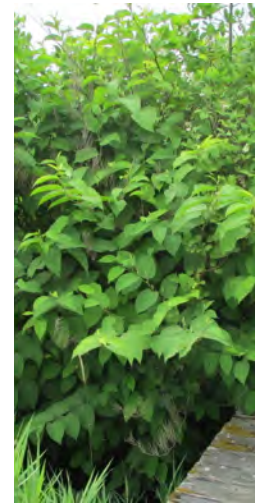




Critical Areas Assessment  
Corps Reference No. NWS-2019-745  
April 6, 2020



Berwick Creek Flood  
Reduction and Restoration  
City of Chehalis, Washington

Prepared for  
Port of Chehalis  
321 Maurin Road  
Chehalis, Washington 98532  
(360) 748-9365

Prepared by  
Ecological Land Services, Inc.  
1157 3rd Avenue, Suite 220A • Longview, WA 98632  
(360) 578-1371 • Project Number 362.35

## Signatures

---

The information in this report was prepared under the supervision and direction of the undersigned:

*Mara McGrath*

---

Mara McGrath, PWS  
Senior Ecologist

*Lacey Hoffmann*

---

Lacey Hoffmann  
Biologist

# Table of Contents

---

<b>Introduction</b> .....	<b>1</b>
<b>Site Description</b> .....	<b>1</b>
RIPARIAN CORRIDOR ALONG BERWICK CREEK .....	2
RIVERINE WETLAND SOUTH OF BERWICK CREEK .....	2
<b>Critical Area Inventories</b> .....	<b>2</b>
LOCAL CRITICAL AREAS INVENTORY .....	2
NATIONAL WETLANDS INVENTORY.....	3
FOREST PRACTICES MAPPING .....	3
SOIL SURVEY .....	3
PRIORITY HABITATS AND SPECIES.....	3
<b>Methods</b> .....	<b>3</b>
STREAM .....	3
WETLAND.....	4
<b>Results</b> .....	<b>4</b>
STREAM .....	4
WETLAND.....	6
Vegetation .....	6
Soils .....	7
Hydrology .....	7
<b>Conclusions</b> .....	<b>8</b>
STREAM TYPING AND BUFFER .....	8
WETLAND CATEGORIZATION AND BUFFER .....	8
PRIORITY HABITAT AND SPECIES .....	9
<b>Limitations</b> .....	<b>9</b>
<b>References</b> .....	<b>10</b>

**LIST OF TABLES**

Table 1. Mapped Soils..... 3  
Table 2. Stream Summary..... 5  
Table 3. Wetland Summary ..... 6  
Table 4. Critical Areas Summary ..... 8

**LIST OF FIGURES & PHOTOPLATES**

Figure 1 Vicinity Map  
Figure 2 Existing Conditions  
Figure 3 Lewis County Critical Areas  
Figure 4 National Wetlands Inventory  
Figure 5 Forest Practices Water Typing  
Figure 6 Soil Survey  
Figure 7 Priority Habitats and Species  
Figure 8 150' Offset Wetland Rating  
Figure 9 1 KM Offset Wetland Rating  
Figure 10 Contributing Basin  
Figure 11 303(d) Listed Waters & TMDLs  
Photoplates 1 - 14 Site Photos

**LIST OF APPENDICES**

Appendix A Wetland Determination Data Forms  
Appendix B Western Washington Wetland Rating



## Introduction

---

Ecological Land Services, Inc. (ELS) has completed this critical areas assessment for a wetland and a fish and wildlife habitat area on behalf of the applicant, the Port of Chehalis, for the Berwick Creek Flood Reduction and Restoration project. The Port is proposing to restore approximately 1,000 linear feet of Berwick Creek to:

- Improve flood storage along a channelized section of Berwick Creek;
- Improve stream bank stability and reduce erosion;
- Slow flow velocity during high water events;
- Improve instream habitat;
- Enhance an existing riverine wetland to achieve greater plant species diversity and structure;
- Improve habitat complexity within the site; and
- Provide stream shading and large woody material recruitment in the long-term.

Berwick Creek is in the Upper Chehalis watershed (WRIA 23) and has been historically impacted by agricultural, industrial, commercial, and residential land uses for decades. This project is a part of a larger, basin-wide effort to improve stream habitat and decrease flooding in the Chehalis River basin. The project is funded by the Chehalis Basin Flood Authority and is administered by the Washington State Recreation and Conservation Office (RCO Project 18-2614P).

The project area, north of Bishop Road in the City of Chehalis, Washington, is comprised of Lewis County tax parcels 017775001000, 017775002000, 017887002000, 017888002001, 017889002003, & 017889002002, within portions of Sections 10 and 15, Township 13 North, Range 2 West of the Willamette Meridian (Figure 1). This report describes the wetland, stream, and their buffers within the project area according to the applicable sections of the City of Chehalis Municipal Code (CMC) *Chapter 17.23, Wetlands* and *Chapter 17.25, Fish and Wildlife Habitat Areas* (2009).

## Site Description

---

The parcels within the project area that border Berwick Creek are owned by the Port of Chehalis and Community Partners (Chehalis Industrial Commission) and two private landowners. The area is within the Urban Growth Area of the City of Chehalis.

The approximately 2.8-acre project area and its surroundings are low lying lands in the Chehalis River Basin and flood extensively during heavy rain events. The topography of the project area has a slight rise in elevation moving upstream from about 244 to 246 feet above sea level. The project area is currently undeveloped and contains barbed-wire fencing along the stream and a wet field (Wetland A), which has been used for hay production. A 14-inch PVC culvert is at the

southeast corner of the project area, along a west flowing ditch that is a tributary to Berwick Creek (Ditch A). The culvert spans an old road crossing that provides access to the wetland. Other than the gravel road, culvert, and fencing, the project area lacks structures.

The adjacent properties have residential and industrial uses. The project area is bordered to the north by an undeveloped, industrially owned field and a privately owned single-family residence; to the south by a privately owned single-family residences and a residence owned by Community Partners; and to the east by Rush Road (Figure 2). Bishop Road is just south of the southern project area.

Berwick Creek and a stream-associated wetland are the primary critical areas in the project area. Two Oregon white oaks are on a terrace north of the stream.

### **RIPARIAN CORRIDOR ALONG BERWICK CREEK**

The stream in the restoration area averages 9.7 feet wide, is channelized, and has heavily downcut banks, especially at the southwest bend in the stream where winter flows achieve high velocities and subsequent overbank flows and erosion. Beavers have constructed several dams in the stream channel upstream of the southwest bend, which slow but do not block water flow. Deciduous trees have fallen into the stream where the banks have substantially eroded. The streambed is a silty substrate and lacks gravels.

The riparian corridor is narrow and vegetated in patches with shrubs and trees. The understory is a mix of native and non-native herbaceous species and is largely dominated by reed canarygrass. The shrub layer is also a mix of native and non-native species. Himalayan blackberry is prominent; red-osier dogwood and rose are common native shrubs. Where an overstory exists, it is primarily Oregon ash with a few Sitka spruce, Douglas-fir, and cherry.

### **RIVERINE WETLAND SOUTH OF BERWICK CREEK**

The wetland in the field south of Berwick Creek is dominated by reed canarygrass within the project area with patches of soft rush scattered throughout the wetland. The wetland receives overbank flows from Berwick Creek and substantial winter flow from the west flowing ditch (Ditch A). Due to the monoculture of reed canarygrass and lack of structural diversity, the wetland provides low to moderate habitat functions in the project area.

## **Critical Area Inventories**

---

### **LOCAL CRITICAL AREAS INVENTORY**

The Lewis County critical areas inventory identifies Berwick Creek, its floodway, and its 100-year flood area within the project area (Figure 3). Berwick Creek is a Type F-B water according to City standards. The closest wetland is mapped immediately northwest of the project area.

## NATIONAL WETLANDS INVENTORY

The National Wetlands Inventory (NWI) maps a palustrine scrub-shrub, seasonally flooded wetland (PSSC) within the project area (Figure 4). Emergent wetlands are mapped outside of the project area.

## FOREST PRACTICES MAPPING

The Washington Department of Natural Resources (WDNR) maps Berwick Creek as a Type F water (Figure 5).

## SOIL SURVEY

The Natural Resource Conservation Service (NRCS 2019) maps the soils within the study area as follows (Figure 6):

**Table 1. Mapped Soils**

Soil Series	Symbol	Percent Slope	Drainage Class	NRCS Hydric Designation <sup>1</sup>	Test Plots per Soil Series
Lacamas silt loam	118	0 to 3	Poorly drained	Yes	TP 1 – 8

<sup>1</sup> NRCS 2020

Lacamas silt loam is located on floodplains and terraces and is typically silt loam from 0 to 17 inches and silty clay and clay below 17 inches.

## PRIORITY HABITATS AND SPECIES

The Washington Department of Fish and Wildlife identifies Berwick Creek within the project area. The stream is identified as having coho, cutthroat, and rainbow trout (Figure 7). Big brown bats and freshwater emergent wetlands are mapped outside of the project area.

## Methods

ELS biologists conducted field visits on 25 March 2019 and 18 February 2020 to delineate the stream and wetland within the project area, assess stream and wetland functions, and collect vegetation, soils, and hydrology data. The weather was cool and wet upon visitation and during days preceding the field work. January 2020 had higher than normal total precipitation (15.56 inches total or 7.72 inches above normal) and slightly above normal mean temperatures (+3.1° F). February 2020 had slightly lower than normal total precipitation (3.38 inches total or -2.08 inches below normal) and slightly below normal mean temperatures (-0.4° F) according to the National Weather Service preliminary climate data for the Olympia Airport (2020).

## STREAM

Berwick Creek's ordinary high water mark (OHWM) was delineated following *RCW 90.58.030*. Consecutively numbered flagging, identified as OHWM N-1 through N-29 and S-1 through S-29,

was placed along the stream’s north and south OHWMs. Gibbs & Olson, Inc. surveyed the OHWM flags in March 2019 (Figure 2).

## **WETLAND**

One wetland, identified as Wetland A, was delineated within the project area (Tables 1 and 2; Figure 2). Additionally, the top of bank of Ditch A, which is within Wetland A, was marked by consecutively numbered flags. We followed the Routine Determination Method<sup>1</sup> for delineating the wetland boundary according to the approved federal manual and appropriate regional supplements<sup>2</sup>. Wetlands are regulated as “Waters of the United States” by the U.S. Army Corps of Engineers (Corps), “Waters of the State” by the Washington State Department of Ecology (Ecology), and locally by *CCC Chapter 40.450 Wetland Protection*.

The wetland boundaries extend well outside of the project area; thus, the wetland within the project area was delineated by aerial photo analysis. Vegetation, soil, and hydrology data were collected from eight test plots within the project area to verify the presence and boundaries of the wetland (Figure 2; Appendix A). Test plot locations were recorded using a hand-held GPS capable of sub-meter accuracy. Soil colors in test plots were evaluated by hue, value, and chroma using the Munsell Soil Color Chart (Munsell 2000). Plant dominance was based on the 50/20 rule (Corps 2010). Gibbs & Olson, Inc. surveyed the topography, Ditches A and B, gravel access road, culvert, and upland within Wetland A in March 2019.

## **Results**

---

### **STREAM**

Berwick Creek is a Type F (fish-bearing) stream that originates in the foothills to the northeast of the project area (Table 2; Figures 2 and 5). The stream has been channelized along the segment within the project area. Berwick Creek continues to the west and north outside of the project area, eventually joining with Dillenbaugh Creek approximately 1.5 miles to the northwest. Dillenbaugh Creek outlets to the Chehalis River near Exit 77 of Interstate 5. Man-made structures are present along Berwick Creek’s channel including a small rock “dam” and other debris. Additionally, beavers have constructed several dams within the stream channel.

---

<sup>1</sup> Routine Determination Method examines vegetation, hydrology, and soils to determine if wetlands exist in a given area. By definition, wetlands are those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (40 CFR §230.3).

<sup>2</sup> U.S. Army Corps of Engineers, *Wetlands Delineation Manual* (Environmental Laboratory 1987), *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (2010).

**Table 2. Stream Summary**

<b>Feature</b>	<b>Description</b>
<b>Critical Area</b>	Berwick Creek
<b>WDNR Type</b>	F
<b>Local Type</b>	F-B
<b>Local Buffer</b>	100 feet
<b>Watershed</b>	WRIA 23 (Upper Chehalis)
<b>Substrate</b>	Silt
<b>Average Width</b>	9.7 feet
<b>Channel Condition</b>	Downcut with eroding banks
<b>Fish Access</b>	Small rock “dam” and beaver dams partially block access within project area
<b>Floodplain Connectivity</b>	Stream has been channelized in project area, contributing to some berming along top of stream channel; seasonal overbank flooding contributes to hydrology in Wetland A
<b>Water Quality</b>	Watershed contains TDMLs for ammonia-N, BOD, dissolved oxygen, fecal coliform, and temperature
<b>Riparian Conditions</b>	Abundant reed canarygrass and relatively sparse native deciduous shrubs and trees in narrow band along the riparian corridor within project area



## WETLAND

One riverine wetland, identified as Wetland A, is south of Berwick Creek (Table 3; Figure 2).

**Table 3. Wetland Summary**

Feature	Description
<b>Critical Area</b>	Wetland A
<b>Area</b>	1.70 acres within project area; 7.29 acres estimated total
<b>Ecology Rating</b>	Category II
<b>Local Rating</b>	Category II
<b>Habitat Score</b>	5
<b>Local Buffer</b>	100 feet
<b>HGM Classification</b>	Riverine, Slope
<b>Cowardin Classification</b>	PFOC, PEMC
<b>Hydroperiod</b>	Seasonally flooded or inundated, permanently flowing stream adjacent to wetland (Berwick Creek), seasonally flowing stream in wetland (Ditch A)
<b>Dominant Vegetation</b>	<i>Phalaris arundinacea</i> , <i>Fraxinus latifolia</i>
<b>Soils Indicators</b>	Redox Dark Surface (F6) & Depleted Matrix (F3)
<b>Hydrology Indicators</b>	Surface Water (F1), High Water Table (A2), Saturation (A3), Hydrogen Sulfide Odor (C1), & Oxidized Rhizospheres along Living Roots (C3)



## Vegetation

### Wetland

Wetland A contains forested and emergent vegetation classes. Oregon ash (*Fraxinus latifolia*, FACW) is the main tree within the overstory canopy, providing approximately 30 percent cover within the wetland. The emergent understory is dominated by reed canarygrass (*Phalaris arundinacea*, FACW) and occupies about 90 percent cover in the wetland within the project area and remainder of the wetland. No forest class is present within the project area. Soft rush (*Juncus effusus*, FACW) is scattered in clumps throughout the wetland. Hydrophytic vegetation

was met due to 100 percent of the dominant vegetation within the test plots being obligate, facultative wetland, or facultative species (Appendix A).

