

Burnt Bridge Mitigation Site

I-5 Main St to I-205 NWP (26) 93-4-00614

I-5 Burnt Bridge Creek to NE 78th St NWP (26) 1999-4-169

I-5 Salmon Creek to I-205 NWP (14) 2001-4-01406

Northwest Region

2014 MONITORING REPORT

Wetlands Program

Issued March 2015



**Washington State
Department of Transportation**

Environmental Services Office

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General Site Information			
USACE NWP Numbers	(26) 93-4-00614 (26) 1999-4-169 (14) 2001-4-01406		
Mitigation Location	East of I-5, west of Burnt Bridge Creek in Clark County, WA		
LLID Number	1226615456574		
Construction Date	2002		
Monitoring Period	2003-2007 (Original planned)		
Year of Monitoring	12 of 5		
Area of Project Wetland Impact¹	0.86 acres		
Type of Mitigation	Wetland Establishment	Wetland Restoration	Buffer Establishment
Area of Mitigation	1.38 acres	0.58 acre	1.76 acres

¹Impact acreage sourced from (USACE 1999) and (USACE 2001). Mitigation acreage sourced from I-5, Salmon Creek to I-205 Mitigation Plan (Corlett 2002).

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Summary of Monitoring Results and Management Activities (2014)

Performance Standards	2014 Results ²	Management Activities
75% cover of facultative and wetter herbaceous species in the emergent zone	23% cover (CI _{80%} = 17-30%)	
60% percent cover of native wetland shrub species in the scrub-shrub zone	85% cover	
40% percent cover of native riparian tree and shrub species in the riparian zone	30% cover	
40% cover of native wetland tree and shrub species in the forested buffer	90% cover	
Reed canarygrass (<i>Phalaris arundinacea</i>) will be controlled in all planting zones on site	47% cover (CI _{80%} = 36-59%)	

Report Introduction

This report summarizes Year-12 monitoring activities at the Interstate-5 (I-5) Salmon Creek to I-205 (Burnt Bridge) Mitigation Site. Included are a site description, the performance standards, an explanation of monitoring methods, and an evaluation of site success. Monitoring activities included vegetation surveys and photo-documentation. Vegetation monitoring occurred on August 4-6, 2014.

² Estimated values are presented with their corresponding statistical confidence interval. For example, 23% cover (CI_{80%} = 17-30%) means we are 80% confident that the true cover value is between 17% and 30%.

What is the Burnt Bridge Mitigation Site?

The mitigation site compensates for loss of wetlands due to highway improvement projects along the I-5 corridor between 39th Street and I-205. The site is located east of the Ellen Davis Trail and is adjacent to Burnt Bridge Creek in the northeast corner of I-5 and the 39th Street Exit in Leverich Park (Figure 1). The mitigation site is designed to improve water quality and wildlife habitat functions along the creek. Inlet and outlet culverts divert high water flows in the creek to attenuate floodwaters and brush piles and snags are intended to improve habitat quality for terrestrial species. A separate stormwater pond improves water quality and provides some hydrologic functions (flood flow alteration, nutrient and toxicant removal, and groundwater recharge) in the basin. Highway run-off infiltrates from the stormwater pond rather than flowing into Burnt Bridge Creek or the mitigation site.

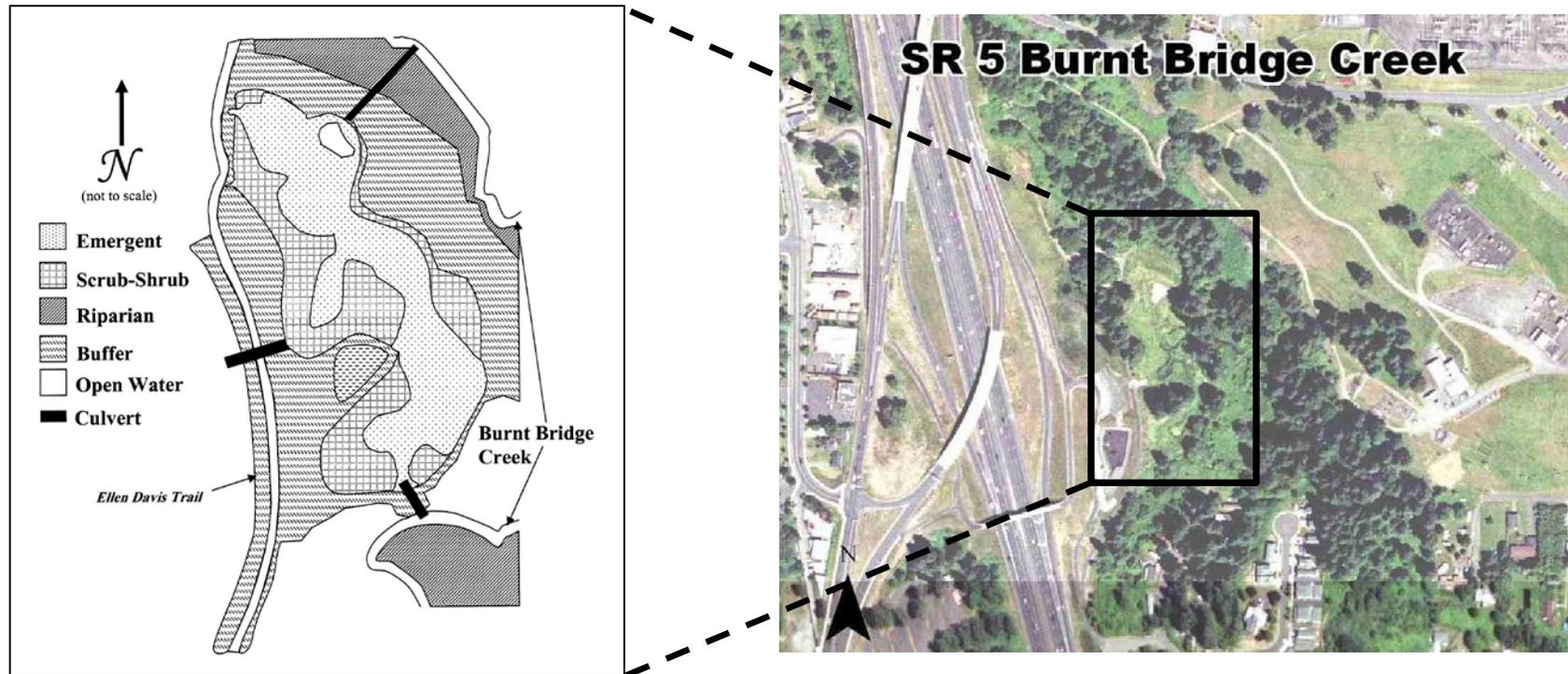


Figure 1 Site Sketch

The mitigation site is located along the Ellen Davis Trail and Burnt Bridge Creek. Culverts supply floodwater from the creek to the low areas.

