Column Totals: <u>0</u> (A) <u>0</u> (B)  Prevalence Index = B/A = <u>#DIV/0!</u>
2. <i>Himalayan Blackberry (Rubus armeniacus)</i>	60	yes	FAC	
3. <i>Salmonberry (Rubus spectabilis)</i>	15	no	FAC	
4. <i>Trailing blackberry (Rubus ursinus)</i>	10	no	FACU	
5.	90	= Total Cover		
<b>Herb Stratum</b>				
1.				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is >50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet.) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup> <input type="checkbox"/> Problem Hydrophytic Vegetation (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
	0	= Total Cover		
<b>Woody Vine Stratum</b>				
1.				
2.				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>5</u>				
Remarks:				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

# SOIL

Sampling Point: SP2

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-7	10YR 4/3	100					loam	

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

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

<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dard Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):** Type: packed with gravel/cobbles Hydric Soil Present? ☐ Yes ☒ No

Depth (inches): 7

Remarks:

# HYDROLOGY

## Wetland Hydrology Indicators:

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

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturated Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduction Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction Tilled Soils (C6)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:** Wetland Hydrology Present? ☐ Yes ☒ No

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

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

Saturation Present? ☐ Yes ☒ No Depth (inches): \_\_\_\_\_

(includes capillary fringe)

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

Remarks:

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

Project/Site: Harbour Pointe Boulevard City/County: Mukilteo Sampling Date: 7/12/2016

Applicant/Owner: City of Mukilteo State: WA Sampling Point: SP3

Investigator(s): A. Wright Section/Township/Range: S27/T28N/R04E

Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): concave Slope (%): 5

Subregion (LLR): A Lat: 47.888663 Long: -122.287488 Datum: WGS 84

Soil Map Unit Name: Alderwood-Urban land complex, 2-8% slopes NWI Classification: N/A

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

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed? Are "normal circumstances" present? ☒ Yes ☐ No

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

## SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sampled area within a Wetland? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No
Hydric Soil Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	
Wetland Hydrology Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	

Remarks: Facultative vegetation lacking indicators of wetland hydrology or hydric soils.

## VEGETATION - Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Black Cottonwood ( <i>Populus balsamifera</i> )	30	yes	FAC	
2. Red Alder ( <i>Alnus rubra</i> )	75	yes	FAC	Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3.				
4.				Percent of dominant Species That are OBL, FACW, or FAC: <u>100</u> (A/B)
	105	= Total Cover		
Sapling/Shrub Stratum				Prevalence Index Worksheet:
1. Salmonberry ( <i>Rubus spectabilis</i> )	10	yes	FAC	
2.				Total % Cover of: <u>10</u> Multiply by:
3.				
4.				OBL Species <u>0</u> x 1 = <u>0</u>
5.				FACW Species <u>0</u> x 2 = <u>0</u>
	10	= Total Cover		FAC Species <u>0</u> x 3 = <u>0</u>
Herb Stratum				FACU Species <u>0</u> x 4 = <u>0</u>
1. Creeping Buttercup ( <i>Ranunculus repens</i> )	80	yes	FAC	UPL Species <u>0</u> x 5 = <u>0</u>
2. Reed Canarygrass ( <i>Phalaris arundinacea</i> )	60	yes	FACW	Column Totals: <u>0</u> (A) <u>0</u> (B)
3.				Prevalence Index = B/A = <u>#DIV/0!</u>
4.				
5.				Hydrophytic Vegetation Indicators:
6.				
7.				<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
8.				<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
9.				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
10.				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet.)
11.				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
	140	= Total Cover		<input type="checkbox"/> Problem Hydrophytic Vegetation (Explain)
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1.				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
2.				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				

## SOIL

Sampling Point: SP3

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-8	10YR 4/3	100					loam	

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

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

<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Sandy Redox (S5)	<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Depleted Dark Surface (F7)	
	<input type="checkbox"/> Redox Depressions (F8)	

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

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: packed with gravel/cobbles

Depth (inches): 8

Hydric Soil Present? ☐ Yes ☒ No

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)  
☐ High Water Table (A2)  
☐ Saturation (A3)  
☐ Water Marks (B1)  
☐ Sediment Deposits (B2)  
☐ Drift Deposits (B3)  
☐ Algal Mat or Crust (B4)  
☐ Iron Deposits (B5)  
☐ Surface Soil Cracks (B6)  
☐ Inundation Visible on Aerial Imagery (B7)  
☐ Sparsely Vegetated Concave Surface (B8)

- ☐ Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)  
☐ Salt Crust (B11)  
☐ Aquatic Invertebrates (B13)  
☐ Hydrogen Sulfide Odor (C1)  
☐ Oxidized Rhizospheres along Living Roots (C3)  
☐ Presence of Reduction Iron (C4)  
☐ Recent Iron Reduction Tilled Soils (C6)  
☐ Stunted or Stressed Plants (D1) (LRR A)  
☐ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

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

## Field Observations:

Wetland Hydrology Present?

- Surface Water Present? ☐ Yes ☒ No  
 Water Table Present? ☐ Yes ☒ No  
 Saturation Present? ☐ Yes ☒ No  
 (includes capillary fringe)

Depth (inches): \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

☐ Yes ☒ No

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

Remarks:



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

Project/Site: Harbour Pointe Boulevard City/County: Mukilteo Sampling Date: 7/12/2016  
 Applicant/Owner: City of Mukilteo State: WA Sampling Point: SP4  
 Investigator(s): A. Wright Section/Township/Range: S27/T28N/R04E  
 Landform (hillslope, terrace, etc.): hillslope Local Relief (concave, convex, none): concave Slope (%): 5  
 Subregion (LLR): A Lat: 47.888817 Long: -122.287669 Datum: WGS 84  
 Soil Map Unit Name: Alderwood-Urban land complex, 2-8% slopes NWI Classification: N/A

Are climatic/hydrologic conditions on the site typical for this time of year?

☒ Yes ☐ No (if no, explain in Remarks.)

Are ☐ Vegetation ☐ Soil ☐ Hydrology significantly disturbed?

Are "normal circumstances" present? ☒ Yes ☐ No

Are ☐ Vegetation ☐ Soil ☐ Hydrology naturally problematic?

(if needed, explain any answers in Remarks.)

## SUMMARY OF FINDINGS

Hydrophytic Vegetation Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Is the sampled area within a Wetland? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Hydric Soil Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Wetland Hydrology Present?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
Remarks: Thin band of <i>Carex obnupta</i> growing perpendicular to NW-aspect slope. Upland species such as Scotch broom, English holly ( <i>Ilex aquifolium</i> ) and Douglas-fir along margins.		