### *Upland*

The upland vegetation in Wetland A's buffer within the project area is dominated by Oregon ash, red-osier dogwood (*Cornus sericea*, FACW), and reed canarygrass. Several Oregon white oak (*Quercus garryana*, FACU) are north of the stream. Black cottonwood (*Populus trichocarpa*, FACW), Sitka spruce (*Picea sitchensis*, FAC), Douglas-fir (*Pseudotsuga menziesii*, FACU), cherry (*Prunus* sp., FACU), rose (*Rosa* sp., FAC), Himalayan blackberry (*Rubus armeniacus*, FAC), and Japanese knotweed (*Polygonum cuspidatum*, FACU) grow elsewhere along the riparian corridor.

## **Soils**

### *Wetland*

Evaluated wetland soils were very dark gray and grayish brown (10YR 3/1 and 3/2) and dark gray (10YR 4/1) silt loams and silty clay loams. All profiles were evaluated to a depth of at least 16 inches. Redoximorphic features within wetland test plots presented as concentrations in the matrix and were characterized by reddish brown (5YR 4/3), yellow brown (5YR 4/6), and strong brown (7.5YR 5/8) hues. Hydric soil indicators were met by Depleted Matrix and Redox Dark Surface (Appendix A).

### *Upland*

The evaluated upland soils were dark brown (10YR 3/3) and black (10YR 3/1) silt loams and loams at the top of the profile. Beneath the top layer, soils were gray (10YR 5/1), dark brown (10YR 3/3), and very dark grayish brown 10YR 3/2) silt loam and loam. Some areas had distinct or prominent redoximorphic concentrations in the matrix. Test plots 1 and 4 met criteria for hydric soils (Depleted Matrix and Redox Dark Surface; Figure 6; Appendix A).

## **Hydrology**

Wetland A receives hydrological inputs from seasonal overbank flows from Berwick Creek and Ditch A and groundwater from its low lying position in the floodplain (Figure 2). The wetland has a surface water connection that outlets to Berwick Creek via Ditch A. Water also infiltrates within the wetland. The wetland hydroperiods are:

- Seasonally flooded or inundated;
- Permanently flowing stream adjacent to the wetland (Berwick Creek); and
- Seasonally flowing stream in the wetland (Ditch A).

### *Wetland*

Primary wetland hydrology indicators observed within wetland test plots included surface water up to 12 inches, high water table, and saturation to the surface. Oxidized rhizospheres along living roots and hydrogen sulfide odor were also present (Appendix A). Surface water was present in shallow depressions within the wetland and Ditch A during all field visits.

## Upland

The upland areas lacked positive wetland hydrological indicators and the evaluated soil profiles were dry.

## Conclusions

We identified the following critical areas within the project area: Berwick Creek, a palustrine wetland and ditch, and Oregon white oaks (Table 3).

**Table 4. Critical Areas Summary**

Critical Area	Area	Ecology <sup>1</sup> /City Rating <sup>2</sup> WDNR <sup>3</sup> / City Type <sup>4</sup>	Cowardin Classification <sup>5</sup>	HGM Classification	Standard Buffer <sup>6</sup>
Berwick Creek	--	Type F / F-B	--	--	100 feet
Wetland A	1.70 acres within project area	II	PFOC, PEMC	Riverine, Slope	100 feet
Oregon White Oak	2 oaks: 24-in dbh & 36-in dbh	--	--	--	--

<sup>1</sup>Hruby 2014

<sup>2</sup>CMC 17.23.010

<sup>3</sup>WAC 222-16-030

<sup>4</sup>CMC 17.25.020

<sup>5</sup>Cowardin *et al.* 1979

<sup>6</sup>CMC 17.23.030 and CMC 17.25.030

## STREAM TYPING AND BUFFER

Berwick Creek is a Type F water (fish-bearing) under the *Washington Administrative Code (WAC) 222-16-030 Water Typing System*. The stream, at less than 10 feet wide, is categorized as a Type F-B water under the Chehalis Municipal Code and requires a 100-foot buffer (CMC 17.25.030).

## WETLAND CATEGORIZATION AND BUFFER

Wetland A is an approximately 7.29-acre Category II, palustrine forested and emergent wetland, which receives overbank flooding on a seasonal basis from Berwick Creek and Ditch A (Table 2). The wetland contains riverine and slope hydrogeomorphic classes.

Wetland A rates as a Category II riverine wetland under Ecology's 2014 wetland rating system (Hruby 2014; Figures 8-11; Appendix B), although the wetland is identified as having two hydrogeomorphic classifications: riverine and slope. The City of Chehalis agreed to follow Ecology's 2014 rating system for consistency with state and federal regulations (pers.comm. D. King February 12, 2020). According to the rating system, Wetland A has high indicators to improve water quality and reduce flooding and erosion. In particular, the wetland scored:

- High for improving water quality (8 out of 9 points),
- High for hydrologic functions (8 out of 9 points), and
- Low for habitat functions (5 out of 9 points).



As a Category II wetland with a habitat score of 5, Wetland A requires a 100-foot buffer for low habitat functions (*CMC 17.23.030*)<sup>3</sup>.

### **PRIORITY HABITAT AND SPECIES**

According to the Washington Department of Fish and Wildlife's Priority Habitats and Species (PHS) Report (2020), Berwick Creek is identified within the project area. Two Oregon white oaks north of the stream, on an upland terrace, are not identified on the PHS report, but were field-identified and their locations surveyed (Figure 2). Best management practices for avoiding oak impacts are described in the restoration plan (ELS 2020). The other mapped occurrences (freshwater wetlands) on the PHS report are well outside of the project area and will not be affected.

### **Limitations**

---

ELS bases this report's determinations on standard scientific methodology and best professional judgment. In our opinion, local, state, and federal regulatory agencies should agree with our determinations. However, the information contained in this report should be considered preliminary and used at your own risk until it has been approved in writing by the appropriate regulatory agencies. ELS is not responsible for the impacts of any changes in environmental standards, practices, or regulations after the date of this report.

---

<sup>3</sup> According to a July 2018 update from Ecology on its rating guidance, habitat scores of 3 to 5 points now constitute low habitat function (Ecology 2018). As the City is expected to update their Critical Areas Ordinance to reflect Ecology's revision, this report adopts that update.

## References

---

- Chehalis Municipal Code (CMC). 2009. Chapter 17.23 Wetlands. City of Chehalis, Washington. <https://www.codepublishing.com/WA/Chehalis/#!/Chehalis17/Chehalis1723.html#17.23>. Accessed February 2020.
- Chehalis Municipal Code (CMC). 2009. Chapter 17.25 Fish and Wildlife Habitat Areas. <https://www.codepublishing.com/WA/Chehalis/#!/Chehalis17/Chehalis1723.html#17.23>. Accessed February 2020.
- Cowardin, L.M., C. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. FWS/OBS-78/31. U.S. Department of the Interior, Fish and Wildlife Service, Office of Biological Services, Washington D.C.
- Environmental Laboratory. 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. U.S. Army Waterways Experiment Station, Vicksburg, Mississippi.
- Hruby, T. 2014. Washington State Wetland Rating System for Western Washington - 2014 Update. Publ. #14-06-029. Washington State Department of Ecology. Olympia, Washington.
- Munsell Soil Color Charts. 2000. Gretag Macbeth. New Windsor, New York.
- Natural Resources Soil Conservation Service (NRCS). 2020. List of Hydric Soils. <https://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/use/hydric/>. Accessed February 2020.
- Natural Resources Soil Conservation Service (NRCS). 2019. Web Soil Survey. <https://websoilsurvey.sc.egov.usda.gov/>. Accessed February 2020.
- National Weather Service Forecast Office. 2020. Preliminary Monthly Climate Data. <https://w2.weather.gov/climate/index.php?wfo=sew>. Accessed February 2020.
- U.S. Army Corps of Engineers (Corps). May 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0). ERC/EL TR-08-13. Vicksburg, Mississippi.
- Washington Department of Ecology (Ecology). July 2018. *Appendix 8-C, Guidance on Widths of Buffers and Ratios for Compensatory Mitigation for Use with the Western Washington Wetland Rating System*. Ecology Publication No. 05-06-008. Olympia, Washington.
- Washington Department of Fish and Wildlife. 2020. Priority Habitats and Species (PHS) on the Web. <http://apps.wdfw.wa.gov/phsontheweb/>. Accessed February 2020.
- Washington State Legislature. 2016. Washington Administrative Code (WAC). Chapter 222-16-030 Water Typing System. <https://app.leg.wa.gov/WAC/default.aspx?cite=222-16-030>. Accessed February 2020.

## Figures & Photoplates

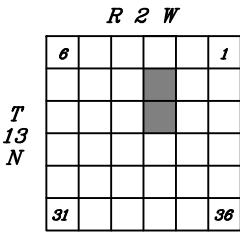
---

WASHINGTON



Latitude: 46.6192°  
Longitude: -122.9111°

LOCATION MAP



**NOTE:**  
USGS topographic quadrangle map reproduced using  
MAPTECH Inc., Terrain Navigator Pro software.

**PROJECT VICINITY MAP**

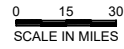
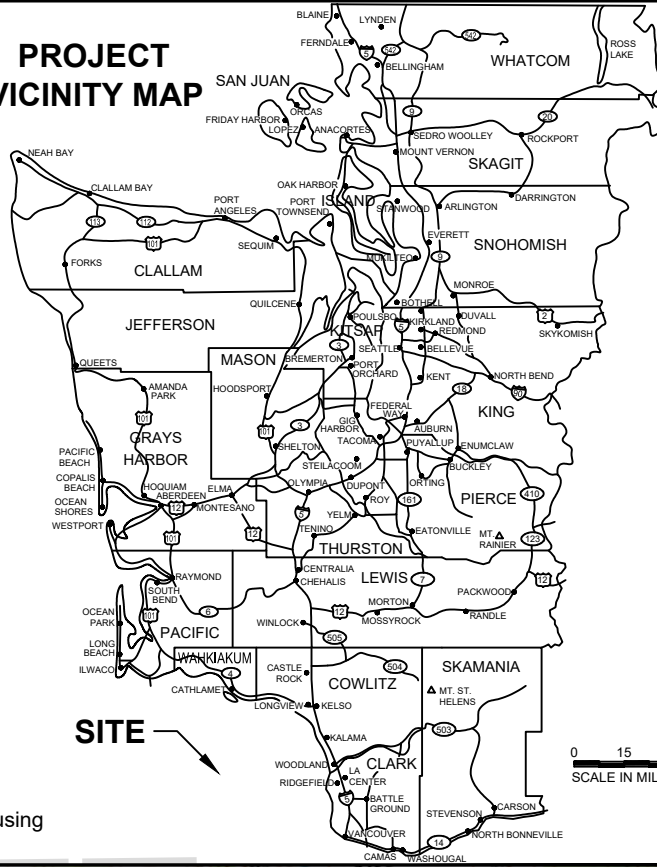
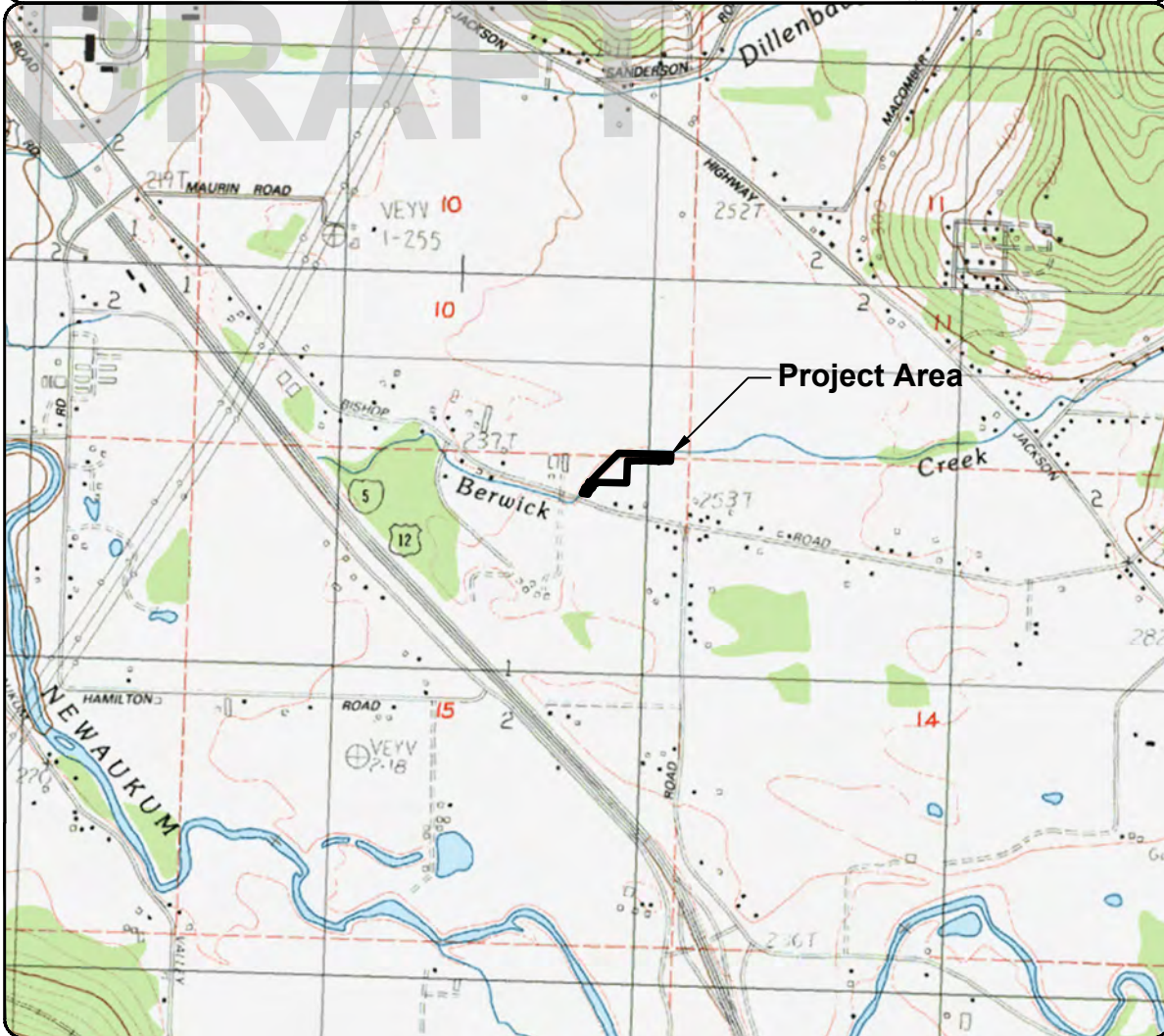
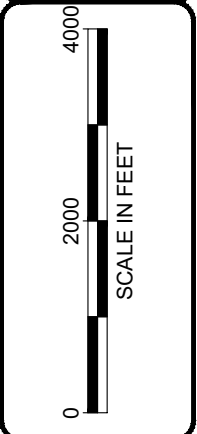