What are the performance standards for this site?

Year 5

Performance Standard 1

At year 5, there will be a minimum of 75 percent cover within the emergent zone.

Performance Standard 2

There will be a minimum of 60 percent cover of native wetland shrub species within the scrub-shrub zone.

Performance Standard 3

There will be a minimum of 40 percent cover of native riparian tree and shrub species within the riparian zone.

Performance Standard 4

There will be a minimum of 40 percent areal cover of native wetland tree and shrub species within the forested buffer.

Performance Standard 5

Reed canarygrass will be controlled in all planting zones of the wetland mitigation site.

Appendix 1 shows the planting plan (Corlett 2002).

How were the performance standards evaluated?

To evaluate standards for vegetative cover, a baseline was established down the center of the emergent zone (Figure 2). Twenty-three sampling transects were randomly placed perpendicular to the baseline. The point intercept method was used to estimate native herbaceous and reed canarygrass cover in the emergent wetland (Performance Standard 1 and 5). Thirty-seven five-meter sample units with a resolution of 20 points were randomly placed along the sampling transects.

Woody cover in the scrub-shrub, forested buffer, and the riparian buffer were assessed qualitatively (Performance Standards 2, 3, and 4).

For additional details on the methods, see the [WSDOT Wetland Mitigation Site Monitoring Methods Paper](#) (WSDOT 2008).

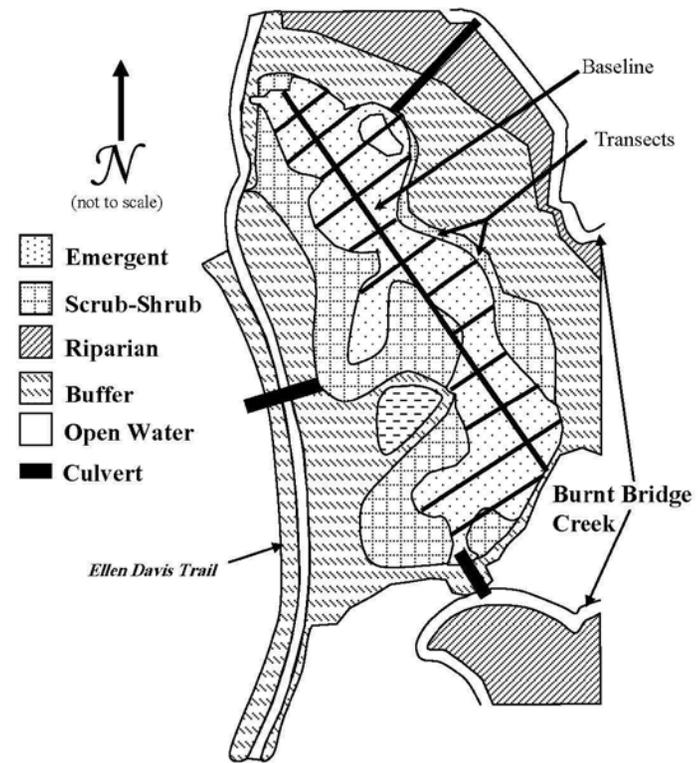


Figure 2 Site Sampling Design (2014)

How is the site developing?

In many ways the site is successful. Both the scrub-shrub wetland and the forested buffer have developed complex interspersions of vegetation classes combined with a multilayered herbaceous layer. Multilayered woody species canopies provide good habitat for many wildlife species. Twenty-nine different species of birds have been documented, with a number of wetland-dependent species being observed. In addition, nesting birds and foraging mammals have been recorded using the site.

The wetland impacts associated with the corridor project were primarily to Class III wetlands with moderate to low habitat value due to lack of cover and highway proximity. The principal functions provided by these wetlands include sediment trapping, groundwater recharge and flood storage capacity. The stormwater facility that was built in conjunction with the wetland mitigation will more than replace the lost water quality functions provided by the 0.97-acre wetland impact area and eliminate direct stormwater discharge into Burnt Bridge Creek. Consequently, it appears that the stormwater pond will result in gains in flood-flow alteration, nutrient and toxicant removal, and groundwater recharge functions.

Despite extensive remedial efforts soil amendments, replanting, irrigation and aggressive weed control a couple aspects of the mitigation site have been less than entirely successful. The northern section of the intended emergent wetland has not developed as such. The higher elevation parts of this area have been planted with Oregon ash (*Fraxinus latifolia*), which is providing about 30 percent woody cover in these areas. The central (lower elevation) part of this area has developed a plant community of grasses and weeds that mostly have facultative statuses of FACU and FAC. It does pond water during storm events, but it presumably drains quickly based on the plant community that has developed there.

In addition native woody species establishment in the riparian buffer has been difficult. It is noted that the Burnt Bridge Creek Basin is generally heavily infested with reed canarygrass, including the riparian zone of the wetland mitigation site. A deep rooting zone, long-lived seeds, and easy seed transport by overbank flooding have made long-term weed control at this site difficult.

A total of 1.35 acres was delineated on the site on May 5, 2014 see Appendix 3 for the full report. The site was originally intended to have 1.38 acres of wetland creation and 0.58 acre wetland restoration to compensate for 0.97 acre of wetland impacts (Corlett 2002). As noted in the delineation report the impacts were later reduced to 0.86 acre whether this affects the required mitigation acreage has not been determined.

Results for Performance Standard 1
(75% cover in the emergent zone):

Cover of native facultative and wetter herbaceous species in the emergent zone is 23% ($CI_{80\%} = 17\text{-}30\%$), falling well below the performance standard. In the northern portion of the site there is very little to no native facultative and wetter herbaceous species the majority of the cover came from the central and southern portions of the site which are dominated by broadleaf cattail (*Typha latifolia*) and marsh seedbox (*Ludwigia palustris*) (Photo 1).

Results for Performance Standard 2
(60% cover of native wetland shrub species within the scrub-shrub zone):

Cover in the scrub-shrub zone remains high and is estimated to be 85 percent. Dominant species include willows (*Salix* spp.) and Oregon ash (*Fraxinus latifolia*). This zone appears to be most dense close to the middle of the site (Photo 2) and then more sparsely populated towards the north end with stressed Oregon ash (*Fraxinus latifolia*).

Results for Performance Standard 3
(40% cover of native riparian tree and shrub species within the riparian zone):

Cover of native trees and shrubs in the riparian zone is estimated to be 30 percent. The woody species community is concentrated on the northwestern side of the riparian zone, near the paved trail. This community by itself is fairly dense with high cover. However, over half of the zone is composed of 100 percent reed canarygrass cover.