## VEGETATION - Use scientific names of plants.

Tree Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet:
1. Black Cottonwood ( <i>Populus balsamifera</i> )	60	yes	FAC	
2. Red Alder ( <i>Alnus rubra</i> )	25	yes	FAC	Total Number of Dominant Species Across All Strata: <u>8</u> (B)
3. Douglas-fir ( <i>Pseudotsuga menzeisii</i> )	20	no	FACU	
4. Pacific Willow ( <i>Salix lasiandra</i> )	10	no	FACW	
	115	= Total Cover		Percent of dominant Species That are OBL, FACW, or FAC: <u>87.5</u> (A/B)
Sapling/Shrub Stratum				Prevalence Index Worksheet:
1. Scotch Broom ( <i>Cytisus scoparius</i> )	15	yes	NI	Total % Cover of: <u>35</u> Multiply by:
2. Himalayan Blackberry ( <i>Rubus armeniacus</i> )	10	yes	FAC	OBL Species <u>0</u> x 1 = <u>0</u>
3. Pacific Willow ( <i>Salix lasiandre</i> )	10	yes	FACW	FACW Species <u>0</u> x 2 = <u>0</u>
4.				FAC Species <u>0</u> x 3 = <u>0</u>
5.				FACU Species <u>0</u> x 4 = <u>0</u>
	35	= Total Cover		UPL Species <u>0</u> x 5 = <u>0</u>
Herb Stratum				Column Totals: <u>0</u> (A) <u>0</u> (B)
1. Creeping Buttercup ( <i>Ranunculus repens</i> )	40	yes	FAC	Prevalence Index = B/A = <u>#DIV/0!</u>
2. Reed Canarygrass ( <i>Phalaris arundinacea</i> )	30	yes	FACW	Hydrophytic Vegetation Indicators:
3. Slough Sedge ( <i>Carex obnupta</i> )	20	yes	OBL	<input type="checkbox"/> 1 - Rapid Test for Hydrophytic Vegetation
4. Sword Fern ( <i>Polystichum munitum</i> )	5	no	FACU	<input checked="" type="checkbox"/> 2 - Dominance Test is >50%
5.				<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
6.				<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet.)
7.				<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
8.				<input type="checkbox"/> Problem Hydrophytic Vegetation (Explain)
9.				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
10.				
11.				
	95	= Total Cover		
Woody Vine Stratum				
1.				
2.				
	0	= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>				
Remarks:				Hydrophytic Vegetation Present? <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No

## SOIL

Sampling Point: SP4

Depth (inches)	Matrix		Redox Features		Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%				
0-3	10YR 4/3	100					loam	
3-8	10YR 6/2	90	10YR 5/8	10	D	M	loam	

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

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

<input type="checkbox"/> Histisol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):** Type: packed with gravel/cobbles      Hydric Soil Present? ☒ Yes ☐ No

Depth (inches): 8

Remarks:

## HYDROLOGY

## Wetland Hydrology Indicators:

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) (except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water-Stained Leaves (B9) (MLRA 1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturated Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduction Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction Tilled Soils (C6)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**      Wetland Hydrology Present? ☒ Yes ☐ No

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

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

Saturation Present? ☐ Yes ☒ No      Depth (inches): \_\_\_\_\_

(includes capillary fringe)

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

Remarks:

## **APPENDIX D**

### **Wetland Rating Forms**

Wetland name or number A

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 7/12/16  
Rated by A. Wright Trained by Ecology? X Yes \_\_\_ No Date of training 4/29/15  
HGM Class used for rating Depressional Wetland has multiple HGM classes? \_\_\_ Y X N

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

Source of base aerial photo/map Google Earth

OVERALL WETLAND CATEGORY III (based on functions X or special characteristics \_\_\_)

### 1. Category of wetland based on FUNCTIONS

\_\_\_ Category I – Total score = 23 - 27  
\_\_\_ Category II – Total score = 20 - 22  
X Category III – Total score = 16 - 19  
\_\_\_ Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	H (M) L	(H) M L	H M (L)	
Value	(H) M L	H M (L)	H M (L)	TOTAL
Score Based on Ratings	7	6	3	16

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

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

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

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

Wetland name or number A

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	D 1.3, H 1.1, H 1.4	1
Hydroperiods	D 1.4, H 1.2	1
Location of outlet ( <i>can be added to map of hydroperiods</i> )	D 1.1, D 4.1	1
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	D 2.2, D 5.2	2
Map of the contributing basin	D 4.3, D 5.3	3
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	D 3.1, D 3.2	4
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	D 3.3	5

### 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 ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	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 ( <i>can be added to another figure</i> )	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 ( <i>can be added to figure above</i> )	S 4.1	
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	
1 km Polygon: Area that extends 1 km from entire wetland edge - including polygons for accessible habitat and undisturbed habitat	H 2.1, H 2.2, H 2.3	
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	

## HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO - go to 2

YES - the wetland class is **Tidal Fringe** - go to 1.1

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

NO - **Saltwater Tidal Fringe (Estuarine)**

YES - **Freshwater Tidal Fringe**

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

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

☒ NO - go to 3

YES - The wetland class is **Flats**

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

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

- ☐ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
☐ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ NO - go to 4

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

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

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

☒ NO - go to 5

YES - The wetland class is **Slope**

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

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

- ☐ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
☐ The overbank flooding occurs at least once every 2 years.

Wetland name or number A

**NO** - go to 6

**YES** - The wetland class is **Riverine**

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

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

**NO** - go to 7

**YES** - The wetland class is **Depressional**

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

**NO** - go to 8

**YES** - The wetland class is **Depressional**

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

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

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

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



Wetland name or number A

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. <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). <div style="text-align: right;">points = 3</div> Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet. <div style="text-align: right;">points = 2</div> Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing <div style="text-align: right;">points = 1</div> Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch. <div style="text-align: right;">points = 1</div>	2
D 1.2. <u>The soil 2 in below the surface (or duff layer)</u> is true clay or true organic (use NRCS definitions). Yes = 4 No = 0	0
D 1.3. <u>Characteristics and distribution of persistent plants</u> (Emergent, Scrub-shrub, and/or Forested Cowardin classes): Wetland has persistent, ungrazed, plants > 95% of area <div style="text-align: right;">points = 5</div> Wetland has persistent, ungrazed, plants > 1/2 of area <div style="text-align: right;">points = 3</div> Wetland has persistent, ungrazed plants > 1/10 of area <div style="text-align: right;">points = 1</div> Wetland has persistent, ungrazed plants < 1/10 of area <div style="text-align: right;">points = 0</div>	5
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 > 1/2 total area of wetland <div style="text-align: right;">points = 4</div> Area seasonally ponded is > 1/4 total area of wetland <div style="text-align: right;">points = 2</div> Area seasonally ponded is < 1/4 total area of wetland <div style="text-align: right;">points = 0</div>	0
Total for D 1	7

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

D 2.0. Does the landscape have the potential to support the water quality function of the site?	
D 2.1. Does the wetland unit receive stormwater discharges?	Yes = 1 No = 0
D 2.2. Is > 10% of the area within 150 ft of the wetland in land uses that generate pollutants?	Yes = 1 No = 0
D 2.3. Are there septic systems within 250 ft of the wetland?	Yes = 1 No = 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?	Yes = 1 No = 0
Source _____	Yes = 1 No = 0
Total for D 2	2

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

D 3.0. Is the water quality improvement provided by the site valuable to society?	
D 3.1. Does the wetland discharge directly (i.e., within 1 mi) to a stream, river, lake, or marine water that is on the 303(d) list?	Yes = 1 No = 0
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
D 3.3. Has the site been identified in a watershed or local plan as important for maintaining water quality (answer YES if there is a TMDL for the basin in which the unit is found)?	Yes = 2 No = 0
Total for D 3	2