Figure 1

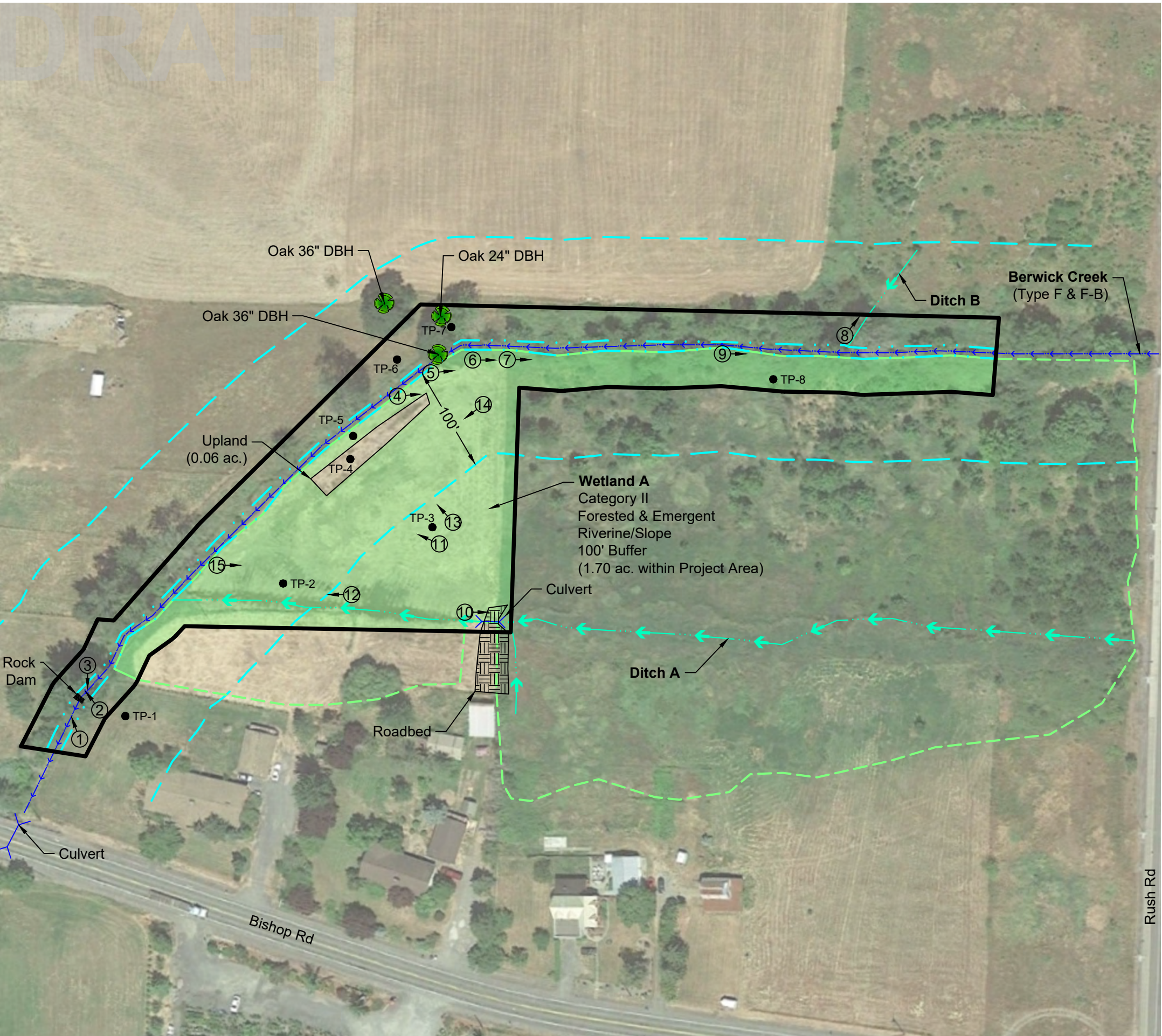
**VICINITY MAP**  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, WA  
Section 10 & 15, Township 13N, Range 2W, W.M.

DATE: 3/27/20  
DWN: EF  
REQ. BY: LH  
PRJ. MGR: MM  
CHK: MM  
PROJECT NO:  
362.35

1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305  
www.eco-land.com







**LEGEND:**

- Project Area (2.79 ac.)
- Wetland Boundary
- Approximate Wetland Boundary (7.29 ac.)
- Stream with Flow Direction
- Ditch with Flow Direction
- OHWM
- Stream Buffer
- Culvert
- Oregon White Oak
- TP-1 Test Plot
- Photopoint

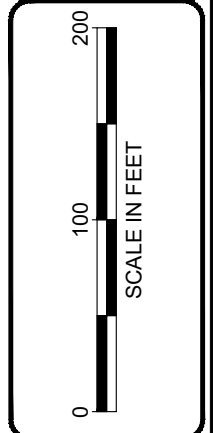
**NOTE(S):**

1. Aerial from Google Earth™.
2. Ecological Land Services Inc. biologists delineated the stream and wetland boundaries on March 25, 2019 and February 18, 2020.
3. Gibbs & Olsen inc. surveyed the stream and wetlands flags in March 2019.
4. Stream typing and buffer width are according to CMC 17.25.020 and 17.25.030.
5. Wetland classification and buffer widths are according to CMC 17.23.010 and CMC 17.23.030.

Figure 2  
**EXISTING CONDITIONS**  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.

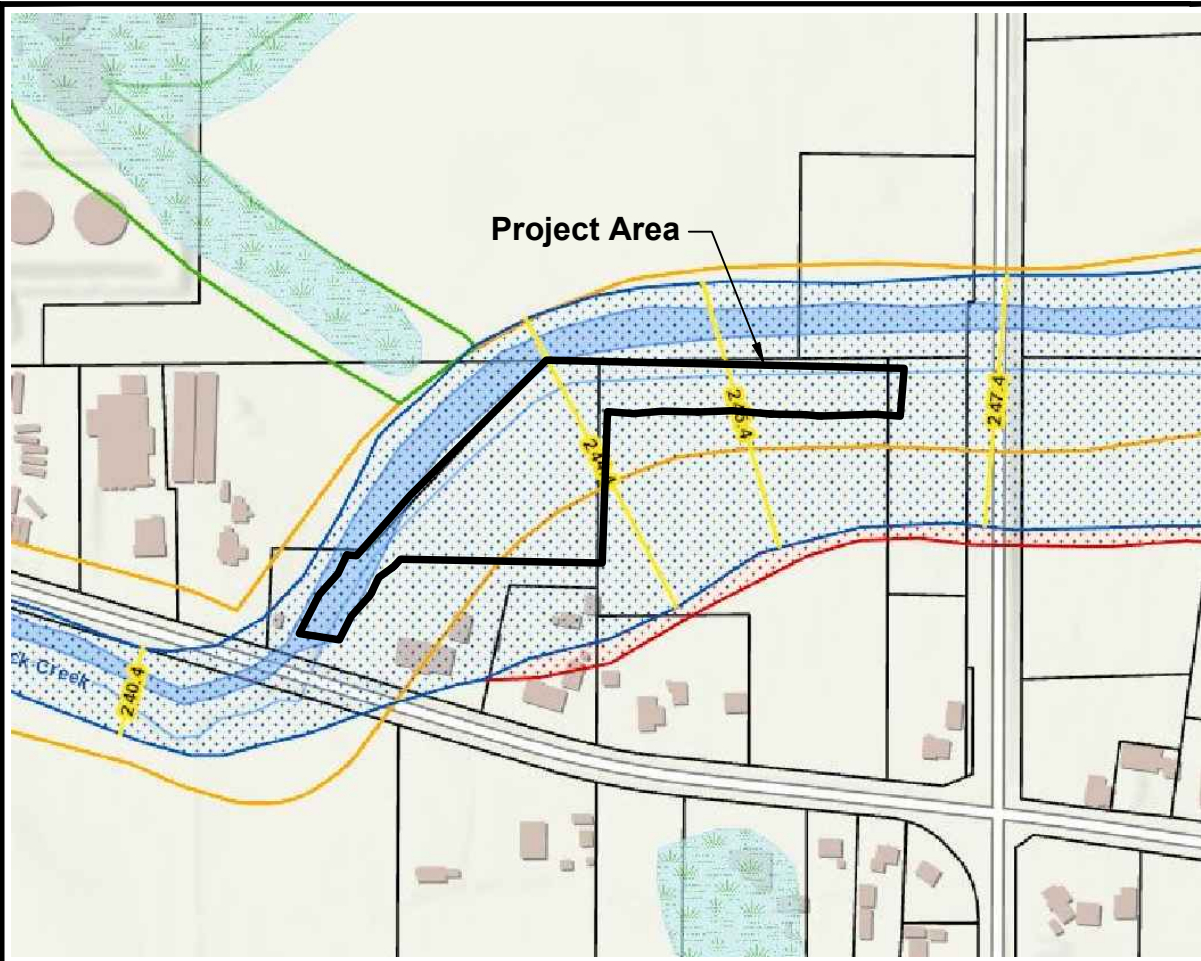
DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO:  
 362.35

1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
 www.eco-land.com



3/27/2020 3:21 PM 362.05\_DL.dwg Jennifer





- Legend:**
- Project Area
  - Floodway
  - 500-Year Flood Area
  - 100-Year Flood Area
  - 150' Shoreline Buffer
  - 150' Stream Buffer (Fish)
  - 75' Stream Buffer (Non-Fish)

**NOTE:** Maps provided online by Lewis County, Washington at web address: <https://gis.lewiscountywa.gov/webmap/>

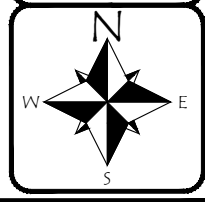
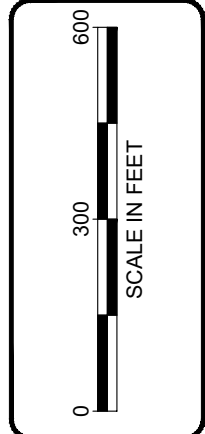


- Legend:**
- Hydric Soils

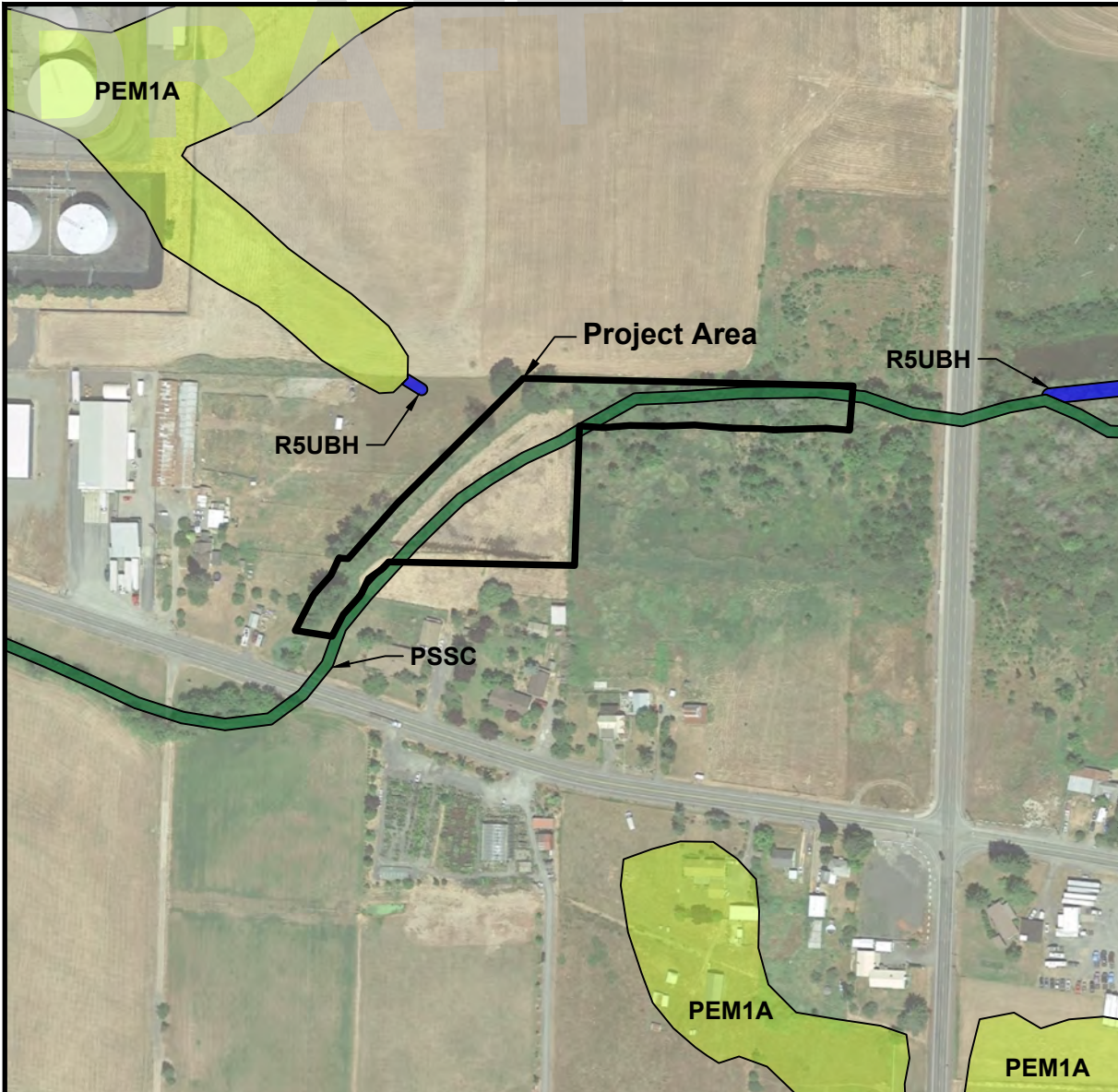
**Figure 3**  
**LEWIS COUNTY CRITICAL AREAS**  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.

DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO: 362.35

1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
[www.eco-land.com](http://www.eco-land.com)



3/27/2020 3:21 PM 362.05 DL.dwg Jennifer



Mapped wetlands indicated onsite by US Fish & Wildlife Service.

**LEGEND:**

- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine
- PEM1A** Palustrine, emergent, persistent, temporary flooded.
- PSSC** Paulstrine, scrub-shrub, seasonally flooded.
- R5UBH** Riverine, intermittent, streambed, seasonally flooded.

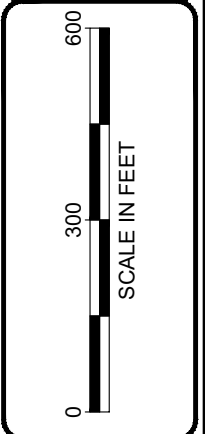
**NOTE(S):**

1. Map provided online by US Fish & Wildlife Service at web address: <http://www.fws.gov/wetlands/data/index.html>

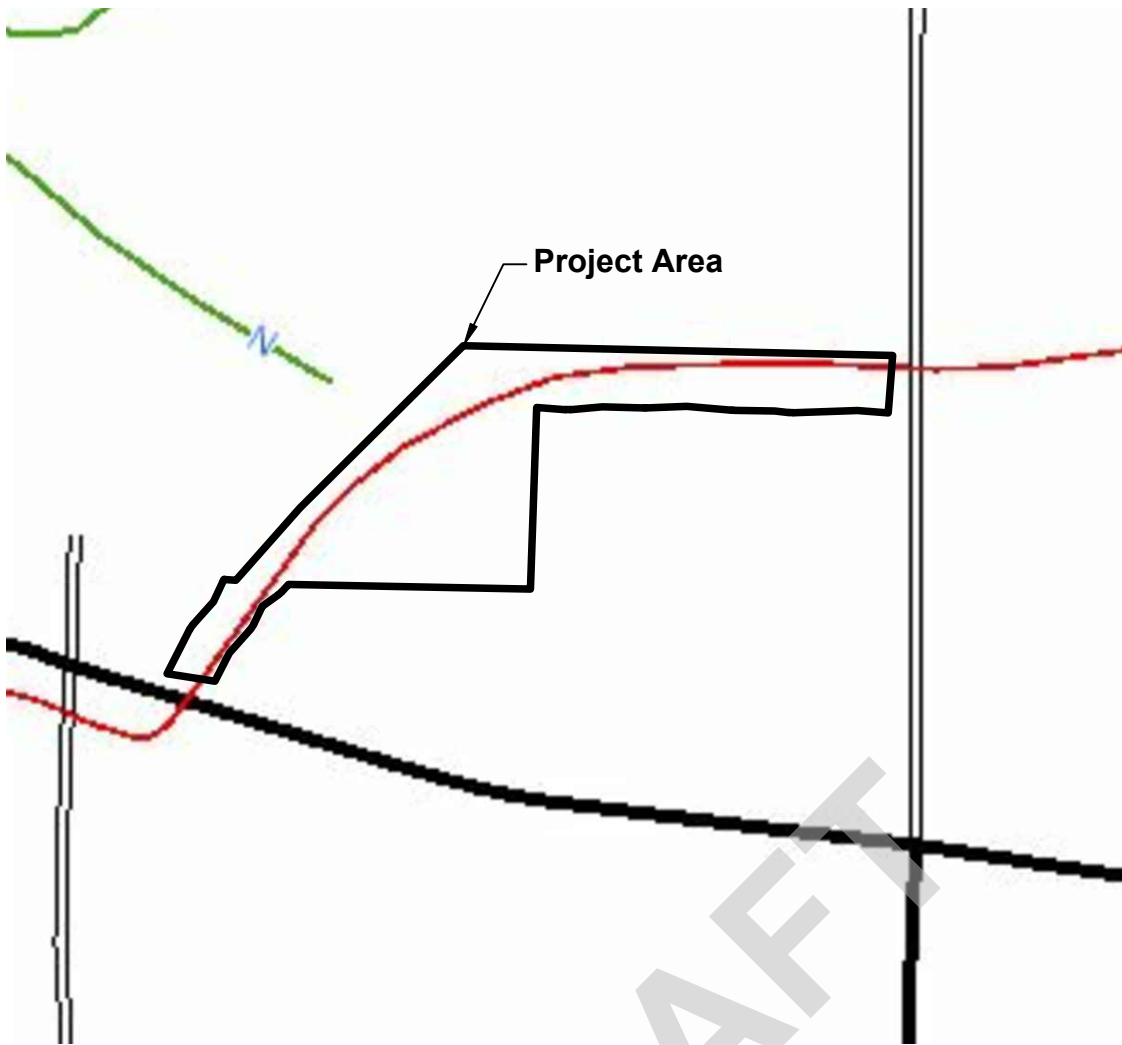
Figure 4  
**NATIONAL WETLANDS INVENTORY**  
 Berwick Creek Flood Reduction and Restoration  
 Part of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.

DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO:  
 362.35

1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
[www.eco-land.com](http://www.eco-land.com)












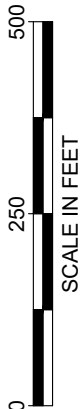
Mapped streams indicated onsite by the Washington State Department of Natural Resources (DNR).

DRAFT

**LEGEND:**

**Streams**  
Streams

-  Type S
-  Type F
-  Type N, Np, Ns
-  U, Unknown
-  X, non-typed per WAC 222-16



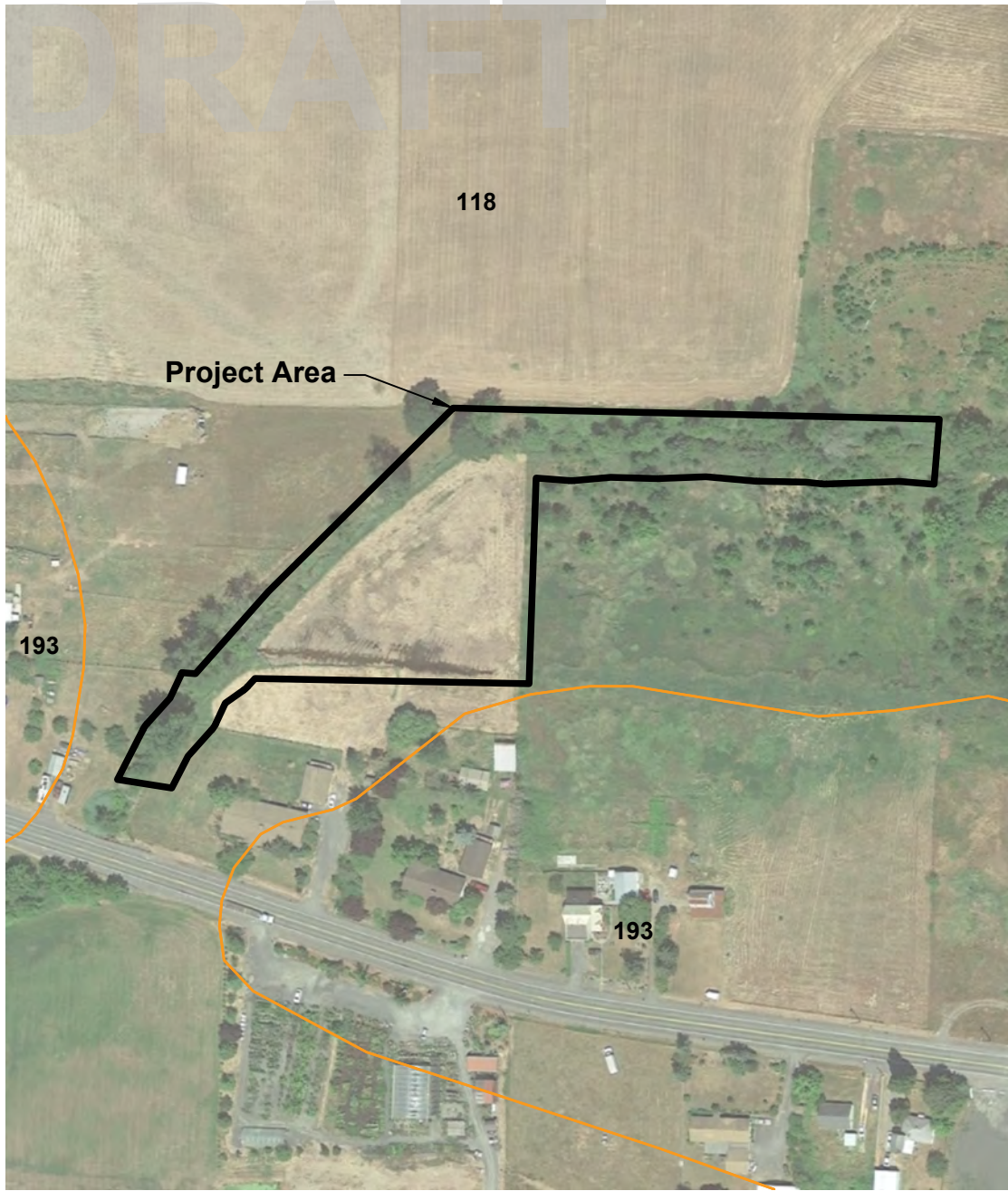
1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
[www.eco-land.com](http://www.eco-land.com)

DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO:  
 362.35

**Figure 5**  
**STREAM TYPE**  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.

**NOTE:** Map provided online by Washington State Department of Natural Resources at web address: <https://fortress.wa.gov/dnr/protectiongis/fpamt/index.html>



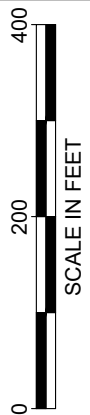


**LEGEND:**

- 118** Lacamas silt loam, 0 to 3 percent slopes. **Hydric.**
- 193** Scamman silty clay loam, 0 to 5 percent slopes. **Hydric.**

**NOTE(S):**

1. Map provided online by NRCS at web address:  
<http://websoilsurvey.nrcs.usda.gov/app/>

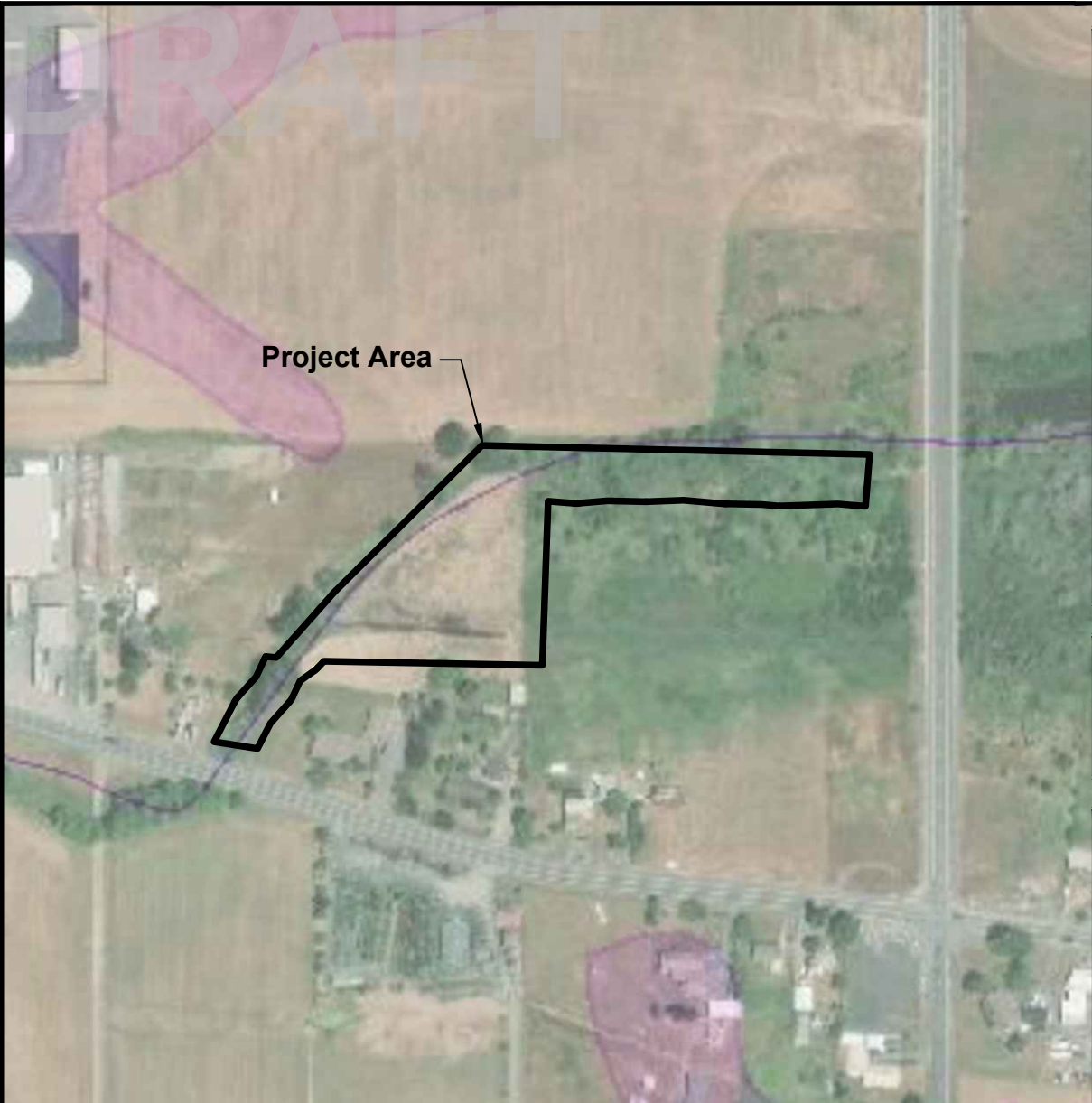


1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
[www.eco-land.com](http://www.eco-land.com)

DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO:  
 362.35

Figure 6  
 SOIL SURVEY  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.