Photo 1
Emergent area in the middle of the site (August 2014)



Photo 2
Scrub-shrub in the center of the site (August 2014)

Results for Performance Standard 4

(40% areal cover of native wetland tree and shrub species within the forested buffer):

The buffer community remains robust. Cover is estimated to be 90 percent. The dominant species include snowberry (*Symphoricarpos albus*) with tall oregongrape (*Mahonia aquifolium*), oceanspray (*Holodiscus discolor*), and western serviceberry (*Amelanchier alnifolia*) as sub-dominants (Photo 3).

Results for Performance Standard 5

(Reed canarygrass will be controlled across the site):

There has been no weed control conducted on the site since the summer of 2013. Reed canarygrass in the emergent wetland is estimated at 47% cover ($CI_{80\%} = 36-59\%$). There is also high cover across approximately half of the riparian corridor with nearly 100 percent cover of reed canarygrass.



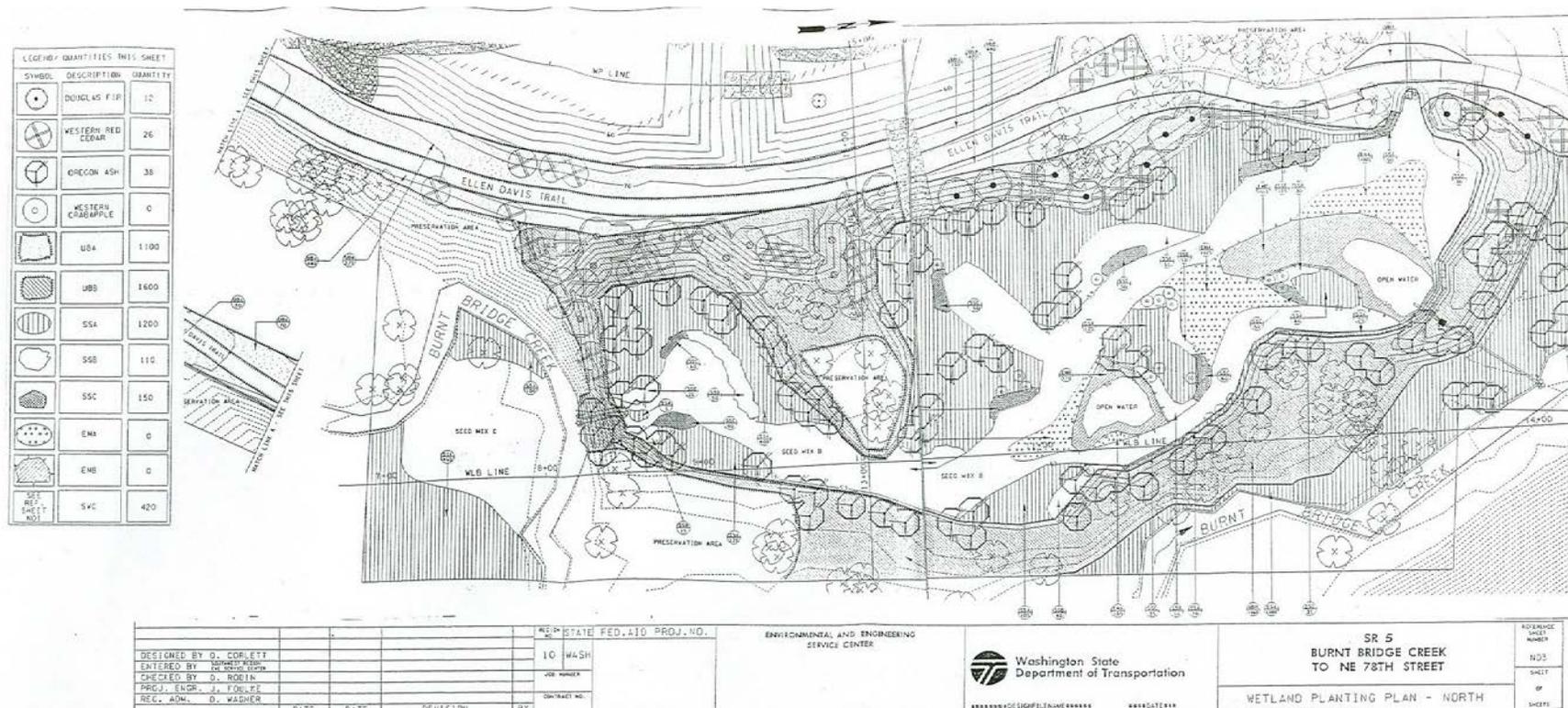
Photo 3
Forested buffer (August 2014)

What is planned for this site?

The region will continue weed control as needed.

Appendix 1 – Planting Plan

(from Corlett 2002)



Appendix 2 – Photo Points

The photographs below were *not* taken from permanent photo-points on August 6, 2014 but document current site development.



Southwest buffer



Southern emergent



Northern riparian



Southern riparian

Driving Directions:

I-5 south to Vancouver, take the 39th St. Exit (Exit 2). Turn right at the top of the ramp and cross I-5 heading east. Take the second left onto Leverich Park Drive. Follow Leverich Park Drive down the hill, keeping left at the intersection at the bottom. Parking and site access is from the cul-de-sac at the end of the road. There is easy access to the site along a paved public trail.

Appendix 3 – Delineation Report

WETLAND DELINEATION REPORT

I-5 Burnt Bridge Creek Mitigation Site

I-5 Main St to I-205

USACE (NWP 26) 93-4-00614

I-5 Burnt Bridge Creek to NE 78th St.

USACE (NWP 26) 1999-4-169

I-5 Salmon Creek to I-205

USACE (NWP 14) 2001-4-01406

Clark County, Washington

Prepared by:

Tatiana Dreisbach

WSDOT Environmental Services Office

Olympia, Washington

October 2014



**Washington State
Department of Transportation**

Introduction

This report was prepared by the Washington State Department of Transportation (WSDOT) to describe the wetland boundary delineation for the I-5 Burnt Bridge Creek mitigation site. Field work was conducted by WSDOT wetland biologists Tatiana Dreisbach, Tony Bush, and Sean Patrick, on May 5, 2014. The delineation identifies 1.35 acres of wetland within the mitigation site boundaries.