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

Wetland name or number A

<b>DEPRESSIONAL AND FLATS WETLANDS</b>	
<b>Hydrologic Functions - Indicators that the site functions to reduce flooding and stream degradation</b>	
<b>D 4.0. Does the site have the potential to reduce flooding and erosion?</b>	
<b>D 4.1. Characteristics of surface water outflows from the wetland:</b> Wetland is a depression or flat depression with no surface water leaving it (no outlet) points = 4 Wetland has an intermittently flowing stream or ditch, OR highly constricted permanently flowing outlet points = 2 Wetland is a flat depression (QUESTION 7 on key), whose outlet is a permanently flowing ditch points = 1 Wetland has an unconstricted, or slightly constricted, surface outlet that is permanently flowing points = 0	<b>2</b>
<b>D 4.2. Depth of storage during wet periods:</b> <i>Estimate the height of ponding above the bottom of the outlet. For wetlands with no outlet, measure from the surface of permanent water or if dry, the deepest part.</i> Marks of ponding are 3 ft or more above the surface or bottom of outlet points = 7 Marks of ponding between 2 ft to < 3 ft from surface or bottom of outlet points = 5 Marks are at least 0.5 ft to < 2 ft from surface or bottom of outlet points = 3 The wetland is a "headwater" wetland points = 3 Wetland is flat but has small depressions on the surface that trap water points = 1 Marks of ponding less than 0.5 ft (6 in) points = 0	<b>0</b>
<b>D 4.3. Contribution of the wetland to storage in the watershed:</b> <i>Estimate the ratio of the area of upstream basin contributing surface water to the wetland to the area of the wetland unit itself.</i> The area of the basin is less than 10 times the area of the unit points = 5 The area of the basin is 10 to 100 times the area of the unit points = 3 The area of the basin is more than 100 times the area of the unit points = 0 Entire wetland is in the Flats class points = 5	<b>5</b>
<b>Total for D 4</b>	<b>7</b>

**Rating of Site Potential** If score is: 12-16 = H X 6-11 = M 0-5 = L

Record the rating on the first page

<b>D 5.0. Does the landscape have the potential to support hydrologic functions of the site?</b>	
<b>D 5.1. Does the wetland receive stormwater discharges?</b>	Yes = 1 No = 0
<b>D 5.2. Is &gt;10% of the area within 150 ft of the wetland in land uses that generate excess runoff?</b>	Yes = 1 No = 0
<b>D 5.3. Is more than 25% of the contributing basin of the wetland covered with intensive human land uses (residential at &gt;1 residence/ac, urban, commercial, agriculture, etc.)?</b>	Yes = 1 No = 0
<b>Total for D 5</b>	<b>3</b>

**Rating of Landscape Potential** If score is: X 3 = H 1 or 2 = M 0 = L

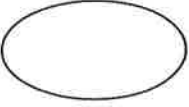


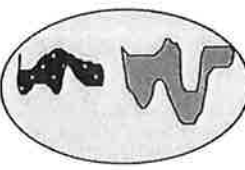
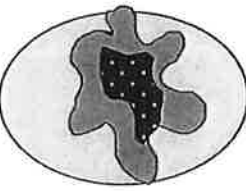
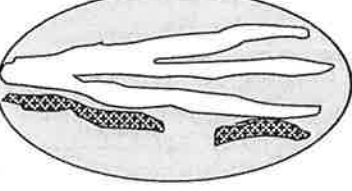
Record the rating on the first page

<b>D 6.0. Are the hydrologic functions provided by the site valuable to society?</b>	
<b>D 6.1. The unit is in a landscape that has flooding problems.</b> <i>Choose the description that best matches conditions around the wetland unit being rated. Do not add points. Choose the highest score if more than one condition is met.</i> The wetland captures surface water that would otherwise flow down-gradient into areas where flooding has damaged human or natural resources (e.g., houses or salmon redds): <ul style="list-style-type: none"> <li>Flooding occurs in a sub-basin that is immediately down-gradient of unit. points = 2</li> <li>Surface flooding problems are in a sub-basin farther down-gradient. points = 1</li> </ul> Flooding from groundwater is an issue in the sub-basin. points = 1 The existing or potential outflow from the wetland is so constrained by human or natural conditions that the water stored by the wetland cannot reach areas that flood. <i>Explain why</i> _____ points = 0 There are no problems with flooding downstream of the wetland. points = 0	<b>0</b>
<b>D 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?</b> Yes = 2 No = 0	<b>0</b>
<b>Total for D 6</b>	<b>0</b>

**Rating of Value** If score is: 2-4 = H 1 = M X 0 = L

Record the rating on the first page

Wetland name or number A

These questions apply to wetlands of all HGM classes.		
<b>HABITAT FUNCTIONS</b> - Indicators that site functions to provide important habitat		
<b>H 1.0. Does the site have the potential to provide habitat?</b>		
<p><b>H 1.1. Structure of plant community:</b> <i>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.</i></p> <p> <input type="checkbox"/> Aquatic bed           <input checked="" type="checkbox"/> Emergent           <input type="checkbox"/> Scrub-shrub (areas where shrubs have &gt; 30% cover)           <input checked="" type="checkbox"/> Forested (areas where trees have &gt; 30% cover)         </p> <p><i>If the unit has a Forested class, check if:</i></p> <p> <input type="checkbox"/> 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         </p>	<p>4 structures or more: points = 4</p> <p>3 structures: points = 2</p> <p>2 structures: points = 1</p> <p>1 structure: points = 0</p> <p><b>1</b></p>	
<p><b>H 1.2. Hydroperiods</b></p> <p>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 (<i>see text for descriptions of hydroperiods</i>).</p> <p> <input type="checkbox"/> Permanently flooded or inundated           <input checked="" type="checkbox"/> Seasonally flooded or inundated           <input type="checkbox"/> Occasionally flooded or inundated           <input checked="" type="checkbox"/> Saturated only         </p> <p> <input type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland           <input type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland           <input type="checkbox"/> Lake Fringe wetland           <input type="checkbox"/> Freshwater tidal wetland         </p>	<p>4 or more types present: points = 3</p> <p>3 types present: points = 2</p> <p>2 types present: points = 1</p> <p>1 type present: points = 0</p> <p><b>2 points</b></p> <p><b>2 points</b></p> <p><b>1</b></p>	
<p><b>H 1.3. Richness of plant species</b></p> <p>Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>. <i>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</i></p> <p>           If you counted: &gt; 19 species                                      5 - 19 species                                      &lt; 5 species         </p>	<p>points = 2</p> <p>points = 1</p> <p>points = 0</p> <p><b>1</b></p>	
<p><b>H 1.4. Interspersion of habitats</b></p> <p>Decide from the diagrams below whether interspersions 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 have four or more plant classes or three classes and open water, the rating is always high.</i></p> <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="text-align: center;">  <p>None = 0 points</p> </div> <div style="text-align: center;">  <p>Low = 1 point</p> </div> <div style="text-align: center;">  <p>Moderate = 2 points</p> </div> </div> <div style="display: flex; justify-content: space-around; align-items: flex-end; margin-top: 20px;"> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> <div style="text-align: center;">  </div> </div> <p>All three diagrams in this row are <b>HIGH</b> = 3 points</p>		<p><b>1</b></p>

Wetland name or number A

H 1.5. Special habitat features:

Check the habitat features that are present in the wetland. *The number of checks is the number of points.*

- ☐ Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long).
- ☐ Standing snags (dbh > 4 in) within the wetland
- ☐ Undercut banks are present for at least 6.6 ft (2 m) and/or overhanging plants extends at least 3.3 ft (1 m) over a stream (or ditch) in, or contiguous with the wetland, for at least 33 ft (10 m)
- ☐ Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present (*cut shrubs or trees that have not yet weathered where wood is exposed*)
- ☐ At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated (*structures for egg-laying by amphibians*)
- ☐ Invasive plants cover less than 25% of the wetland area in every stratum of plants (*see H 1.1 for list of strata*)

0

Total for H 1

Add the points in the boxes above

4

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

Record the rating on the first page

H 2.0. Does the landscape have the potential to support the habitat functions of the site?