3/27/2020 3:21 PM 362.05 DL.dwg Jennifer



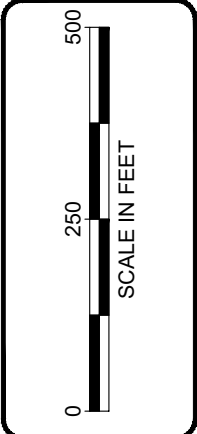
Project Area

### Priority Habitat and Species

#### LEGEND:

 Big Brown Bat, Coho, Cutthroat, Freshwater Emergent Wetland, Rainbow Trout.

**NOTE:** Map provided online by WDFW, Washington at web address: <https://wdfw.wa.gov/species-habitats/at-risk/phs>




**Ecological Land Services**

11157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
[www.eco-land.com](http://www.eco-land.com)

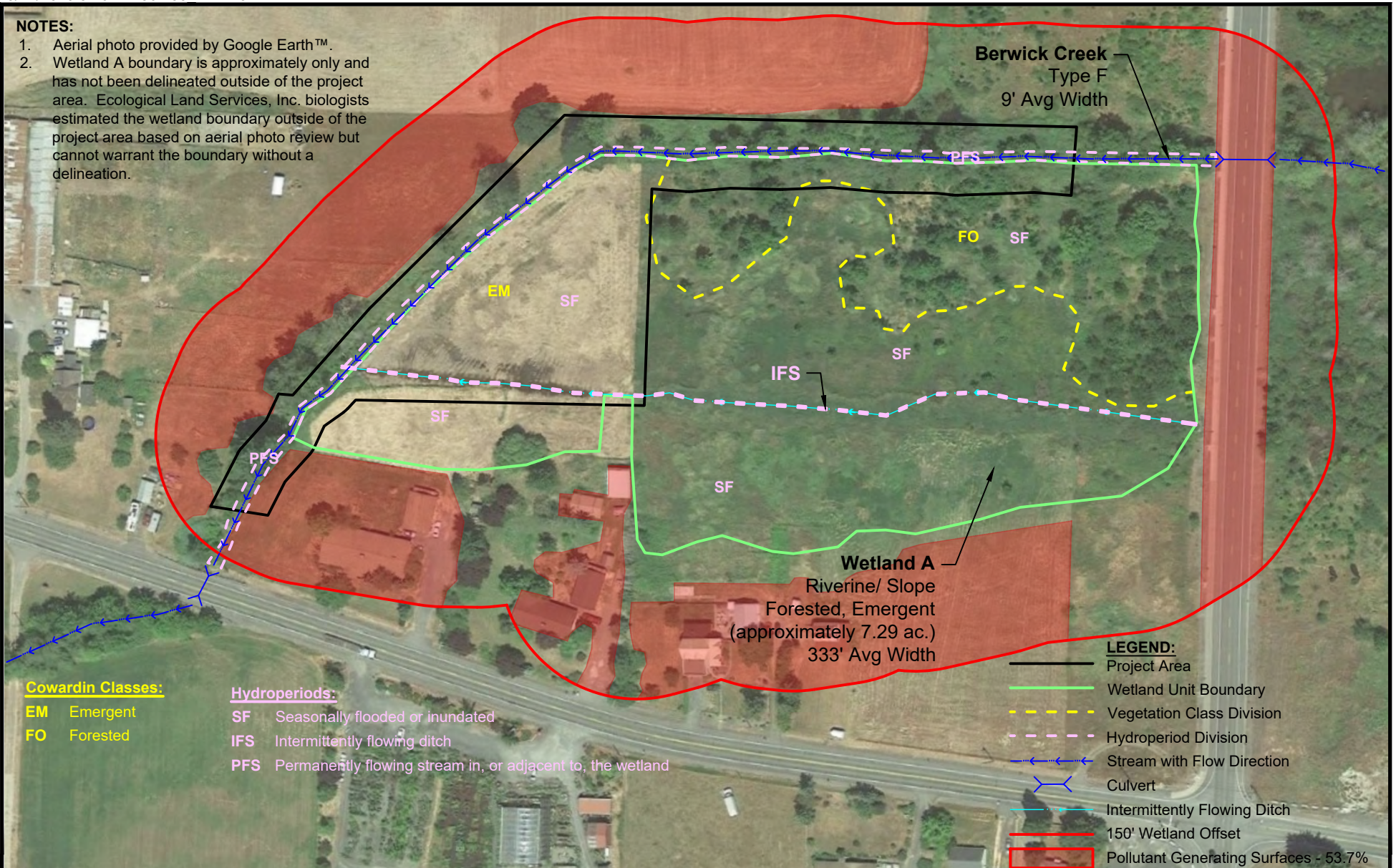
DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO: 362:35

Figure 7  
**PRIORITY HABITAT AND SPECIES**  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.



**NOTES:**

1. Aerial photo provided by Google Earth™.
2. Wetland A boundary is approximately only and has not been delineated outside of the project area. Ecological Land Services, Inc. biologists estimated the wetland boundary outside of the project area based on aerial photo review but cannot warrant the boundary without a delineation.

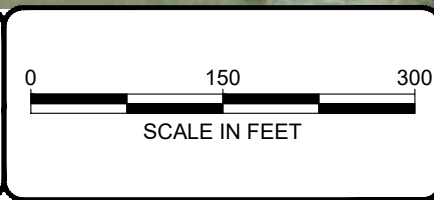


**Cowardin Classes:**

- EM Emergent
- FO Forested

**Hydroperiods:**

- SF Seasonally flooded or inundated
- IFS Intermittently flowing ditch
- PFS Permanently flowing stream in, or adjacent to, the wetland

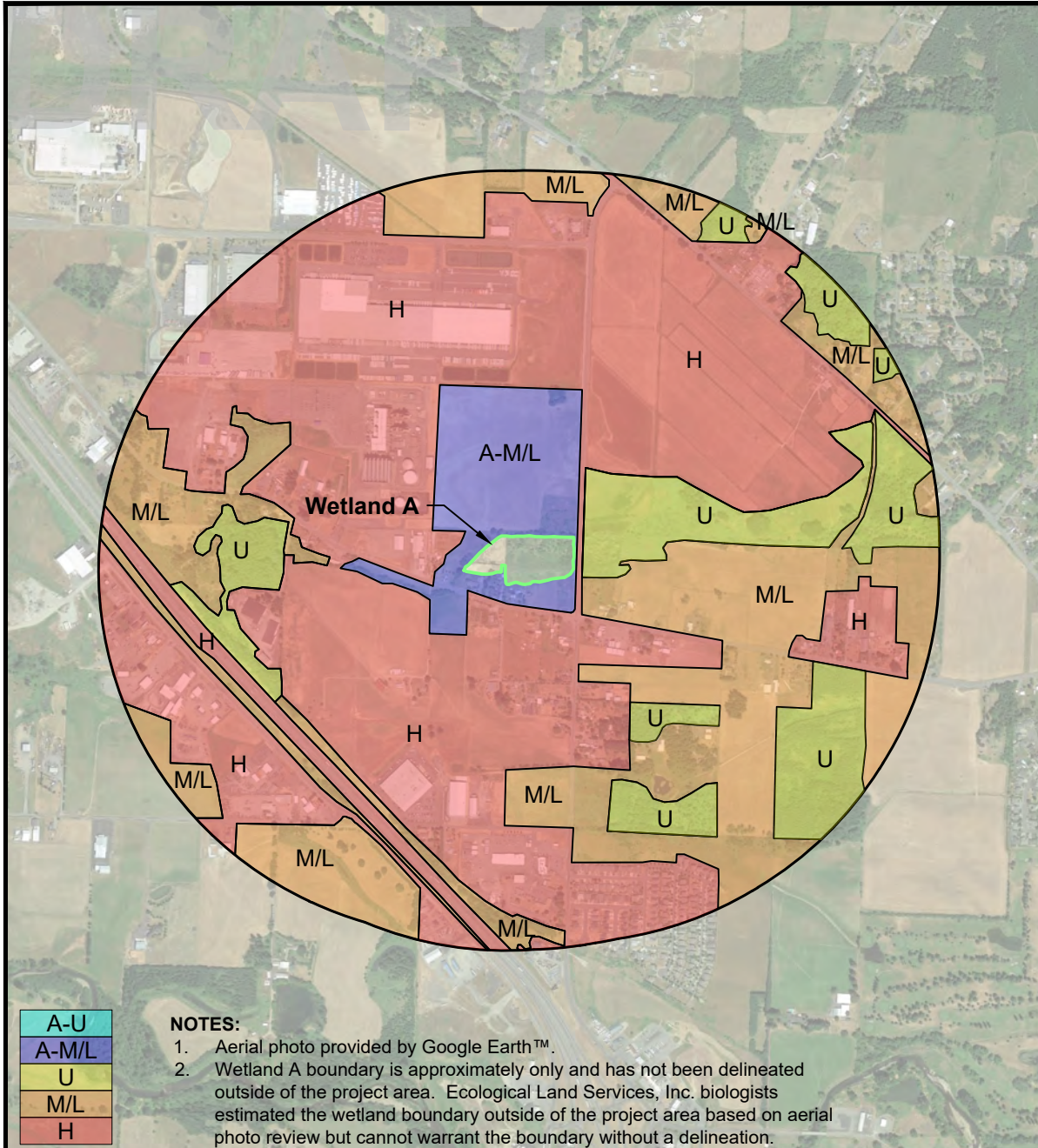


1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305  
www.eco-land.com

DATE: 3/27/20  
DWN: EF  
REQ. BY: LH  
PRJ. MGR: MM  
CHK: MM  
PROJECT NO:  
362.35

**Figure 8**  
**150' OFFSET WETLAND RATING**  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, WA  
Section 10 & 15, Township 13N, Range 2W, W.M.





**Figure 9**  
**1KM OFFSET WETLAND RATING**  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, WA  
 Section 10 & 15, Township 13N, Range 2W, W.M.

DATE: 3/27/20  
 DWN: EF  
 REQ. BY: LH  
 PRJ. MGR: MM  
 CHK: MM  
 PROJECT NO:  
 362.35

1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
 www.eco-land.com



A-U
A-M/L
U
M/L
H

**NOTES:**  
 1. Aerial photo provided by Google Earth™.  
 2. Wetland A boundary is approximately only and has not been delineated outside of the project area. Ecological Land Services, Inc. biologists estimated the wetland boundary outside of the project area based on aerial photo review but cannot warrant the boundary without a delineation.

**LEGEND:**

Wetland Unit Boundary	<b>H2.1 Accessible Habitat</b>	<b>H2.2 Undisturbed Habitat</b>
	A-U A-U (0%)	U U (11.3%)
	A-M/L A-M/L (5.5%)	M/L M/L (25.1%)
	<b>H2.3 Land Use Intensity</b>	H H (58.1%)

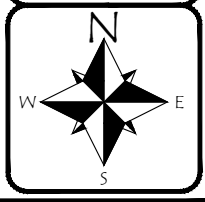
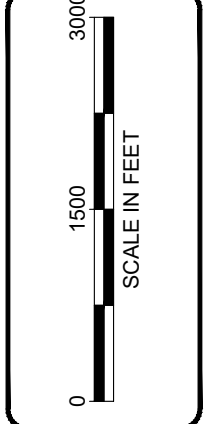
H 2.1 - Accessible habitat is < 10% of 1 km Polygon (2.75%).  
 H 2.2 - Undisturbed habitat 10-50% and in 1-3 patches (26.6%).  
 H 2.3 - > 50% of polygon is high land use intensity (58.1%).

**H 2.1. Accessible Habitat Equation**  

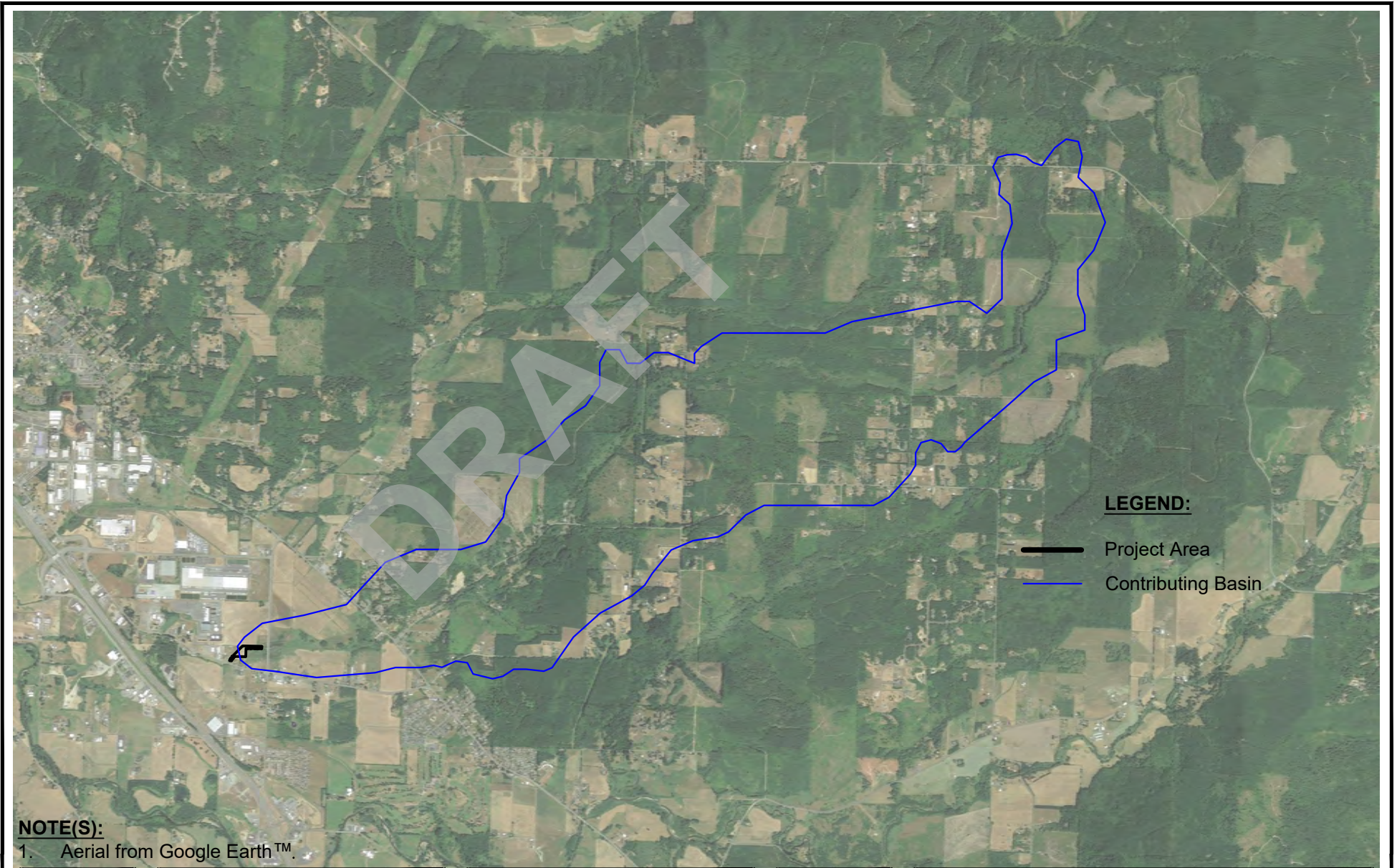
$$0\% \text{ A-U} \text{ habitat} + [(5.5\% \text{ A-M/L} \text{ intensity land uses})/2] \text{ } = \text{ } 2.75\%$$