General Information for the I-5 Burnt Bridge Creek mitigation site		
Location:	S15, T2N, R1E. Clark County. (Vicinity map, Figure 1)	
	USACE NWP 26 Number	93-4-00614
	USACE NWP 26 Number	1999-4-169
	USACE NWP 14 Number	2001-4-01406
	Long./Lat. ID Number	1226615456574
	Land Resource Region (LRR)	A
	Major Land Resource Area (MLRA)	A-2
	Construction Date	2002
	Monitoring Period	2003 - 2007
	Year of Monitoring	12 of 5 (in 2014)
Area of Project Impact¹	0.86 acre	
Total Delineated Wetland Area	1.35 acres	

¹ Project impact numbers from three USACE Nationwide Permits (USACE 1993; USACE 1999; USACE 2001). We assume that the 1993 permit is superseded by the 1999 renewal permit and the 2001 permit. This understanding shows that the 0.97 acre impact referenced in the 1993 permit has been replaced by the 0.70 acre impact referenced in the 1999 permit and the 0.16 acre impact from the 2001 permit, for a total of 0.86 acre impact.

Location

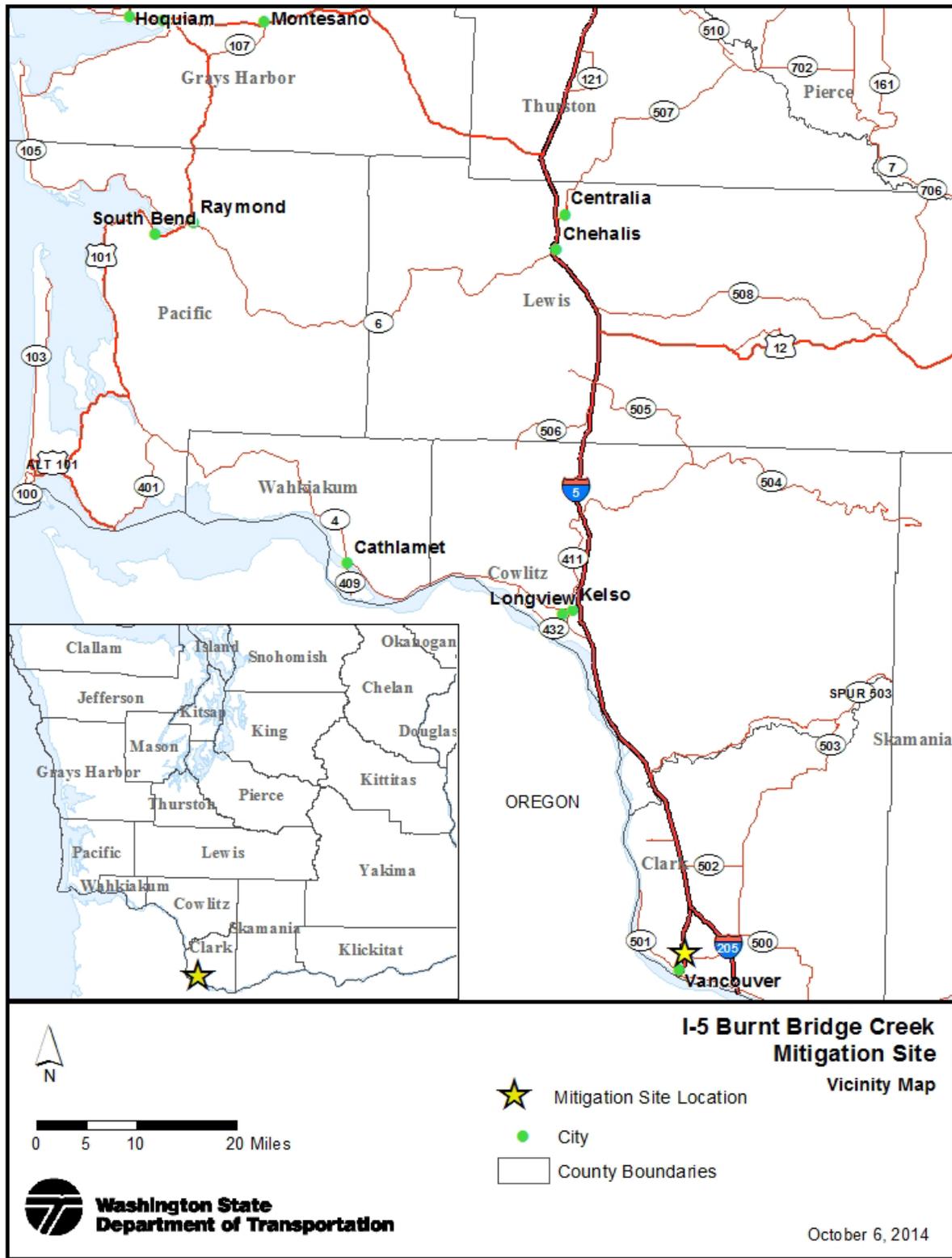


Figure 1. Vicinity Map

Methods

Wetland boundaries within the I-5 Burnt Bridge Creek mitigation site were delineated using routine methods described in the:

- 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 (Version 2.0) (USACE 2010)

Wetland boundaries were delineated based on on-site observations of hydrology, soils, and plant communities, in conjunction with background information.

A Global Positioning System (GPS) Trimble GeoXT mapping grade unit was used to record the wetland boundaries and sampling point locations (Figure 2). Wetland boundary points were recorded at regular intervals and at any change in direction along the boundary.

Wetland Delineation and Study Area

Study Area

Wetlands described in this report were assessed only within the wetland mitigation site boundary (Figure 2). The southeast corner of the site, with the only section of the site occurring on the east side of Burnt Bridge Creek, was not accessible. Documentation of this area is not included in this report. This area may or may not contain additional wetland area.

Wetlands

The I-5 Burnt Bridge Creek mitigation site has depressional and riverine wetland areas with a variety of Cowardin classes. Palustrine emergent (PEM), palustrine scrub-shrub (PSS), and palustrine forested (PFO) characterize the wetland vegetation communities. The PFO community has developed a canopy structure with three distinct strata including an herbaceous understory, scattered shrubs, and a forested overstory of Pacific willow (*Salix lasiandra*), Oregon ash (*Fraxinus latifolia*), and Cascara buckthorn (*Frangula purshiana*). Wetter areas of the wetland are dominated by PSS and PEM communities, forming gaps in the canopy and contributing complexity to the habitat and structure of the wetland. A dense vegetated buffer is present in many areas.

Three wetland polygons were identified within the site boundary, with the two smaller wetland areas directly adjacent to Burnt Bridge Creek (Figure 2). Hydrology influences include a high ground water table, precipitation, and occasional flow through flood waters from Burnt Bridge Creek, both through overbank flooding and constructed water conveyances.

The delineation determined 1.35 acres of wetland were present within the I-5 Burnt Bridge Creek mitigation site. Delineation data were collected at nine sampling points and recorded on wetland determination data forms (Appendix A). Paired wetland and upland sample points were used to define the wetland edge. Additional wetland sample points characterize various wetland vegetation communities. Data recorded on wetland determination data forms characterize typical wetland and upland conditions observed on site. Vegetation, soils, and hydrology were examined in many additional sampling locations to determine the wetland boundary.