H 2.1. Accessible habitat (include *only habitat that directly abuts wetland unit*).

Calculate: % undisturbed habitat 1 + [(% moderate and low intensity land uses)/2] 5 = 1.5 %

If total accessible habitat is:

> 1/3 (33.3%) of 1 km Polygon

points = 3

20-33% of 1 km Polygon

points = 2

10-19% of 1 km Polygon

points = 1

< 10% of 1 km Polygon

points = 0

0

H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.

Calculate: % undisturbed habitat 30 + [(% moderate and low intensity land uses)/2] 15 = 45 %

Undisturbed habitat > 50% of Polygon

points = 3

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

points = 2

Undisturbed habitat 10-50% and > 3 patches

points = 1

Undisturbed habitat < 10% of 1 km Polygon

points = 0

1

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

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

points = (- 2)

≤ 50% of 1 km Polygon is high intensity

points = 0

-2

Total for H 2

Add the points in the boxes above

-1

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

Record the rating on the first page

H 3.0. Is the habitat provided by the site valuable to society?

H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? *Choose only the highest score that applies to the wetland being rated.*

Site meets ANY of the following criteria:

points = 2

— It has 3 or more priority habitats within 100 m (see next page)

— It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists)

— It is mapped as a location for an individual WDFW priority species

— It is a Wetland of High Conservation Value as determined by the Department of Natural Resources

— It has been categorized as an important habitat site in a local or regional comprehensive plan, in a

Shoreline Master Plan, or in a watershed plan

Site has 1 or 2 priority habitats (listed on next page) within 100 m

points = 1

Site does not meet any of the criteria above

points = 0

0

Rating of Value If score is: 2 = H 1 = M X 0 = L

Record the rating on the first page

Wetland name or number A

## WDFW Priority Habitats

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

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

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **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.

Wetland name or number

### CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> 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 <b>SC 1.1</b> <b>No</b> — Not an estuarine wetland
<b>SC 1.1.</b> Is the wetland within a National Wildlife Refuge, National Park, National Estuary Reserve, Natural Area Preserve, State Park or Educational, Environmental, or Scientific Reserve designated under WAC 332-30-151?	Yes = <b>Category I</b> No - Go to <b>SC 1.2</b> <b>Cat. I</b>
<b>SC 1.2.</b> 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 <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	Yes = <b>Category I</b> No = <b>Category II</b> <b>Cat. I</b> <b>Cat. II</b>
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b> <b>SC 2.1.</b> Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value? <b>SC 2.2.</b> Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? <b>SC 2.3.</b> Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a> <b>SC 2.4.</b> Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?	Yes — Go to <b>SC 2.2</b> <b>No</b> — Go to <b>SC 2.3</b> Yes = <b>Category I</b> <b>No</b> — Not a WHCV Yes — <b>Contact WNHP/WDNR and go to SC 2.4</b> No = <b>Not a WHCV</b> Yes = <b>Category I</b> No = <b>Not a WHCV</b> <b>Cat. I</b>
<b>SC 3.0. Bogs</b> Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i> <b>SC 3.1.</b> 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? <b>SC 3.2.</b> 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? <b>SC 3.3.</b> 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? <b>NOTE:</b> 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. <b>SC 3.4.</b> 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 — Go to <b>SC 3.3</b> <b>No</b> — Go to <b>SC 3.2</b> Yes — Go to <b>SC 3.3</b> <b>No</b> — Is not a bog Yes = <b>Is a Category I bog</b> No — Go to <b>SC 3.4</b> <b>Cat. I</b> Yes = <b>Is a Category I bog</b> No = <b>Is not a bog</b>

Wetland name or number A

<p><b>SC 4.0. Forested Wetlands</b></p> <p>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 the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (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.</li> <li>— <b>Mature forests</b> (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).</li> </ul> <p>Yes = Category I    <b>No = Not a forested wetland for this section</b></p>	<p><b>Cat. I</b></p>
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— 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</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p>Yes – Go to SC 5.1    <b>No = Not a wetland in a coastal lagoon</b></p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— 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).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p>Yes = Category I    No = Category II</p>	<p><b>Cat. I</b></p> <p><b>Cat. II</b></p>
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p>Yes – Go to SC 6.1    <b>No = not an interdunal wetland for rating</b></p> <p><b>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)?</b></p> <p>Yes = Category I    No – Go to SC 6.2</p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b></p> <p>Yes = Category II    No – Go to SC 6.3</p> <p><b>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?</b></p> <p>Yes = Category III    No = Category IV</p>	<p><b>Cat I</b></p> <p><b>Cat. II</b></p> <p><b>Cat. III</b></p> <p><b>Cat. IV</b></p>
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	