**H 2.2. Total Undisturbed Habitat Equation**  

$$0\% \text{ A-U} + 11.3\% \text{ U} \text{ habitat} + [(5.5\% \text{ A-M/L} + 25.1\% \text{ M/L} \text{ land uses})/2] \text{ } = \text{ } 26.6\%$$

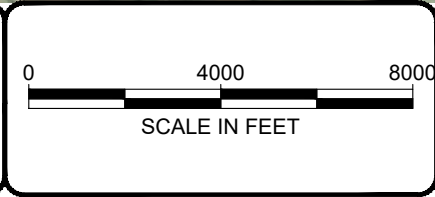






**NOTE(S):**

1. Aerial from Google Earth™.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305  
www.eco-land.com

DATE: 3/27/20  
DWN: EF  
REQ. BY: LH  
PRJ. MGR: MM  
CHK: MM  
PROJECT NO:  
362.35

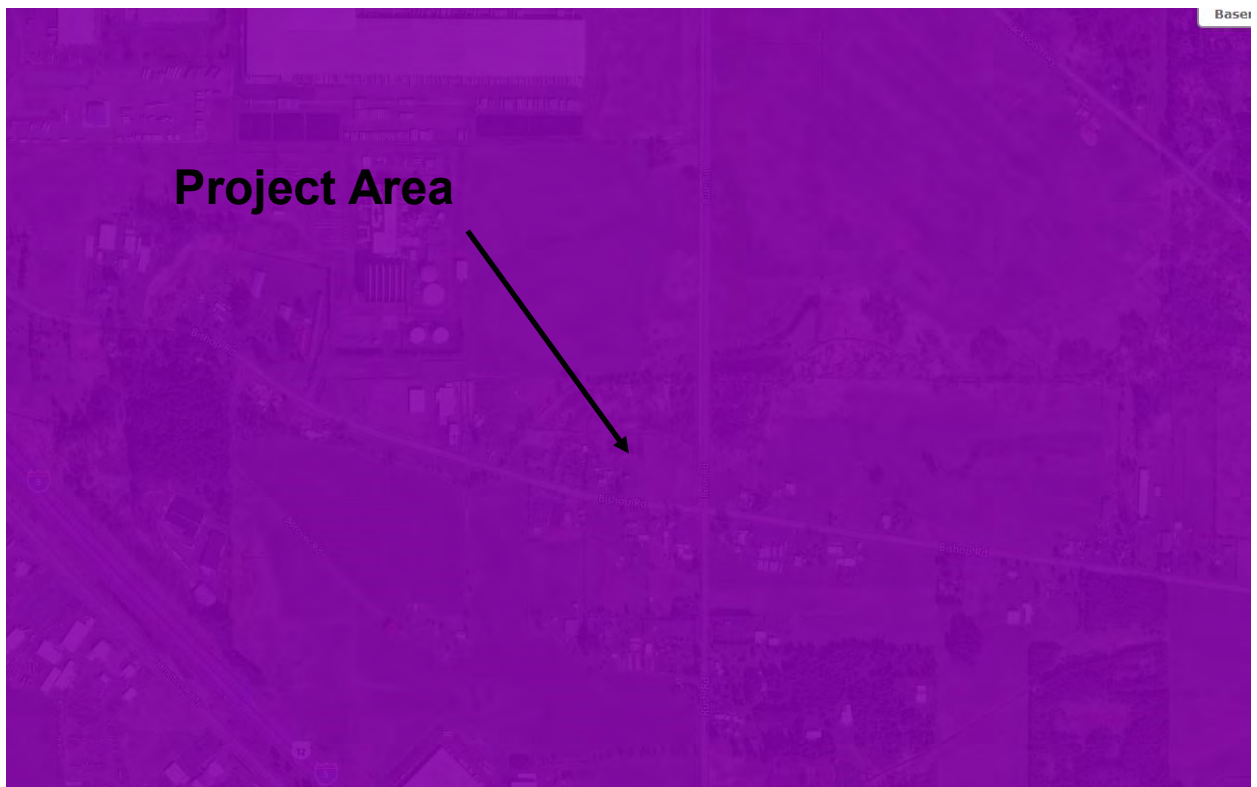
Figure 10  
**CONTRIBUTING BASIN**  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, WA  
Section 10 & 15, Township 13N, Range 2W, W.M.





**Water Quality Atlas Map - 303(d)**

Orange - Category 4A waters



**Water Quality Atlas Map - TDMLs**

Purple - approved Yellow - in development



1157 3rd Ave., Ste 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305  
 www.eco-land.com

DATE: 3/25/20  
 DWN: MKM  
 PRJ. MGR: MKM  
 PROJ #: 362.35

Figure 11  
 303(d) LISTED WATERS & TMDLs  
 Berwick Creek Flood Restoration & Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County Washington  
 Section 10 & 15, Township 13N, Range 2W, W.M.





Aerial view east, June 2018.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 1  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





Aerial view south showing extent of flooding, December 2019.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 2  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





Above: Overview of Berwick Creek restoration project. Aerial view northeast June 2018.

Below: Overview of restoration area. Aerial view east June 2018.



1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305

DATE: 02/03/20  
 DWN: MM  
 PRJ. MGR: MM  
 PROJ.#: 362.35

Photoplate 3  
 SITE PHOTOS  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, Washington  
 Sections 10 & 15, T13N, R2W, W.M.





Above: Aerial view east, June 2018.

Below: Aerial view southwest, June 2018. Bishop Road is in the background.



1157 3rd Ave., Suite 220A  
 Longview, WA 98632  
 Phone: (360) 578-1371  
 Fax: (360) 414-9305

DATE: 02/03/20  
 DWN: MM  
 PRJ. MGR: MM  
 PROJ.#: 362.35

Photoplate 4  
 SITE PHOTOS  
 Berwick Creek Flood Reduction and Restoration  
 Port of Chehalis  
 City of Chehalis, Lewis County, Washington  
 Sections 10 & 15, T13N, R2W, W.M.





*Above:* View south showing existing vegetation in the riparian corridor. Himalayan blackberry is visible north of the stream. Aerial view June 2018.

*Below:* View east and close-up of restoration area. Rush Road is in the background. Aerial view June 2018.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 5  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 &15, T13N, R2W, W.M.





Above: View of Wetland A and Ditch A. Aerial view June 2018.

Below: (Photopoint 1) Berwick Creek's existing channel and silty substrate. Reed canarygrass is a prominent herbaceous plant in the riparian zone.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 6  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





Above: (Photopoint 2) rock "dam" and other debris clogging Bewick Creek's channel.

Below: (Photopoint 3) View south upstream of rock "dam".



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 7  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





*Above:* (Photopoint 4) View east showing existing stream channel and surrounding vegetation, March 2019.

*Below:* (Photopoint 5) View east showing existing stream channel and surrounding vegetation. Oregon white oaks, with orange flagging, are visible in the center, March 2019.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 8  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 &15, T13N, R2W, W.M.





*Above:* (Photopoint 6) View east showing Wetland A south of Berwick Creek, March 2019.

*Below:* (Photopoint 7) View east showing stream channel and Wetland A, March 2019.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 9  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





Above: (Photopoint 8) View northeast showing Ditch B, March 2019.

Below: (Photopoint 9) View east showing incised stream channel, March 2019



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 10  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 &15, T13N, R2W, W.M.





*Above:* (Photopoint 10) View east showing Ditch A and crossing with culvert, March 2019.

*Below:* (Photopoint 11) View northwest showing Wetland A, February 2020.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 11  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 & 15, T13N, R2W, W.M.





*Above:* (Photopoint 12) View west showing Ditch A. Berwick Creek is in the background, March 2019.

*Below:* (Photopoint 13) View northwest showing Wetland A, March 2019. The Chehalis Generating Facility is in the background.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 12  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 &15, T13N, R2W, W.M.





Above: (Photopoint 14) View southwest showing Wetland A, March 2019.

Below: (Photopoint 15) View east showing Wetland A, March 2019.



1157 3rd Ave., Suite 220A  
Longview, WA 98632  
Phone: (360) 578-1371  
Fax: (360) 414-9305

DATE: 02/03/20  
DWN: MM  
PRJ. MGR: MM  
PROJ.#: 362.35

Photoplate 13  
SITE PHOTOS  
Berwick Creek Flood Reduction and Restoration  
Port of Chehalis  
City of Chehalis, Lewis County, Washington  
Sections 10 &15, T13N, R2W, W.M.

## **Appendix A | Wetland Determination Data Forms**

---

## Plant Indicators

---

The indicator status, which follows the common and scientific names on the data forms, indicates how likely a species is to be found in wetlands. Listed from most likely to least likely to be found in wetlands, the indicator status categories are:

- **OBL** (obligate wetland) - occur almost always (estimated probability >99%) under natural conditions in wetlands.
- **FACW** (facultative wetland) - usually occur in wetlands (estimated probability 67%-99%), but occasionally found in non-wetlands.
- **FAC** (facultative) - equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%).
- **FACU** (facultative upland) - usually occur in non-wetlands (estimated probability 67%-99%), but occasionally found in wetlands (estimated probability 1%-33%).
- **UPL** (obligate upland) - occur almost always (estimated probability >99%) under natural conditions in non-wetlands.
- **NI** (no indicator) - insufficient data to assign to an indicator category.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP1  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): none Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61868068° Long: -122.9122261° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: TP-1 is located in the southwest corner of Lewis County Tax Parcel 017775001000, southwest of Wetland A. Vegetation in this test plot consisted of trees and herbaceous species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, requirements for the hydric soil indicator Redox Dark Surface (F6) were satisfied, although there was no evidence of wetland hydrology within this test plot. Given TP-1 did not satisfy all three wetland indicator criteria, it is not considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: 30 ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. <i>Fraxinus latifolia</i>	20%	yes	FACW	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)
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover		<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
<b>Sapling/Shrub Stratum (Plot size: 15 ft. radius)</b>				
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
<b>Herb Stratum (Plot size: 5 ft radius)</b>				
1. <i>Phalaris arundinacea</i>	40%	yes	FACW	<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <i>*Poa spp.</i>	30%	yes	FAC	
3. <i>Ranunculus repens</i>	10%	no	FAC	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>40</u> 20% = <u>16</u>	80%	=Total Cover		
<b>Woody Vine Stratum (Plot size: 15 ft radius)</b>				
1. _____	%			
2. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>20%</u>				

Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

\*Assumed FAC status



**SOIL**

Sampling Point: IP1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 2/1	98%	7.5YR 4/6	2%	C	M	silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) were satisfied within this test plot due to the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 2% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): 12  
 Saturation Present? Yes  No  Depth (Inches): 10  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: Saturation (A3) and a High Water Table (A2) was observed within this test plot, although a high water table was not observed at a depth shallow enough to satisfy wetland hydrology indicators (<10 inches). The presence of saturation within this test plot is likely a result of excessive rainfall in days preceding the site visit and therefore is not indicative of wetland hydrology.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP2  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): none Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61904479° Long: -122.9116352° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-2 is located in the central portion of Lewis County Tax Parcel 119480000, within Wetland A. Vegetation within this test plot consisted entirely of emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed, along with the following primary wetland hydrology indicators: Surface Water (A1), a Hydrogen Sulfide Odor (C1), and Oxidized Rhizospheres along Living Roots (C3). Given TP-2 satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)				<b>Dominance Test Worksheet</b>
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	%	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
4. _____	%	_____	_____	
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)				<b>Prevalence Index worksheet</b>
1. _____	%	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	%	_____	_____	OBL species _____ x 1= _____
3. _____	%	_____	_____	FACW species _____ x 2= _____
4. _____	%	_____	_____	FAC species _____ x 3= _____
5. _____	%	_____	_____	FACU species _____ x 4= _____
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		UPL species _____ x 5= _____
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B)
1. <i>Phalaris arundinacea</i>	85%	yes	FACW	Prevalence Index = B/A= _____
2. <i>Hypericum anagalloides</i>	10%	no	OBL	
3. _____	%	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>
4. _____	%	_____	_____	<input type="checkbox"/> 1 – Rapid Test for Hydrophytic Vegetation
5. _____	%	_____	_____	<input checked="" type="checkbox"/> 2 – Dominance Test is >50%
6. _____	%	_____	_____	<input type="checkbox"/> 3 - Prevalence Index is ≤3.0 <sup>1</sup>
7. _____	%	_____	_____	<input type="checkbox"/> 4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
8. _____	%	_____	_____	<input type="checkbox"/> 5 - Wetland Non-Vascular Plants <sup>1</sup>
9. _____	%	_____	_____	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
10. _____	%	_____	_____	
11. _____	%	_____	_____	
50% = <u>48</u> 20% = <u>19</u>	95%	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____	%	_____	_____	
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		
% Bare Ground in Herb Stratum <u>5%</u>				

Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.