Precipitation

The Regional Delineation Supplement Version 2.0 (USACE 2010) recommends using methods described in Chapter 19 in *Engineering Field Handbook* (NRCS 1997) to determine if precipitation occurring in the three full months prior to the site visit was normal, drier than normal, or wetter than normal. Actual rainfall is compared to the normal range of the 30-year average. When considering the three prior months as whole, wetter than normal precipitation conditions were present prior to field work. The two months prior to field work were wetter than normal and the third prior month was drier than normal (Appendix B-1).

Light precipitation was recorded in the ten days preceding field work (Appendix B-2).

Growing Season

The following evidence of the growing season was observed at the time of the delineation:

- New growth on herbaceous vegetation in the wetland was present.
- The leaves on woody species were fully emerged.

GPS Data - I 5 Burnt Bridge, 5/5/2014

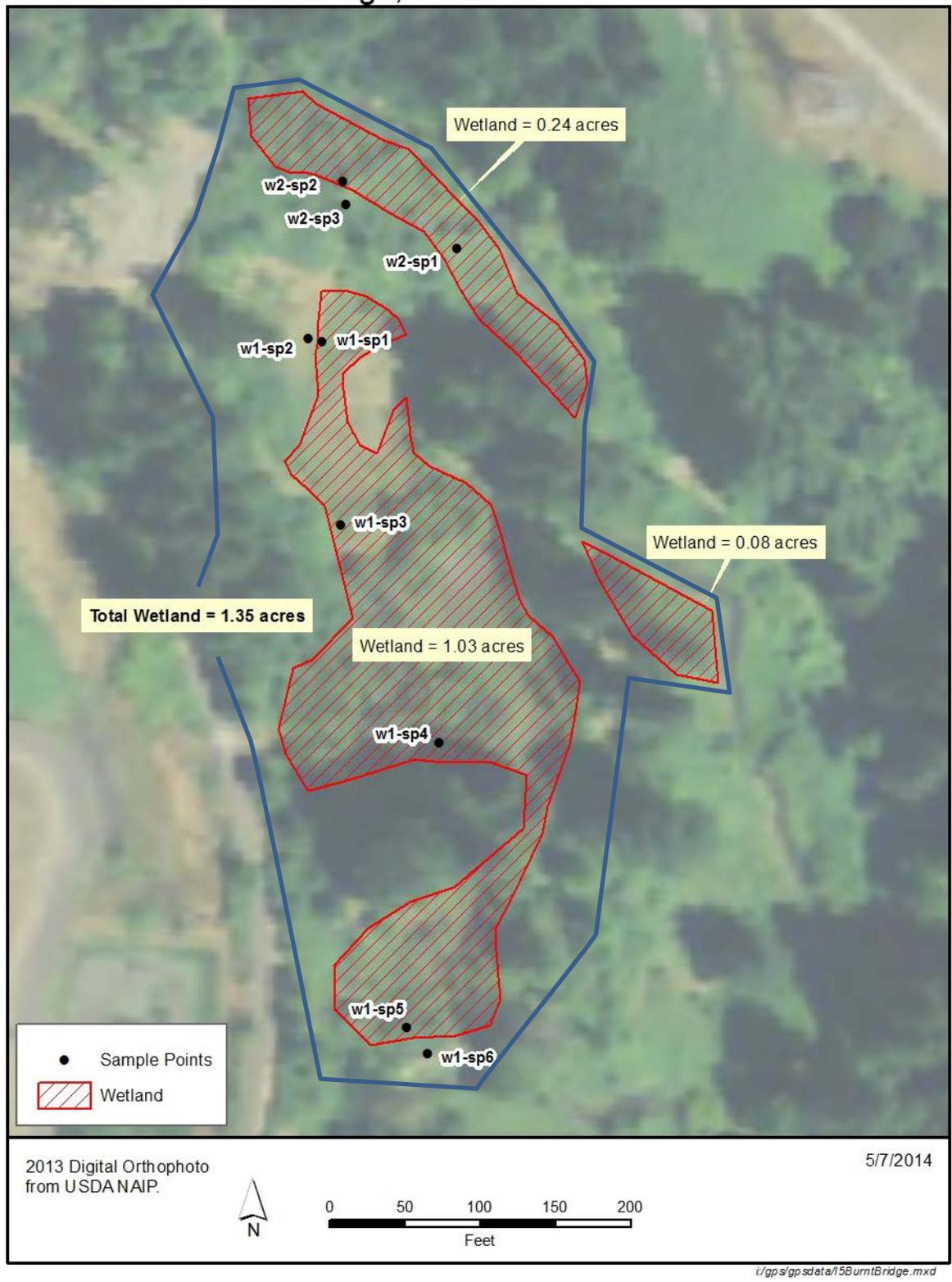


Figure 2. Study area in blue, wetland boundary in red, and sampling point locations in black.

I-5 Burnt Bridge Creek mitigation site – Wetland Delineation Summary		
Total Delineated Wetland Area	1.35 acres	
	Wetland Determination Data Form(s)	Appendix A; Sampling Point W1-SP1, W1-SP3, W1-SP4, W1-SP5, W2-SP1, W2-SP2
	Upland Determination Data Form(s)	Appendix A; Sampling Point W1-SP2, W1-SP6, W2-SP3
	Delineator(s)	Tatiana Dreisbach, Tony Bush, Sean Patrick
	Delineation Date	May 5, 2014
Vegetation	Trees – Sitka willow, Oregon ash, Cascara buckthorn Shrubs – Pacific ninebark (<i>Physocarpus capitatus</i>), Oregon ash, Pacific willow (<i>Salix lasiandra</i>) Herbs – meadow foxtail (<i>Alopecurus pratensis</i>), water foxtail (<i>Alopecurus geniculatus</i>), spike bentgrass (<i>Agrostis exarata</i>), jewelweed (<i>Impatiens capensis</i>), cutleaf geranium (<i>Geranium dissectum</i>), reed canarygrass (<i>Phalaris arundinacea</i>), largeleaf avens (<i>Geum macrophyllum</i>).	
Soils	Soils examined to a depth of 18 inches exhibited hydric characteristics. Matrix colors of 2.5Y 4/1, 10YR 2/1, and 10YR 3/2 were observed. Redoximorphic concentrations and depletions were observed in some layers. Indicators Depleted Below Dark Surface (A11), Depleted Matrix (F3), Redox Dark Surface (F6) met.	
Hydrology	The main sources of hydrology appear to be groundwater and occasional flooding from Burnt Bridge Creek, entering the two smaller areas adjacent to the creek through overbank flooding and the larger wetland area through constructed water conveyance features. Precipitation also contributes to the hydrologic regime of this wetland. Inundation of varying depths was present in some areas of the wetland. Water in the observation pits ranged from 0 inches (at the soil surface) to 7 inches below the surface. Algal mats, surface soil cracks, and sparsely vegetated concave surfaces were also observed.	
Rationale for Delineation	Positive indicators of all three wetland criteria are present. Placement of boundary determined by vegetation and topographic break. Wetland hydrology and hydric soils indicators helped determine the boundary and often correlated with a topographic break.	