Wetland name or number A

*This page left blank intentionally*

# Cowardin Plant Classes and Hydroperiods

Legend

Outlet

Emergent and  
Seasonally  
Ponded

Forested and Saturated



60 ft

Google earth

© 2016 Google

# 1 KM Circle

with 150 foot buffer and undisturbed polygons

## Legend

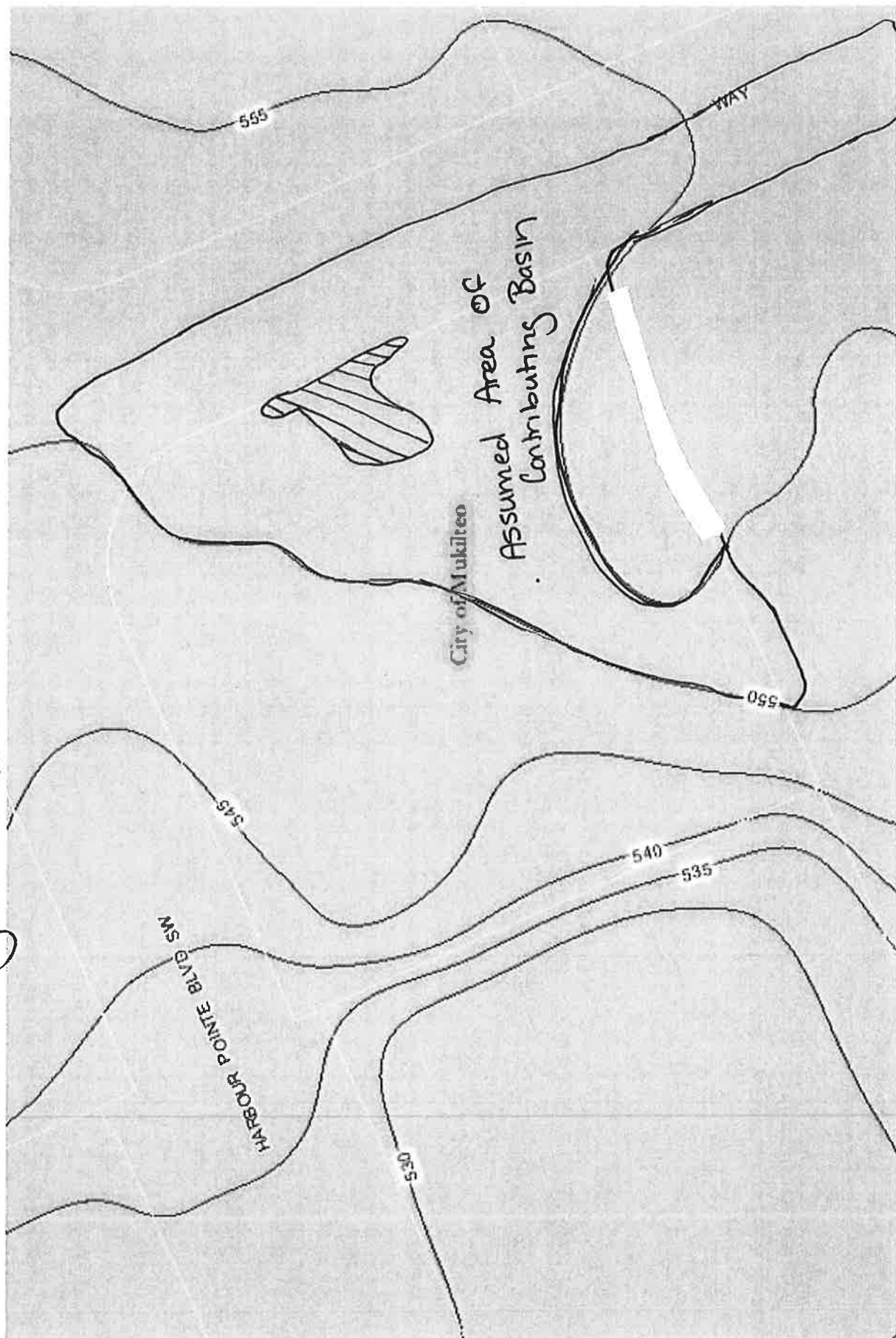
- WTLA
- WTLA 1 KM diameter
- WTLA Rough 150' buffer
- WTLA Undisturbed

Google earth

© 2016 Google  
© 2016 Europa Technologies

1000 ft

Figure 3. Contributing Basin.







## Water Quality Improvement Projects (TMDLs)

[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 8: Cedar-Sammamish

### WRIA 8: Cedar-Sammamish

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

#### Counties

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutants	Status**	TMDL Lead
<a href="#">Ballinger Lake</a>	Total Phosphorus	Approved by EPA	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Bear-Evans Creek Basin</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
<a href="#">Cottage Lake</a>	Total Phosphorus	Approved by EPA Has an implementation plan	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Issaquah Creek Basin</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
<a href="#">Little Bear Creek</a> Tributaries:  Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">North Creek</a>	Fecal Coliform	Approved by EPA Has an implementation plan	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">Pipers Creek</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
<a href="#">Sammamish River</a>	Dissolved Oxygen Temperature	Field work starts summer 2015	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">Swamp Creek</a>	Fecal Coliform	Approved by EPA Has an implementation plan	<a href="#">Ralph Svrcek</a> 425-649-7036

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

#### For more information about WRIA 8:

- [Waterbodies in WRIA 8](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 8](#)

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

[Back to top of page](#)

Last updated July 2015

Copyright © Washington State Department of Ecology. See <http://www.ecy.wa.gov/copyright.htm>

Wetland name or number B

## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland B Date of site visit: 7/12/16  
Rated by A. Wright Trained by Ecology? ☒ Yes ☐ No Date of training 4/29/16  
HGM Class used for rating Slope Wetland has multiple HGM classes? ☐ Y ☒ N

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

Source of base aerial photo/map Google Earth

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

### 1. Category of wetland based on FUNCTIONS

- \_\_\_\_\_ Category I – Total score = 23 - 27  
\_\_\_\_\_ Category II – Total score = 20 - 22  
\_\_\_\_\_ Category III – Total score = 16 - 19  
☒ Category IV – Total score = 9 - 15

FUNCTION	Improving Water Quality	Hydrologic	Habitat	
Circle the appropriate ratings				
Site Potential	H (M) L	H (M) L	H M (L)	
Landscape Potential	H M (L)	H M (L)	H M (L)	
Value	(H) M L	H M (L)	H M (L)	TOTAL
Score Based on Ratings	6	4	3	13

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

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

### 2. Category based on SPECIAL CHARACTERISTICS of wetland

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



Wetland name or number B

## Maps and figures required to answer questions correctly for Western Washington

### Depressional Wetlands

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

### Riverine Wetlands

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	
Hydroperiods	H 1.2	
Ponded depressions	R 1.1	
Boundary of area within 150 ft of the wetland ( <i>can be added to another figure</i> )	R 2.4	
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	
Width of unit vs. width of stream ( <i>can be added to another figure</i> )	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 ( <i>can be added to another figure</i> )	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	1
Hydroperiods	H 1.2	1
Plant cover of dense trees, shrubs, and herbaceous plants	S 1.3	1
Plant cover of dense, rigid trees, shrubs, and herbaceous plants ( <i>can be added to figure above</i> )	S 4.1	1
Boundary of 150 ft buffer ( <i>can be added to another figure</i> )	S 2.1, S 5.1	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	2
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	S 3.1, S 3.2	3
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	S 3.3	4

## HGM Classification of Wetlands in Western Washington

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

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

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

☒ NO go to 2

YES – the wetland class is **Tidal Fringe** – go to 1.1

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

NO – **Saltwater Tidal Fringe (Estuarine)**

YES – **Freshwater Tidal Fringe**

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

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

☒ NO go to 3

YES – The wetland class is **Flats**

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

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

- \_\_\_ The vegetated part of the wetland is on the shores of a body of permanent open water (without any plants on the surface at any time of the year) at least 20 ac (8 ha) in size;  
\_\_\_ At least 30% of the open water area is deeper than 6.6 ft (2 m).

☒ NO go to 4

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

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

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

NO – go to 5

☒ YES – The wetland class is **Slope**

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

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

- \_\_\_ The unit is in a valley, or stream channel, where it gets inundated by overbank flooding from that stream or river,  
\_\_\_ The overbank flooding occurs at least once every 2 years.

Wetland name or number B

**NO** – go to 6

**YES** – The wetland class is **Riverine**

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

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

**NO** – go to 7

**YES** – The wetland class is **Depressional**

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

**NO** – go to 8

**YES** – The wetland class is **Depressional**

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

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

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

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

Wetland name or number B

<b>SLOPE WETLANDS</b>	
<b>Water Quality Functions - Indicators that the site functions to improve water quality</b>	
S 1.0. Does the site have the potential to improve water quality?	
S 1.1. Characteristics of the average slope of the wetland: <i>(a 1% slope has a 1 ft vertical drop in elevation for every 100 ft of horizontal distance)</i> Slope is 1% or less points = 3 Slope is > 1%-2% points = 2 Slope is > 2%-5% points = 1 Slope is greater than 5% points = 0	1
S 1.2. The soil 2 in below the surface (or duff layer) is true clay or true organic (use NRCS definitions): Yes = 3 No = 0	0
S 1.3. Characteristics of the plants in the wetland that trap sediments and pollutants: Choose the points appropriate for the description that best fits the plants in the wetland. <i>Dense means you have trouble seeing the soil surface (&gt;75% cover), and uncut means not grazed or mowed and plants are higher than 6 in.</i> Dense, uncut, herbaceous plants > 90% of the wetland area points = 6 Dense, uncut, herbaceous plants > ½ of area points = 3 Dense, woody, plants > ½ of area points = 2 Dense, uncut, herbaceous plants > ¼ of area points = 1 Does not meet any of the criteria above for plants points = 0	6
Total for S 1	7