**SOIL**

Sampling Point: IP2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/1	93%	5YR 4/3	7%	C	M	silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) were satisfied within this test plot due to the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 2% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): 0.5-1  
 Water Table Present? Yes  No  Depth (Inches): 0  
 Saturation Present? Yes  No  Depth (Inches): 0  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: A Hydrogen Sulfide Odor (C1) and Oxidized Rhizospheres along Living Roots (C3) were observed within this test plot. Additionally, this test plot was located in an area with 0.5- to 1-inch of Surface Water (A1).

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis State: WA Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP3  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): concave Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61920597° Long: -122.9110681° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-3 is located in the central portion of Lewis County Tax Parcel 119480000, within Wetland A. Vegetation within this test plot consisted entirely of emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Depleted Matrix (F3) was observed, along with 6- to 12-inches of Surface Water (A1). Given TP-3 satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)				<b>Dominance Test Worksheet</b>
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	%	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	%	_____	_____	
4. _____	%	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)
50% = ___ 20% = ___	%	=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)				<b>Prevalence Index worksheet</b>
1. _____	%	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	%	_____	_____	OBL species _____ x 1= _____
3. _____	%	_____	_____	FACW species _____ x 2= _____
4. _____	%	_____	_____	FAC species _____ x 3= _____
5. _____	%	_____	_____	FACU species _____ x 4= _____
50% = ___ 20% = ___	%	=Total Cover		UPL species _____ x 5= _____
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)				Column Totals: _____ (A) _____ (B)
1. <u>Phalaris arundinacea</u>	100%	yes	FACW	Prevalence Index = B/A= _____
2. _____	%	_____	_____	<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
9. _____	%	_____	_____	
10. _____	%	_____	_____	
11. _____	%	_____	_____	
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. _____	%	_____	_____	
2. _____	%	_____	_____	
50% = ___ 20% = ___	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u> %				<b>Hydrophytic Vegetation Present?</b> Yes <input type="checkbox"/> No <input type="checkbox"/>
Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.				



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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 4/1	95%	5YR 4/6	5%	C	M	silty clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) were satisfied due to the presence of a soil layer with a matrix value of 4 or more and a chroma of 2 or less.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): 6-12  
 Water Table Present? Yes  No  Depth (Inches): 0  
 Saturation Present? Yes  No  Depth (Inches): 0  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: This test plot was located in an area with 6- to 12-inches of Surface Water (A1).

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP4  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): convex Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61937969° Long: -122.9113917° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: TP-4 is located in the central portion of Lewis County Tax Parcel 017775001000, within an upland island of Wetland A. Vegetation in this test plot consisted entirely of herbaceous species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, requirements for the hydric soil indicator Depleted Matrix (F3) were satisfied, although there was no evidence of wetland hydrology within this test plot. Given TP-4 did not satisfy all three wetland indicator criteria, it is not considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)				<b>Dominance Test Worksheet</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. _____	%	_____	_____	
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)				<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
1. _____	%	_____	_____	
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)				<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
1. <u>Phalaris arundinacea</u>	85%	yes	FACW	
2. <u>Cirsium arvense</u>	5%	no	FAC	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
9. _____	%	_____	_____	
10. _____	%	_____	_____	
11. _____	%	_____	_____	
50% = <u>45</u> 20% = <u>18</u>	90%	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)				
1. _____	%	_____	_____	
2. _____	%	_____	_____	
50% = <u>   </u> 20% = <u>   </u>	%	=Total Cover		
% Bare Ground in Herb Stratum <u>10%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.



**SOIL**

Sampling Point: IP4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/3	100%		%			loam	
4-16	10YR 5/1	95%	5YR 4/6	5%	C	M	silt loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) were satisfied due to the presence of a soil layer with a matrix value of 4 or more and a chroma of 2 or less.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: No evidence of wetland hydrology indicators observed within this test plot.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP5  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): concave Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61944131° Long: -122.9113833° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-5 is located in the western portion of Lewis County Tax Parcel 119480000, within the western portion of Wetland A. Vegetation within this test plot consisted entirely of emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Depleted Matrix (F3) was observed, along with the following primary wetland hydrology indicators: a High Water Table (A2), Saturation (A3), and a Hydrogen Sulfide Odor (C1). Given TP-5 satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

Tree Stratum (Plot size: <u>30</u> ft radius)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
1. _____	%	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
50% = ____ 20% = ____	%	=Total Cover		<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
<b>Sapling/Shrub Stratum (Plot size: <u>15</u> ft. radius)</b>				
1. _____	%	_____	_____	
2. _____	%	_____	_____	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
50% = ____ 20% = ____	%	=Total Cover		
<b>Herb Stratum (Plot size: <u>5</u> ft radius)</b>				
1. <i>Phalaris arundinacea</i>	80%	yes	FACW	<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. <i>Hypericum anagalloides</i>	20%	yes	OBL	
3. _____	%	_____	_____	
4. _____	%	_____	_____	
5. _____	%	_____	_____	
6. _____	%	_____	_____	
7. _____	%	_____	_____	
8. _____	%	_____	_____	
9. _____	%	_____	_____	
10. _____	%	_____	_____	
11. _____	%	_____	_____	
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
<b>Woody Vine Stratum (Plot size: <u>15</u> ft radius)</b>				
1. _____	%	_____	_____	
2. _____	%	_____	_____	
50% = ____ 20% = ____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u> %				
<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>				

Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.



**SOIL**

Sampling Point: **IP5**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/2	100%		%			silty clay loam	
4-16	10YR 5/2	85%	7.5YR 5/8	15%	C	M	clay	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Depleted Matrix (F3) were satisfied due to the presence of a soil layer with a matrix value of 4 or more and a chroma of 2 or less.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): 10  
 Saturation Present? Yes  No  Depth (Inches): 0  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: A Hydrogen Sulfide Odor (C1), Saturation (A3, and a High Water Table (A2) were observed within this test plot, with Saturation observed at the surface, and the water table observed at 10 inches of depth.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP6  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): none Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61964735° Long: -122.9112235° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: none

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: TP-6 is located in the northwest portion of Lewis County Tax Parcel 017775001000, west of Wetland A. Vegetation in this test plot consisted of trees and herbaceous species. The hydrophytic vegetation criterion was not met due to only 50% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, no evidence of hydric soil or wetland hydrology indicators were observed. Given TP-6 did not satisfy all three wetland indicator criteria, it is not considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)				<b>Dominance Test Worksheet</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
1. <u>Quercus garryana</u>	10%	yes	FACU	
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>5</u> 20% = <u>2</u>	10%	=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)				<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
1. _____	%			
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)				<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
1. <u>*Poa spp.</u>	80%	yes	FAC	
2. <u>Phalaris arundinacea</u>	15%	no	FACW	
3. <u>Vicia americana</u>	5%	no	FAC	
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)				
1. _____	%			
2. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u> %				

Remarks: The hydrophytic vegetation criterion was not met due to only 50% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

\*Assumed FAC status



**SOIL**

Sampling Point: **IP6**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/3	100%		%			loam	
3-16	10YR 3/3	99%	7.5YR 4/6	1%	C	M	loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Minerals (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1) **(except MLRA 1)**
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: No evidence of hydric soil indicators observed within this test plot.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: No evidence of wetland hydrology indicators observed within this test plot.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP7  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): none Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61973785° Long: -122.9110188° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: TP-7 is located in the northwest portion of Lewis County Tax Parcel 017775001000, north of Wetland A. Vegetation in this test plot consisted of trees, scrub-shrub, and herbaceous species. The hydrophytic vegetation criterion was met due to 67% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, no evidence of hydric soil or wetland hydrology indicators were observed. Given TP-7 did not satisfy all three wetland indicator criteria, it is not considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status		
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)					
1. <u>Quercus garryana</u>	60%	yes	FACU	<b>Dominance Test Worksheet</b> Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</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>67</u> (A/B)	
2. _____	%				
3. _____	%				
4. _____	%				
50% = <u>30</u> 20% = <u>12</u>	60%	=Total Cover		<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____	
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)					
1. <u>Cornus sericea</u>	20%	yes	FACW		
2. _____	%				
3. _____	%				
4. _____	%				
5. _____	%				
50% = <u>10</u> 20% = <u>4</u>	20%	=Total Cover			
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)					
1. <u>*Poa spp.</u>	80%	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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
2. <u>Vicia americana</u>	15%	no	FACW		
3. <u>Taraxacum officinale</u>	5%	no	FACU		
4. _____	%				
5. _____	%				
6. _____	%				
7. _____	%				
8. _____	%				
9. _____	%				
10. _____	%				
11. _____	%				
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover			
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)					
1. _____	%			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
2. _____	%				
50% = ____ 20% = ____	%	=Total Cover			
% Bare Ground in Herb Stratum <u>0%</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	

Remarks: The hydrophytic vegetation criterion was met due to 67% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.

\*Assumed FAC status



**SOIL**

Sampling Point: IP7

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	10YR 3/3	100%		%			loam	
8-16	10YR 3/2	100%		%			loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: No evidence of hydric soil indicators observed within this test plot.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (Inches): \_\_\_\_\_  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: No evidence of wetland hydrology indicators observed within this test plot.

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

Project/Site: Berwick Creek Flood Reduction & Restoration City/County: Lewis Sampling Date: 2-18-20  
 Applicant/Owner: Port of Chehalis State: WA Sampling Point: TP8  
 Investigator(s): Godinho, S. and McManus, J. Section, Township, Range: S10, T 13N, R 2W  
 Landform (hillslope, terrace, etc.): flood plains, terraces Local relief: (concave, convex, none): concave Slope (%): 0-3%  
 Subregion (LRR): A Lat: 46.61962555° Long: -122.9097749° Datum: NAD83  
 Soil Map Unit Name: (118) Lacamas silt loam NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes  No  (If no, explain Remarks.)  
 Are Vegetation , Soil , or Hydrology  significantly disturbed? Are "Normal Circumstances" present? Yes  No   
 Are Vegetation , Soil , or Hydrology  naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soils Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	<b>Is the Sampled Area within a Wetland?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: TP-8 is located in the northern portion of Lewis County Tax Parcel 119480000, within the northern portion Wetland A. Vegetation within this test plot consisted of trees, scrub-shrub, and emergent species. The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses. Additionally, the hydric soil indicator Redox Dark Surface (F6) was observed, along with the following primary wetland hydrology indicator Surface Water (A1). Given TP-8 satisfied all three wetland indicator criteria, it is considered to be within a wetland area.	

**VEGETATION – Use scientific names of plants.**

	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test Worksheet
<b>Tree Stratum</b> (Plot size: <u>30</u> ft radius)				
1. <u>Fraxinus latifolia</u>	15%	yes	FACW	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>2</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC <u>100</u> (A/B)
2. _____	%			
3. _____	%			
4. _____	%			
50% = <u>7.5</u> 20% = <u>3</u>	15%	=Total Cover		
<b>Sapling/Shrub Stratum</b> (Plot size: <u>15</u> ft. radius)				
1. <u>Rubus armeniacus</u>	10%	yes	FAC	<b>Prevalence Index worksheet</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1= _____ FACW species _____ x 2= _____ FAC species _____ x 3= _____ FACU species _____ x 4= _____ UPL species _____ x 5= _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A= _____
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
50% = <u>50</u> 20% = <u>20</u>	10%	=Total Cover		
<b>Herb Stratum</b> (Plot size: <u>5</u> ft radius)				
1. <u>Phalaris arundinacea</u>	100%	yes	FACW	<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"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
2. _____	%			
3. _____	%			
4. _____	%			
5. _____	%			
6. _____	%			
7. _____	%			
8. _____	%			
9. _____	%			
10. _____	%			
11. _____	%			
50% = <u>50</u> 20% = <u>20</u>	100%	=Total Cover		
<b>Woody Vine Stratum</b> (Plot size: <u>15</u> ft radius)				
1. _____	%			<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. _____	%			
50% = _____ 20% = _____	%	=Total Cover		
% Bare Ground in Herb Stratum <u>0</u> %				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: The hydrophytic vegetation criterion was met due to 100% of the dominant vegetation within the test plot having either OBL, FACW, or FAC indicator statuses.



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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	98%	5YR 4/6	2%	C	M	silty clay loam	See Remarks Below
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				
		%		%				

<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.)**

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

**Indicators for Problematic Hydric Soils**

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

**Hydric Soil Present?** Yes  No

Remarks: Requirements for the hydric soil indicator Redox Dark Surface (F6) were satisfied within this test plot due to the presence of a soil layer with a matrix value of 3 or less and a chroma of 2 or less with 2% or more distinct or prominent redox concentrations occurring as soft masses or pore linings.

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

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

Secondary Indicators (2 or more required)

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

**Field Observations:**

Surface Water Present? Yes  No  Depth (Inches): 1-2  
 Water Table Present? Yes  No  Depth (Inches): 0  
 Saturation Present? Yes  No  Depth (Inches): 0  
 (Includes Capillary fringe)

**Wetland Hydrology Present?** Yes  No

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

Remarks: This test plot was located in an area with 1- to 2-inches of surface water.

## **Appendix B | Western Washington Wetland Rating**

---



## RATING SUMMARY – Western Washington

Name of wetland (or ID #): Wetland A Date of site visit: 3-25-2019  
 Rated by M. McGrath Trained by Ecology? Yes X No      Date of training 3-2019  
 HGM Class used for rating Riverine Wetland has multiple HGM classes? X 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**      (based on functions X or special characteristics     )

### 1. Category of wetland based on FUNCTIONS

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

FUNCTION	Improving Water Quality			Hydrologic			Habitat			
	<i>Circle the appropriate ratings</i>									
Site Potential	H	<u>M</u>	L	<u>H</u>	M	L	H	<u>M</u>	L	
Landscape Potential	<u>H</u>	M	L	H	<u>M</u>	L	H	M	<u>L</u>	
Value	<u>H</u>	M	L	<u>H</u>	M	L	H	<u>M</u>	L	
<b>Score Based on Ratings</b>	<b>8</b>			<b>8</b>			<b>5</b>			<b>21</b>

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

Riverine Wetlands Figures to be prepared after pre-application meeting.