Limitations

This wetland delineation report documents the investigation, best professional judgment and conclusions of WSDOT based on the site conditions encountered at the time of this study. The wetland delineation was performed in compliance with accepted standards for professional wetland biologists and applicable federal, state, and local ordinances. It is correct and complete to the best of our knowledge. It should be considered a preliminary jurisdictional determination of wetlands and other waters until it has been reviewed and approved in writing by the appropriate jurisdictional authorities.

References

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Appendix A —Wetland Determination Data Forms

Wetland Delineation Data Forms for:

W1-SP1

W1-SP2

W1-SP3

W1-SP4

W1-SP5

W1-SP6

W2-SP1

W2-SP2

W2-SP3

Wetland polygons, sampling point locations, and wetland names shown in Figure 2.

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp1
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): concave Slope: 10.0 % / 5.7 °
 Subregion (LRR): LRR A Lat.: 45.658 Long.: -122.663 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PEM

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: 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>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>30</u> x 1 = <u>30</u> FACW species <u>17</u> x 2 = <u>34</u> FAC species <u>42</u> x 3 = <u>126</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>5</u> x 5 = <u>25</u> Column Totals: <u>94</u> (A) <u>215</u> (B) Prevalence Index = B/A = <u>2.287</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Alopecurus pratensis</u>	<u>40</u>	<input checked="" type="checkbox"/> <u>42.6%</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Alopecurus geniculatus</u>	<u>30</u>	<input checked="" type="checkbox"/> <u>31.9%</u>	<u>OBL</u>	
3. <u>Agrostis exarata</u>	<u>10</u>	<input type="checkbox"/> <u>10.6%</u>	<u>FACW</u>	
4. <u>Geranium dissectum</u>	<u>5</u>	<input type="checkbox"/> <u>5.3%</u>	<u>UPL</u>	
5. <u>Phalaris arundinacea</u>	<u>5</u>	<input type="checkbox"/> <u>5.3%</u>	<u>FACW</u>	
6. <u>Impatiens capensis</u>	<u>2</u>	<input type="checkbox"/> <u>2.1%</u>	<u>FACW</u>	
7. <u>Rumex crispus</u>	<u>2</u>	<input type="checkbox"/> <u>2.1%</u>	<u>FAC</u>	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
% Bare Ground in Herb Stratum: <u>6</u>				

Remarks:

¹Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: W1-SP1

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 ¹	Loc ²			
0-5	10YR	2/1	100						Sandy Loam	
5-18	10YR	3/2	60	7.5YR	3/4	20	C	M/PL		concentration is distinct
	10YR	2/1	10	2.5Y	3/1	10	D	M	Sandy Loam	10 YR 2\1 is a second matrix color.

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 The second matrix color of 10YR 2/1 in the 5 to 18 inch layer is likely mixed in from the top layer and is not a redox feature. It is a second matrix color and is recorded accordingly.

Hydrology

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

Field Observations:

Surface Water Present? Yes No Depth (inches):

Water Table Present? Yes No Depth (inches):

Saturation Present? (includes capillary fringe) Yes No Depth (inches): **Wetland Hydrology Present?** Yes No

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp2
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): Bench above depression Local relief (concave, convex, none): concave Slope: 5.0 % / 2.9 °
 Subregion (LRR): LRR A Lat.: 45.658 Long.: -122.663 Datum: NAD83HARN

Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: Upland

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: 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>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>10</u> x 2 = <u>20</u> FAC species <u>75</u> x 3 = <u>225</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>7</u> x 5 = <u>35</u> Column Total s: <u>92</u> (A) <u>280</u> (B) Prevalence Index = B/A = <u>3.043</u>
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
5. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Alopecurus pratensis</u>	<u>70</u>	<input checked="" type="checkbox"/> <u>65.4%</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤ 3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Agrostis exarata</u>	<u>10</u>	<input type="checkbox"/> 9.3%	<u>FACW</u>	
3. <u>Bromus spp.</u>	<u>10</u>	<input type="checkbox"/> 9.3%	_____	
4. <u>Geranium dissectum</u>	<u>5</u>	<input type="checkbox"/> 4.7%	<u>UPL</u>	
5. <u>Lamium purpureum</u>	<u>2</u>	<input type="checkbox"/> 1.9%	<u>UPL</u>	
6. <u>Cirsium arvense</u>	<u>5</u>	<input type="checkbox"/> 4.7%	<u>FAC</u>	
7. <u>Vicia spp.</u>	<u>5</u>	<input type="checkbox"/> 4.7%	_____	
8. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____	
9. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____	
10. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____	
11. _____	<u>0</u>	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				

Remarks:

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

Soil

Sampling Point: W1-sp2

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 ¹	Loc ²			
0-15	10YR	2/1	100						Sandy Loam	
15-20	10YR	3/2	90	10YR	3/6	10	C	M	Sandy Loam	concentration is prominent

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

³Indicators 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:
 Second layer starts too low to meet indicator F6.

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp3
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope: 5.0 % / 2.9 °
 Subregion (LRR): LRR A Lat.: 45.658 Long.: -122.663 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PEM

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: 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>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>100</u> (A) <u>200</u> (B) Prevalence Index = B/A = <u>2.000</u>
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Impatiens capensis</u>	60	<input checked="" type="checkbox"/> 58.8%	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Phalaris arundinacea</u>	40	<input checked="" type="checkbox"/> 39.2%	FACW	
3. <u>Galium aparine</u>	2	<input type="checkbox"/> 2.0%	FACU	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
= Total Cover				
% Bare Ground in Herb Stratum: <u>0</u>				

Remarks:

¹Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp4
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °
 Subregion (LRR): LRR A Lat.: 45.658 Long.: -122.662 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PFO