Rating of Site Potential If score is: 12 = H ~~X~~ 6-11 = M 0-5 = L

Record the rating on the first page

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

Rating of Landscape Potential If score is: 1-2 = M ~~X~~ 0 = L

Record the rating on the first page

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

Rating of Value If score is: ~~X~~ 2-4 = H 1 = M 0 = L

Record the rating on the first page

Wetland name or number B

### SLOPE WETLANDS

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

**S 4.0. Does the site have the potential to reduce flooding and stream erosion?**

**S 4.1. Characteristics of plants that reduce the velocity of surface flows during storms:** Choose the points appropriate for the description that best fits conditions in the wetland. *Stems of plants should be thick enough (usually  $> \frac{1}{8}$  in), or dense enough, to remain erect during surface flows.*

Dense, uncut, rigid plants cover  $> 90\%$  of the area of the wetland

points = 1

All other conditions

points = 0

1

**Rating of Site Potential** If score is: X 1 = M \_\_\_ 0 = L

Record the rating on the first page

**S 5.0. Does the landscape have the potential to support the hydrologic functions of the site?**

**S 5.1. Is more than 25% of the area within 150 ft upslope of wetland in land uses or cover that generate excess surface runoff?**

Yes = 1 No = 0

0

**Rating of Landscape Potential** If score is: \_\_\_ 1 = M X 0 = L

Record the rating on the first page

**S 6.0. Are the hydrologic functions provided by the site valuable to society?**

**S 6.1. Distance to the nearest areas downstream that have flooding problems:**

The sub-basin immediately down-gradient of site has flooding problems that result in damage to human or natural resources (e.g., houses or salmon redds)

points = 2

Surface flooding problems are in a sub-basin farther down-gradient

points = 1

No flooding problems anywhere downstream

points = 0

0

**S 6.2. Has the site been identified as important for flood storage or flood conveyance in a regional flood control plan?**

Yes = 2 No = 0

0

**Total for S 6**

Add the points in the boxes above

0

**Rating of Value** If score is: \_\_\_ 2-4 = H \_\_\_ 1 = M X 0 = L

Record the rating on the first page

NOTES and FIELD OBSERVATIONS:

Wetland name or number B

**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

2

H 1.2. Hydroperiods

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

- ☐ Permanently flooded or inundated 4 or more types present: points = 3  
☐ Seasonally flooded or inundated 3 types present: points = 2  
☐ Occasionally flooded or inundated 2 types present: points = 1  
☒ Saturated only 1 type present: points = 0  
☐ Permanently flowing stream or river in, or adjacent to, the wetland  
☐ Seasonally flowing stream in, or adjacent to, the wetland  
☐ Lake Fringe wetland 2 points  
☐ Freshwater tidal wetland 2 points

0

H 1.3. Richness of plant species

Count the number of plant species in the wetland that cover at least 10 ft<sup>2</sup>.

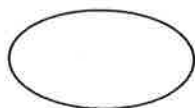
*Different patches of the same species can be combined to meet the size threshold and you do not have to name the species. Do not include Eurasian milfoil, reed canarygrass, purple loosestrife, Canadian thistle*

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

1

H 1.4. Interspersion of habitats

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



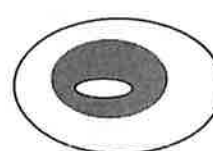
None = 0 points



Low = 1 point

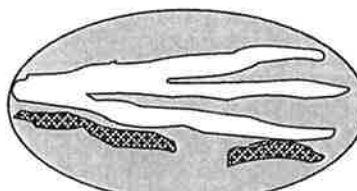
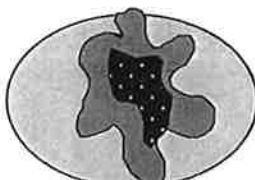


Moderate = 2 points



2

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



Wetland name or number B

<b>H 1.5. Special habitat features:</b> Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i> <input type="checkbox"/> Large, downed, woody debris within the wetland (> 4 in diameter and 6 ft long). <input type="checkbox"/> Standing snags (dbh > 4 in) within the wetland <input type="checkbox"/> Undercut banks are present for at least 6.6 ft (2 m) <b>and/or</b> 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) <input type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) OR signs of recent beaver activity are present ( <i>cut shrubs or trees that have not yet weathered where wood is exposed</i> ) <input type="checkbox"/> At least ¼ ac of thin-stemmed persistent plants or woody branches are present in areas that are permanently or seasonally inundated ( <i>structures for egg-laying by amphibians</i> ) <input type="checkbox"/> Invasive plants cover less than 25% of the wetland area in every stratum of plants ( <i>see H 1.1 for list of strata</i> )		0
Total for H 1	Add the points in the boxes above	5

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

<b>H 2.0. Does the landscape have the potential to support the habitat functions of the site?</b>		
<b>H 2.1. Accessible habitat (include only habitat that directly abuts wetland unit).</b> Calculate: % undisturbed habitat <u>2</u> + [(% moderate and low intensity land uses)/2] <u>1</u> = <u>3</u> % If total accessible habitat is: > 1/3 (33.3%) of 1 km Polygon points = 3 20-33% of 1 km Polygon points = 2 10-19% of 1 km Polygon points = 1 < 10% of 1 km Polygon points = 0		0
<b>H 2.2. Undisturbed habitat in 1 km Polygon around the wetland.</b> Calculate: % undisturbed habitat <u>30</u> + [(% moderate and low intensity land uses)/2] <u>15</u> = <u>45</u> % Undisturbed habitat > 50% of Polygon points = 3 Undisturbed habitat 10-50% and in 1-3 patches points = 2 Undisturbed habitat 10-50% and > 3 patches points = 1 Undisturbed habitat < 10% of 1 km Polygon points = 0		1
<b>H 2.3. Land use intensity in 1 km Polygon: If</b> > 50% of 1 km Polygon is high intensity land use points = (- 2) ≤ 50% of 1 km Polygon is high intensity points = 0		-2
Total for H 2	Add the points in the boxes above	-1

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

<b>H 3.0. Is the habitat provided by the site valuable to society?</b>		
<b>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.</b> Site meets ANY of the following criteria: points = 2 <input type="checkbox"/> It has 3 or more priority habitats within 100 m (see next page) <input type="checkbox"/> It provides habitat for Threatened or Endangered species (any plant or animal on the state or federal lists) <input type="checkbox"/> It is mapped as a location for an individual WDFW priority species <input type="checkbox"/> It is a Wetland of High Conservation Value as determined by the Department of Natural Resources <input type="checkbox"/> It has been categorized as an important habitat site in a local or regional comprehensive plan, in a Shoreline Master Plan, or in a watershed plan Site has 1 or 2 priority habitats (listed on next page) within 100 m points = 1 Site does not meet any of the criteria above points = 0		0