Map of:	To answer questions:	Figure #
Cowardin plant classes	H 1.1, H 1.4	8
Hydroperiods	H 1.2	8
Ponded depressions	R 1.1	8
Boundary of area within 150 ft of the wetland (can be added to another figure)	R 2.4	8
Plant cover of trees, shrubs, and herbaceous plants	R 1.2, R 4.2	8
Width of unit vs. width of stream (can be added to another figure)	R 4.1	8
Map of the contributing basin	R 2.2, R 2.3, R 5.2	10
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	9
Screen capture of map of 303(d) listed waters in basin (from Ecology website)	R 3.1	11
Screen capture of list of TMDLs for WRIA in which unit is found (from web)	R 3.2, R 3.3	11

### Lake Fringe Wetlands

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

### Slope Wetlands

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

## HGM Classification of Wetlands in Western Washington

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

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

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

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

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

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

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

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

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

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

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

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

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

NO - go to 6  YES - The wetland class is **Riverine**  
**NOTE:** The Riverine unit can contain depressions that are filled with water when the river is not flooding

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

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

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

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

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

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

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

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



**RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS****Water Quality Functions** - Indicators that the site functions to improve water quality

<b>R 1.0. Does the site have the potential to improve water quality?</b>		
<b>R 1.1. Area of surface depressions within the Riverine wetland that can trap sediments during a flooding event:</b>		
Depressions cover $> \frac{3}{4}$ area of wetland	points = 8	4
Depressions cover $> \frac{1}{2}$ area of wetland	points = 4	
Depressions present but cover $< \frac{1}{2}$ area of wetland	points = 2	
No depressions present	points = 0	
<b>R 1.2. Structure of plants in the wetland (areas with <math>&gt;90\%</math> cover at person height, <b>not</b> Cowardin classes)</b>		
Trees or shrubs $> \frac{2}{3}$ area of the wetland	points = 8	6
Trees or shrubs $> \frac{1}{3}$ area of the wetland	points = 6	
Herbaceous plants ( $> 6$ in high) $> \frac{2}{3}$ area of the wetland	points = 6	
Herbaceous plants ( $> 6$ in high) $> \frac{1}{3}$ area of the wetland	points = 3	
Trees, shrubs, and ungrazed herbaceous $< \frac{1}{3}$ area of the wetland	points = 0	
<b>Total for R 1</b>	<b>Add the points in the boxes above</b>	<b>10</b>
<b>Rating of Site Potential</b> If score is: <u>12-16 = H</u> <u>X 6-11 = M</u> <u>0-5 = L</u> <i>Record the rating on the first page</i>		

<b>R 2.0. Does the landscape have the potential to support the water quality function of the site?</b>		
<b>R 2.1. Is the wetland within an incorporated city or within its UGA?</b>	Yes = 2 No = 0	2
<b>R 2.2. Does the contributing basin to the wetland include a UGA or incorporated area?</b>	Yes = 1 No = 0	1
<b>R 2.3. Does at least 10% of the contributing basin contain tilled fields, pastures, or forests that have been clearcut within the last 5 years?</b>	Yes = 1 No = 0	1
<b>R 2.4. Is <math>&gt; 10\%</math> of the area within 150 ft of the wetland in land uses that generate pollutants?</b>	Yes = 1 No = 0	1
<b>R 2.5. Are there other sources of pollutants coming into the wetland that are not listed in questions R 2.1-R 2.4</b> Other sources <u>Likely pollutants from surface water from human activities entering wetland</u>	Yes = 1 No = 0	1
<b>Total for R 2</b>	<b>Add the points in the boxes above</b>	<b>6</b>
<b>Rating of Landscape Potential</b> If score is: <u>X 3-6 = H</u> <u>1 or 2 = M</u> <u>0 = L</u> <i>Record the rating on the first page</i>		

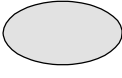
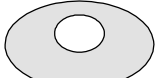




<b>R 3.0. Is the water quality improvement provided by the site valuable to society?</b>		
<b>R 3.1. Is the wetland along a stream or river that is on the 303(d) list or on a tributary that drains to one within 1 mi?</b>	Yes = 1 No = 0	0
<b>R 3.2. Is the wetland along a stream or river that has TMDL limits for nutrients, toxics, or pathogens?</b>	Yes = 1 No = 0	1
<b>R 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 drainage in which the unit is found)</b>	Yes = 2 No = 0	2
<b>Total for R 3</b>	<b>Add the points in the boxes above</b>	<b>3</b>
<b>Rating of Value</b> If score is: <u>X 2-4 = H</u> <u>1 = M</u> <u>0 = L</u> <i>Record the rating on the first page</i>		

**RIVERINE AND FRESHWATER TIDAL FRINGE WETLANDS****Hydrologic Functions** - Indicators that site functions to reduce flooding and stream erosion

<b>R 4.0. Does the site have the potential to reduce flooding and erosion?</b>		
<b>R 4.1. Characteristics of the overbank storage the wetland provides:</b>		
<i>Estimate the average width of the wetland perpendicular to the direction of the flow and the width of the stream or river channel (distance between banks). Calculate the ratio: (average width of wetland)/(average width of stream between banks). <math>333 \text{ ft} / 9.7 \text{ ft} = 34</math></i>		9
If the ratio is more than 20	points = 9	
If the ratio is 10-20	points = 6	
If the ratio is 5-<10	points = 4	
If the ratio is 1-<5	points = 2	
If the ratio is $< 1$	points = 1	
<b>R 4.2. Characteristics of plants that slow down water velocities during floods: <i>Treat large woody debris as forest or shrub. Choose the points appropriate for the best description (polygons need to have <math>&gt;90\%</math> cover at person height. These are <u>NOT</u> Cowardin classes)</i></b>		7
Forest or shrub for $> \frac{2}{3}$ area OR emergent plants $> \frac{2}{3}$ area	points = 7	
Forest or shrub for $> \frac{1}{10}$ area OR emergent plants $> \frac{1}{3}$ area	points = 4	
Plants do not meet above criteria	points = 0	
<b>Total for R 4</b>	<b>Add the points in the boxes above</b>	<b>16</b>
<b>Rating of Site Potential</b> If score is: <u>X 12-16 = H</u> <u>6-11 = M</u> <u>0-5 = L</u> <i>Record the rating on the first page</i>		

<b>R 5.0. Does the landscape have the potential to support the hydrologic functions of the site?</b>		
<b>R 5.1. Is the stream or river adjacent to the wetland downcut?</b>	Yes = 0 No = 1	0
<b>R 5.2. Does the up-gradient watershed include a UGA or incorporated area?</b>	Yes = 1 No = 0	1
<b>R 5.3. Is the up-gradient stream or river controlled by dams?</b>	Yes = 0 No = 1	1
<b>Total for R 5</b>	<b>Add the points in the boxes above</b>	<b>2</b>
<b>Rating of Landscape Potential</b> If score is: <u>3 = H</u> <u>X 1 or 2 = M</u> <u>0 = L</u> <i>Record the rating on the first page</i>		

<b>R 6.0. Are the hydrologic functions provided by the site valuable to society?</b>		
<b>R 6.1. Distance to the nearest areas downstream that have flooding problems?</b>		2
<i>Choose the description that best fits the site.</i>		
The sub-basin immediately down-gradient of the wetland 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	
<b>R 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	0
<b>Total for R 6</b>	<b>Add the points in the boxes above</b>	<b>2</b>
<b>Rating of Value</b> If score is: <u>X 2-4 = H</u> <u>1 = M</u> <u>0 = L</u> <i>Record the rating on the first page</i>		

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: <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>	1
<input type="checkbox"/> Aquatic bed <span style="float: right;">4 structures or more: points = 4</span> <input checked="" type="checkbox"/> Emergent <span style="float: right;">3 structures: points = 2</span> <input type="checkbox"/> Scrub-shrub (areas where shrubs have > 30% cover) <span style="float: right;">2 structures: points = 1</span> <input checked="" type="checkbox"/> Forested (areas where trees have > 30% cover) <span style="float: right;">1 structure: points = 0</span> <i>If the unit has a Forested class, check if:</i> <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	
H 1.2. Hydroperiods Check the types of water regimes (hydroperiods) present within the wetland. The water regime has to cover more than 10% of the wetland or ¼ ac to count (see text for descriptions of hydroperiods).	2
<input type="checkbox"/> Permanently flooded or inundated <span style="float: right;">4 or more types present: points = 3</span> <input checked="" type="checkbox"/> Seasonally flooded or inundated <span style="float: right;">3 types present: points = 2</span> <input type="checkbox"/> Occasionally flooded or inundated <span style="float: right;">2 types present: points = 1</span> <input type="checkbox"/> Saturated only <span style="float: right;">1 type present: points = 0</span> <input checked="" type="checkbox"/> Permanently flowing stream or river in, or adjacent to, the wetland (Berwick Creek) <input checked="" type="checkbox"/> Seasonally flowing stream in, or adjacent to, the wetland (Ditch A) <input type="checkbox"/> Lake Fringe wetland <span style="float: right;">2 points</span> <input type="checkbox"/> Freshwater tidal wetland <span style="float: right;">2 points</span>	
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> . <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> If you counted: > 19 species <span style="float: right;">points = 2</span> 5 - 19 species Not a lot of species diversity <span style="float: right;">points = 1</span> < 5 species <span style="float: right;">points = 0</span>	1
H 1.4. Interspersion of habitats 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>	1
<div style="display: flex; justify-content: space-around;"> <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; 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 HIGH = 3points</p>	

H 1.5. Special habitat features: Check the habitat features that are present in the wetland. <i>The number of checks is the number of points.</i>	2
<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 checked="" type="checkbox"/> Stable steep banks of fine material that might be used by beaver or muskrat for denning (> 30 degree slope) <b>OR</b> signs of recent beaver activity are present ( <i>cut shrubs, trees that have not yet weathered where wood is exposed</i> ) <input checked="" 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 (see H 1.1 for list of strata)	
Total for H 1 <span style="float: right;">Add the points in the boxes above</span>	7
<b>Rating of Site Potential</b> If score is: <u>15-18 = H</u> <u>X 7-14 = M</u> <u>0-6 = L</u> <span style="float: right;"><i>Record the rating on the first page</i></span>	
H 2.0. Does the landscape have the potential to support the habitat functions of the site?	
H 2.1. Accessible habitat (include <i>only habitat that directly abuts wetland unit</i> ). <i>Calculate:</i> % undisturbed habitat 0% + [(5.5% moderate and low intensity land uses)/2] 2.75% = <b>2.75%</b> If total accessible habitat is: > ½ (33.3%) of 1 km Polygon <span style="float: right;">points = 3</span> 20-33% of 1 km Polygon <span style="float: right;">points = 2</span> 10-19% of 1 km Polygon <span style="float: right;">points = 1</span> < 10% of 1 km Polygon <span style="float: right;">points = 0</span>	0
H 2.2. Undisturbed habitat in 1 km Polygon around the wetland. <i>Calculate:</i> % undisturbed habitat 0% + 11.3% + [(5.5% +25.1% moderate/low intensity land uses)/2] = <b>26.6%</b> Undisturbed habitat > 50% of Polygon <span style="float: right;">points = 3</span> Undisturbed habitat 10-50% and in 1-3 patches <span style="float: right;">points = 2</span> Undisturbed habitat 10-50% and > 3 patches <span style="float: right;">points = 1</span> Undisturbed habitat < 10% of 1 km Polygon <span style="float: right;">points = 0</span>	1
H 2.3. Land use intensity in 1 km Polygon: if > 50% of 1 km Polygon is high intensity land use <span style="float: right;">points = (- 2)</span> ≤ 50% of 1 km Polygon is high intensity <span style="float: right;">points = 0</span>	-2
Total for H 2 <span style="float: right;">Add the points in the boxes above</span>	< 1
<b>Rating of Landscape Potential</b> If score is: <u>4-6 = H</u> <u>1-3 = M</u> <u>X &lt; 1 = L</u> <span style="float: right;"><i>Record the rating on the first page</i></span>	
H 3.0. Is the habitat provided by the site valuable to society?	
H 3.1. Does the site provide habitat for species valued in laws, regulations, or policies? <i>Choose only the highest score that applies to the wetland being rated.</i>	1
Site meets ANY of the following criteria: <span style="float: right;">points = 2</span> <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 <input checked="" type="checkbox"/> Site has 1 or 2 priority habitats (listed on next page) within 100 m <span style="float: right;">points = 1</span> <input type="checkbox"/> Site does not meet any of the criteria above <span style="float: right;">points = 0</span>	
<b>Rating of Value</b> If score is: <u>2 = H</u> <u>X 1 = M</u> <u>0 = L</u> <span style="float: right;"><i>Record the rating on the first page</i></span>	



## WDFW Priority Habitats

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

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

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

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

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

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

\_\_\_ **Oregon White Oak:** Woodland stands of pure oak or oak/conifer associations where canopy coverage of the oak component is important (full descriptions in WDFW PHS report p. 158 – see web link above).

✓ **Riparian:** The area adjacent to aquatic systems with flowing water that contains elements of both aquatic and terrestrial ecosystems which mutually influence each other.

\_\_\_ **Westside Prairies:** Herbaceous, non-forested plant communities that can either take the form of a dry prairie or a wet prairie (full descriptions in WDFW PHS report p. 161 – see web link above).

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

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

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

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

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

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

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

## CATEGORIZATION BASED ON SPECIAL CHARACTERISTICS

Wetland Type	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 = Not an estuarine wetland</b>	
<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 ¼ of the landward edge of the wetland has a 100 ft buffer of shrub, forest, or un-grazed or un-mowed grassland. — The wetland has at least two of the following features: tidal channels, depressions with open water, or contiguous freshwater wetlands. Yes = <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? Yes – Go to <b>SC 2.2</b> <b>No – Go to SC 2.3</b> <b>SC 2.2.</b> Is the wetland listed on the WDNR database as a Wetland of High Conservation Value? Yes = <b>Category I</b> No = <b>Not a WHCV</b> <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/wnhp/wetlands.pdf">http://www1.dnr.wa.gov/nhp/refdesk/datasearch/wnhp/wetlands.pdf</a> Yes – <b>Contact WNHP/WDNR and go to SC 2.4</b> <b>No = 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? 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? Yes – Go to <b>SC 3.3</b> <b>No – Go to 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? Yes – Go to <b>SC 3.3</b> <b>No = Is not a bog</b> <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? 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? Yes = <b>Is a Category I bog</b> No = <b>Is not a bog</b>	<b>Cat. I</b>