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u>Salix sitchensis</u>	40	<input checked="" type="checkbox"/> 57.1%	FACW	
2. <u>Fraxinus latifolia</u>	20	<input checked="" type="checkbox"/> 28.6%	FACW	
3. <u>Frangula purshiana</u>	10	<input type="checkbox"/> 14.3%	FAC	
4. _____	0	<input type="checkbox"/> 0.0%		
	70	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. <u>Physocarpus capitatus</u>	40	<input checked="" type="checkbox"/> 80.0%	FACW	
2. <u>Fraxinus latifolia</u>	10	<input checked="" type="checkbox"/> 20.0%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
	50	= Total Cover		
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>190</u> x 2 = <u>380</u> FAC species <u>15</u> x 3 = <u>45</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>205</u> (A) <u>425</u> (B) Prevalence Index = B/A = <u>2.073</u>
1. <u>Impatiens capensis</u>	80	<input checked="" type="checkbox"/> 94.1%	FACW	
2. <u>Geum macrophyllum</u>	5	<input type="checkbox"/> 5.9%	FAC	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
	85	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____		<input type="checkbox"/> 0.0%		
2. _____		<input type="checkbox"/> 0.0%		
	0	= Total Cover		
% Bare Ground in Herb Stratum: <u>15</u>				

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrologic Vegetation
 2 - Dominance Test is > 50%
 3 - Prevalence Index is ≤3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

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

Soil

Sampling Point: W1-sp4

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 ¹	Loc ²		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:
 Soil pit not excavated due to inundation. Soils meet hydric soil criteria due to prolonged inundation.

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="1"/>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="0"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="0"/>	

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp5
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): depression Local relief (concave, convex, none): flat Slope: 5.0 % / 2.9 °
 Subregion (LRR): LRR A Lat.: 45.657 Long.: -122.662 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PFO

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>4</u> (A) Total Number of Dominant Species Across All Strata: <u>4</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. <u>Frangula purshiana</u>	30	<input checked="" type="checkbox"/> 75.0%	FAC	
2. <u>Fraxinus latifolia</u>	10	<input checked="" type="checkbox"/> 25.0%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
= Total Cover				
40				
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. <u>Physocarpus capitatus</u>	60	<input checked="" type="checkbox"/> 100.0%	FACW	
2. _____	0	<input type="checkbox"/> 0.0%		
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
= Total Cover				
60				
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Impatiens capensis</u>	70	<input checked="" type="checkbox"/> 93.3%	FACW	
2. <u>Phalaris arundinacea</u>	5	<input type="checkbox"/> 6.7%	FACW	
3. _____	0	<input type="checkbox"/> 0.0%		
4. _____	0	<input type="checkbox"/> 0.0%		
5. _____	0	<input type="checkbox"/> 0.0%		
6. _____	0	<input type="checkbox"/> 0.0%		
7. _____	0	<input type="checkbox"/> 0.0%		
8. _____	0	<input type="checkbox"/> 0.0%		
9. _____	0	<input type="checkbox"/> 0.0%		
10. _____	0	<input type="checkbox"/> 0.0%		
11. _____	0	<input type="checkbox"/> 0.0%		
= Total Cover				
75				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____		<input type="checkbox"/> 0.0%		
2. _____		<input type="checkbox"/> 0.0%		
= Total Cover				
0				
% Bare Ground in Herb Stratum: <u>25</u>				
Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>145</u> x 2 = <u>290</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>0</u> x 4 = <u>0</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>175</u> (A) <u>380</u> (B) Prevalence Index = B/A = <u>2.171</u>				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				

Remarks:

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

Soil

Sampling Point: w1-sp5

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 ¹	Loc ²			
0-2	10YR	2/1	100						Sandy Loam	
2-16	2.5Y	4/1	70	7.5YR	3/4	30	C	M	Sandy Loam	Concentration is prominent

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input checked="" type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="7"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="0"/>	

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w1-sp6
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): berm Local relief (concave, convex, none): convex Slope: 5.0 % / 2.9 °
 Subregion (LRR): LRR A Lat.: 45.657 Long.: -122.662 Datum: NAD83HARN

Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: Upland

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

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

Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status		
Tree Stratum (Plot size: <u>20 x 20 feet</u>)					
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>1</u> (A) Total Number of Dominant Species Across All Strata: <u>8</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>12.5%</u> (A/B)	
2. _____	_____	<input type="checkbox"/> 0.0%	_____		
3. _____	_____	<input type="checkbox"/> 0.0%	_____		
4. _____	_____	<input type="checkbox"/> 0.0%	_____		
0 = Total Cover					
Sapling/Shrub Stratum (Plot size: <u>10 ft x 15 ft</u>)					
1. <u>Rosa nutkana</u>	15	<input checked="" type="checkbox"/> 25.0%	FAC	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>0</u> x 2 = <u>0</u> FAC species <u>24</u> x 3 = <u>72</u> FACU species <u>80</u> x 4 = <u>320</u> UPL species <u>10</u> x 5 = <u>50</u> Column Totals: <u>114</u> (A) <u>442</u> (B) Prevalence Index = B/A = <u>3.877</u>	
2. <u>Amelanchier alnifolia</u>	15	<input checked="" type="checkbox"/> 25.0%	FACU		
3. <u>Symphoricarpos albus</u>	10	<input checked="" type="checkbox"/> 16.7%	FACU		
4. <u>Rubus armeniacus</u>	10	<input checked="" type="checkbox"/> 16.7%	FACU		
5. <u>Holodiscus discolor</u>	10	<input checked="" type="checkbox"/> 16.7%	FACU		
60 = Total Cover					
Herb Stratum (Plot size: <u>5 ft x 5 ft</u>)					
1. <u>Daucus carota</u>	15	<input checked="" type="checkbox"/> 19.7%	FACU		
2. <u>Bromus spp.</u>	15	<input checked="" type="checkbox"/> 19.7%	_____		
3. <u>Dactylis glomerata</u>	5	<input type="checkbox"/> 6.6%	FACU		
4. <u>Anthoxanthum odoratum</u>	15	<input checked="" type="checkbox"/> 19.7%	FACU		
5. <u>Holcus lanatus</u>	5	<input type="checkbox"/> 6.6%	FAC		
6. <u>Geranium dissectum</u>	5	<input type="checkbox"/> 6.6%	UPL		
7. <u>Lamium purpureum</u>	5	<input type="checkbox"/> 6.6%	UPL		
8. <u>Myosotis discolor</u>	2	<input type="checkbox"/> 2.6%	FAC		
9. <u>Vicia spp.</u>	5	<input type="checkbox"/> 6.6%	_____		
10. <u>Hypochaeris spp.</u>	2	<input type="checkbox"/> 2.6%	_____		
11. <u>Claytonia sibirica</u>	2	<input type="checkbox"/> 2.6%	FAC		
76 = Total Cover					
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)					
1. _____	_____	<input type="checkbox"/> 0.0%	_____		
2. _____	_____	<input type="checkbox"/> 0.0%	_____		
0 = Total Cover					
% Bare Ground in Herb Stratum: <u>24</u>					
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input type="checkbox"/> 2 - Dominance Test is > 50% <input type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.					
Hydrophytic Vegetation Present? Yes <input type="radio"/> No <input checked="" type="radio"/>					