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



Wetland name or number B

## WDFW Priority Habitats

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

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

- **Aspen Stands:** Pure or mixed stands of aspen greater than 1 ac (0.4 ha).
- **Biodiversity Areas and Corridors:** Areas of habitat that are relatively important to various species of native fish and wildlife (*full descriptions in WDFW PHS report*).
- **Herbaceous Balds:** Variable size patches of grass and forbs on shallow soils over bedrock.
- **Old-growth/Mature forests:** Old-growth west of Cascade crest – Stands of at least 2 tree species, forming a multi-layered canopy with occasional small openings; with at least 8 trees/ac (20 trees/ha) > 32 in (81 cm) dbh or > 200 years of age. Mature forests – Stands with average diameters exceeding 21 in (53 cm) dbh; crown cover may be less than 100%; decay, decadence, numbers of snags, and quantity of large downed material is generally less than that found in old-growth; 80-200 years old west of the Cascade crest.
- **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (*full descriptions in WDFW PHS report p. 158 – see web link above*).
- **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.
- **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (*full descriptions in WDFW PHS report p. 161 – see web link above*).
- **Instream:** The combination of physical, biological, and chemical processes and conditions that interact to provide functional life history requirements for instream fish and wildlife resources.
- **Nearshore:** Relatively undisturbed nearshore habitats. These include Coastal Nearshore, Open Coast Nearshore, and Puget Sound Nearshore. (*full descriptions of habitats and the definition of relatively undisturbed are in WDFW report – see web link on previous page*).
- **Caves:** A naturally occurring cavity, recess, void, or system of interconnected passages under the earth in soils, rock, ice, or other geological formations and is large enough to contain a human.
- **Cliffs:** Greater than 25 ft (7.6 m) high and occurring below 5000 ft elevation.
- **Talus:** Homogenous areas of rock rubble ranging in average size 0.5 - 6.5 ft (0.15 - 2.0 m), composed of basalt, andesite, and/or sedimentary rock, including riprap slides and mine tailings. May be associated with cliffs.
- **Snags and Logs:** Trees are considered snags if they are dead or dying and exhibit sufficient decay characteristics to enable cavity excavation/use by wildlife. Priority snags have a diameter at breast height of > 20 in (51 cm) in western Washington and are > 6.5 ft (2 m) in height. Priority logs are > 12 in (30 cm) in diameter at the largest end, and > 20 ft (6 m) long.

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

Wetland name or number B

### CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	Category
<i>Check off any criteria that apply to the wetland. Circle the category when the appropriate criteria are met.</i>	
<b>SC 1.0. Estuarine wetlands</b> 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 <b>SC 1.1</b> <b>No</b> – Not an estuarine wetland	
<b>SC 1.1.</b> 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 = <b>Category I</b> No - Go to <b>SC 1.2</b>	
<b>SC 1.2.</b> 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 <i>Spartina</i> , see page 25) — At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands.	Cat. I  Cat. II
Yes = <b>Category I</b> No = <b>Category II</b>	
<b>SC 2.0. Wetlands of High Conservation Value (WHCV)</b>	
<b>SC 2.1.</b> Has the WA Department of Natural Resources updated their website to include the list of Wetlands of High Conservation Value?	Cat. I
Yes – Go to <b>SC 2.2</b> <b>No</b> – Go to <b>SC 2.3</b>	
<b>SC 2.2.</b> Is the wetland listed on the WDNR database as a Wetland of High Conservation Value?	Cat. I
Yes = <b>Category I</b> <b>No</b> – Not a WHCV	
<b>SC 2.3.</b> Is the wetland in a Section/Township/Range that contains a Natural Heritage wetland? <a href="http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhpwetlands.pdf</a>	Cat. I
Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b> No = <b>Not a WHCV</b>	
<b>SC 2.4.</b> Has WDNR identified the wetland within the S/T/R as a Wetland of High Conservation Value and listed it on their website?	Cat. I
Yes = <b>Category I</b> No = <b>Not a WHCV</b>	
<b>SC 3.0. Bogs</b>	
Does the wetland (or any part of the unit) meet both the criteria for soils and vegetation in bogs? <i>Use the key below. If you answer YES you will still need to rate the wetland based on its functions.</i>	
<b>SC 3.1.</b> 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?	Cat. I
Yes – Go to <b>SC 3.3</b> <b>No</b> – Go to <b>SC 3.2</b>	
<b>SC 3.2.</b> 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?	Cat. I
Yes – Go to <b>SC 3.3</b> <b>No</b> – Is not a bog	
<b>SC 3.3.</b> 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?	Cat. I
Yes = <b>Is a Category I bog</b> No – Go to <b>SC 3.4</b>	
<b>NOTE:</b> 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.	
<b>SC 3.4.</b> 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?	Cat. I
Yes = <b>Is a Category I bog</b> No = <b>Is not a bog</b>	

Wetland name or number B

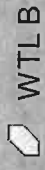
<p><b>SC 4.0. Forested Wetlands</b></p> <p>Does the wetland have at least <u>1 contiguous acre</u> of forest that meets one of these criteria for the WA Department of Fish and Wildlife's forests as priority habitats? <i>If you answer YES you will still need to rate the wetland based on its functions.</i></p> <ul style="list-style-type: none"> <li>— <b>Old-growth forests</b> (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.</li> <li>— <b>Mature forests</b> (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).</li> </ul> <p style="text-align: right;">Yes = <b>Category I</b>    <b>No</b> = Not a forested wetland for this section</p>	Cat. I
<p><b>SC 5.0. Wetlands in Coastal Lagoons</b></p> <p>Does the wetland meet all of the following criteria of a wetland in a coastal lagoon?</p> <ul style="list-style-type: none"> <li>— 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</li> <li>— The lagoon in which the wetland is located contains ponded water that is saline or brackish (&gt; 0.5 ppt) during most of the year in at least a portion of the lagoon (<i>needs to be measured near the bottom</i>)</li> </ul> <p style="text-align: right;">Yes – Go to <b>SC 5.1</b>    <b>No</b> = Not a wetland in a coastal lagoon</p> <p><b>SC 5.1. Does the wetland meet all of the following three conditions?</b></p> <ul style="list-style-type: none"> <li>— 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).</li> <li>— At least ¾ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or unmowed grassland.</li> <li>— The wetland is larger than 1/10 ac (4350 ft<sup>2</sup>)</li> </ul> <p style="text-align: right;">Yes = <b>Category I</b>    No = <b>Category II</b></p>	Cat. I  Cat. II
<p><b>SC 6.0. Interdunal Wetlands</b></p> <p>Is the wetland west of the 1889 line (also called the Western Boundary of Upland Ownership or WBUO)? <i>If you answer yes you will still need to rate the wetland based on its habitat functions.</i></p> <p>In practical terms that means the following geographic areas:</p> <ul style="list-style-type: none"> <li>— Long Beach Peninsula: Lands west of SR 103</li> <li>— Grayland-Westport: Lands west of SR 105</li> <li>— Ocean Shores-Copalis: Lands west of SR 115 and SR 109</li> </ul> <p style="text-align: right;">Yes – Go to <b>SC 6.1</b>    <b>No</b> = not an interdunal wetland for rating</p> <p><b>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)?</b>  <span style="float: right;">Yes = <b>Category I</b>    No – Go to <b>SC 6.2</b></span></p> <p><b>SC 6.2. Is the wetland 1 ac or larger, or is it in a mosaic of wetlands that is 1 ac or larger?</b>  <span style="float: right;">Yes = <b>Category II</b>    No – Go to <b>SC 6.3</b></span></p> <p><b>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?</b>  <span style="float: right;">Yes = <b>Category III</b>    No = <b>Category IV</b></span></p>	Cat I  Cat. II  Cat. III  Cat. IV
<p><b>Category of wetland based on Special Characteristics</b></p> <p>If you answered No for all types, enter "Not Applicable" on Summary Form</p>	

Wetland name or number B

*This page left blank intentionally*

# Cowardin Classes Hydroperiods and Plant Coverage

Legend



WTL B

Entire wetland appears saturated only, no signs of hydrology or topography that would hold water on the slope (H 1.2)

Entire wetland features dense and rigid vegetation (S 1.3 and S 4.1)

Forested  
Cowardin Class

Center of wetland  
has emergent  
Cowardin Class

Forested  
Cowardin Class



70 ft

# 1 KM Circle

with 150 foot buffer and undisturbed polygons

## Legend

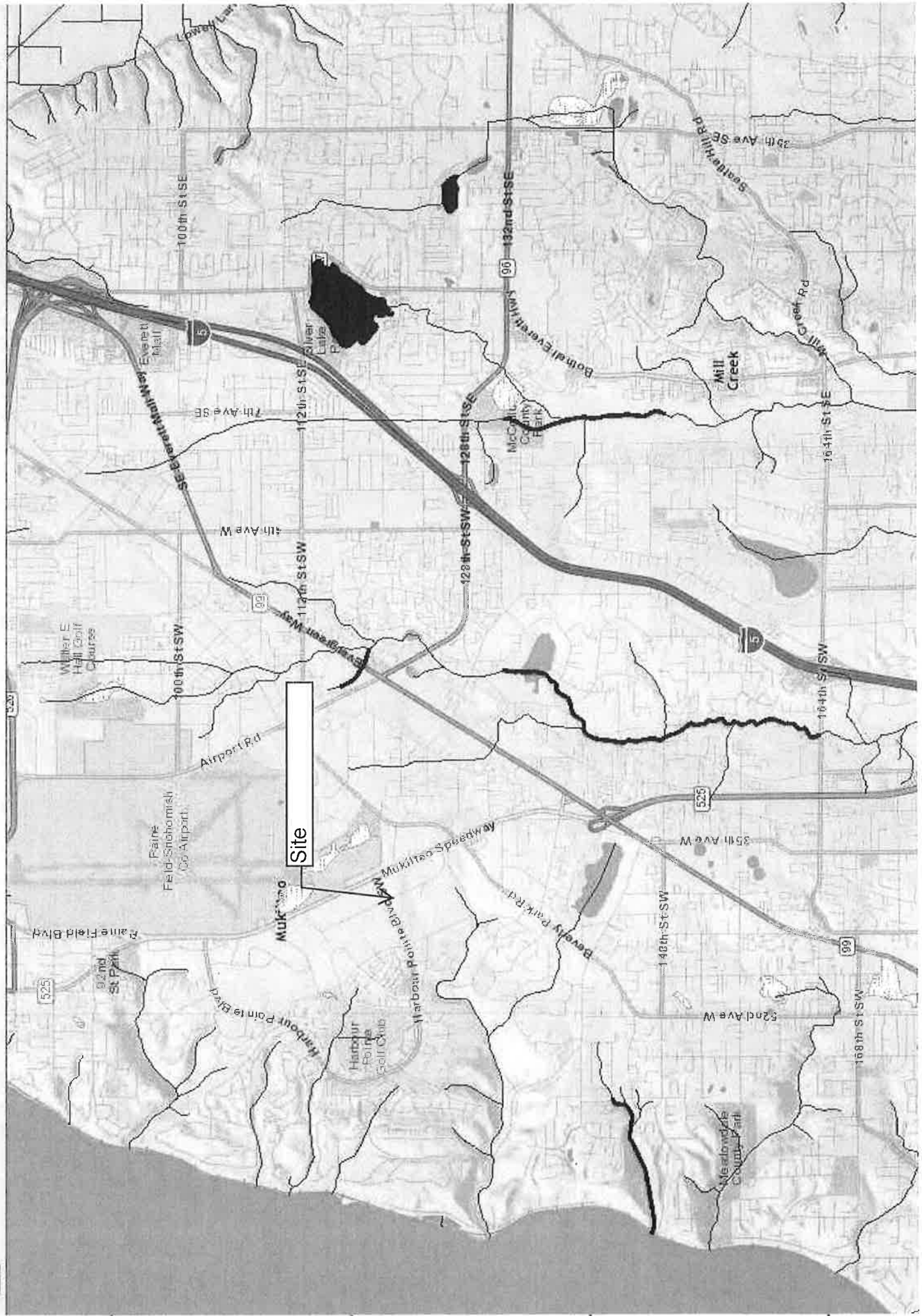
- WTL B
- WTL B 1 KM diameter
- WTL B Rough 150' buffer
- WTL B Undisturbed

Google earth

© 2016 Google  
© 2016 Europa Technologies

1000 ft





## Water Quality Improvement Projects (TMDLs)

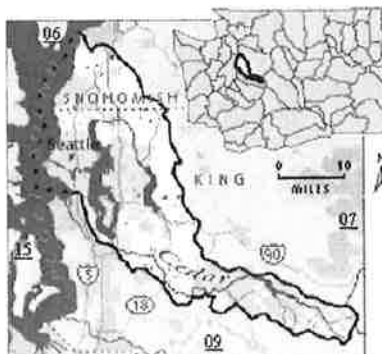
[Water Quality Improvement](#) > [Water Quality Improvement Projects by WRIA](#) > WRIA 8: Cedar-Sammamish

### WRIA 8: Cedar-Sammamish

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

#### Counties

- [King](#)
- [Snohomish](#)



Waterbody Name	Pollutants	Status**	TMDL Lead
<a href="#">Ballinger Lake</a>	Total Phosphorus	Approved by EPA	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Bear-Evans Creek Basin</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
	Dissolved Oxygen Temperature	Approved by EPA	
<a href="#">Cottage Lake</a>	Total Phosphorus	Approved by EPA Has an implementation plan	<a href="#">Tricia Shoblom</a> 425-649-7288
<a href="#">Issaquah Creek Basin</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
<a href="#">Little Bear Creek</a> Tributaries:  Trout Stream Great Dane Creek Cutthroat Creek	Fecal Coliform	Approved by EPA	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">North Creek</a>	Fecal Coliform	Approved by EPA Has an implementation plan	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">Pipers Creek</a>	Fecal Coliform	Approved by EPA	<a href="#">Joan Nolan</a> 425-649-4425
<a href="#">Sammamish River</a>	Dissolved Oxygen Temperature	Field work starts summer 2015	<a href="#">Ralph Svrcek</a> 425-649-7036
<a href="#">Swamp Creek</a>	Fecal Coliform	Approved by EPA Has an Implementation plan	<a href="#">Ralph Svrcek</a> 425-649-7036

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

#### For more information about WRIA 8:

- [Waterbodies in WRIA 8](#) - using the Water Quality Assessment Query Tool
- [Watershed Information for WRIA 8](#)

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

[Back to top of page](#)

Last updated July 2015

Copyright © Washington State Department of Ecology. See <http://www.ecy.wa.gov/copyright.htm>