Remarks:

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

Soil

Sampling Point: W1-sp6

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 ¹	Loc ²		
0-8	10YR	2/2	100				Sandy Loam	
8-16	2.5Y	4/2	100				Coarse Loamy Sand	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w2-sp1
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): concave Slope: 1.0 % / 0.6 °
 Subregion (LRR): LRR A Lat.: 45.659 Long.: -122.662 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PEM

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Dominance Test worksheet: 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>100.0%</u> (A/B)
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
	0	= Total Cover		
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>100</u> x 2 = <u>200</u> FAC species <u>0</u> x 3 = <u>0</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = <u>0</u> Column Total s: <u>103</u> (A) <u>212</u> (B) Prevalence Index = B/A = <u>2.058</u>
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
5. _____	_____	<input type="checkbox"/> 0.0%	_____	
	0	= Total Cover		
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Phalaris arundinacea</u>	90	<input checked="" type="checkbox"/> 87.4%	FACW	Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain) ¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.
2. <u>Galium aparine</u>	3	<input type="checkbox"/> 2.9%	FACU	
3. <u>Impatiens capensis</u>	10	<input type="checkbox"/> 9.7%	FACW	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
	103	= Total Cover		
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
	0	= Total Cover		
% Bare Ground in Herb Stratum: <u>0</u>				

Remarks:

¹Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: w2-sp1

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 ¹	Loc ²		
0-18	10YR	3/2	68	5YR	3/3	20	C	m/pl	Sandy Loam	Concentration is distinct.
				10R	4/8	10	C	m/pl		Concentration is prominent.
				2.5Y	4/3	2	D	M		

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="0"/>	

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

Remarks:

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w2-sp2
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): Bench Local relief (concave, convex, none): flat Slope: 1.0 % / 0.6 °
 Subregion (LRR): LRR A Lat.: 45.659 Long.: -122.663 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: PSS

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="radio"/> No <input type="radio"/>
Remarks: Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).	

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				Dominance Test worksheet: Number of Dominant Species That are OBL, FACW, or FAC: <u>5</u> (A) Total Number of Dominant Species Across All Strata: <u>5</u> (B) Percent of dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B)
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>170</u> x 2 = <u>340</u> FAC species <u>25</u> x 3 = <u>75</u> FACU species <u>3</u> x 4 = <u>12</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>198</u> (A) <u>427</u> (B) Prevalence Index = B/A = <u>2.157</u>
1. <u>Physocarpus capitatus</u>	40	<input checked="" type="checkbox"/> 40.0%	FACW	
2. <u>Frangula purshiana</u>	25	<input checked="" type="checkbox"/> 25.0%	FAC	
3. <u>Fraxinus latifolia</u>	15	<input type="checkbox"/> 15.0%	FACW	
4. <u>Salix lasiandra</u>	20	<input checked="" type="checkbox"/> 20.0%	FACW	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
100 = Total Cover				
Herb Stratum (Plot size: <u>5 x 5 feet</u>)				
1. <u>Impatiens capensis</u>	25	<input checked="" type="checkbox"/> 25.5%	FACW	
2. <u>Galium aparine</u>	3	<input type="checkbox"/> 3.1%	FACU	
3. <u>Phalaris arundinacea</u>	10	<input type="checkbox"/> 10.2%	FACW	
4. <u>Agrostis exarata</u>	60	<input checked="" type="checkbox"/> 61.2%	FACW	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
98 = Total Cover				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum: <u>2</u>				
Hydrophytic Vegetation Indicators: <input type="checkbox"/> 1 - Rapid Test for Hydrologic Vegetation <input checked="" type="checkbox"/> 2 - Dominance Test is > 50% <input checked="" type="checkbox"/> 3 - Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> 4 - Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 5 - Wetland Non-Vascular Plants ¹ <input type="checkbox"/> Problematic Hydrophytic Vegetation ¹ (Explain)				
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.				
Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/>				
Remarks:				

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

Soil

Sampling Point: W2-sp2

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 ¹	Loc ²				
0-18	10YR	3/2	90	5YR	4/6	10	C	M	Sandy Loam	Concentration is prominent.

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

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

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

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

Restrictive Layer (if present):
 Type: _____
 Depth (inches): _____

Hydric Soil Present? Yes No

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input checked="" type="radio"/> No <input type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input checked="" type="radio"/> No <input type="radio"/>	Depth (inches): <input type="text" value="0"/>	

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

Remarks:
 Saturation from 0-6 inches, likely precipitation driven since it is not directly above a water table (meets saturation indicator due to episaturated conditions). FAC-neutral test, geomorphic position next to creek, presence of hydric soils, and hydrophytic vegetation support the presence of wetland hydrology present in this location.

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

Project/Site: I-5 Burnt Bridge Creek City/County: Vancouver\Clark Sampling Date: 05-May-14
 Applicant/Owner: WSDOT State: WA Sampling Point: w2-sp3
 Investigator(s): T Dreisbach, T Bush, S Patrick Section, Township, Range: S 15 T 2N R 1E
 Landform (hillslope, terrace, etc.): slope Local relief (concave, convex, none): concave Slope: 1.0 % / 0.6 °
 Subregion (LRR): LRR A Lat.: 45.659 Long.: -122.663 Datum: NAD83HARN
 Soil Map Unit Name: Wind River sandy loam, 8 to 20 percent slopes NWI classification: Upland

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="radio"/> No <input type="radio"/> Hydric Soil Present? Yes <input type="radio"/> No <input checked="" type="radio"/> Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>	Is the Sampled Area within a Wetland? Yes <input type="radio"/> No <input checked="" type="radio"/>
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Remarks:
 Wetter than normal conditions characterize the three months preceding field work (Appendix B-1).

VEGETATION - Use scientific names of plants.

Stratum	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status	Dominance Test worksheet:
Tree Stratum (Plot size: <u>20 x 20 feet</u>)				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>100.0%</u> (A/B)
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
3. _____	_____	<input type="checkbox"/> 0.0%	_____	
4. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				Prevalence Index worksheet:
Sapling/Shrub Stratum (Plot size: <u>15 x 15 feet</u>)				
1. <u>Physocarpus capitatus</u>	60	<input checked="" type="checkbox"/> 59.4% FACW	_____	
2. <u>Rosa nutkana</u>	30	<input checked="" type="checkbox"/> 29.7% FAC	_____	
3. <u>Corylus cornuta</u>	5	<input type="checkbox"/> 5.0% FACU	_____	
4. <u>Rubus armeniacus</u>	5	<input type="checkbox"/> 5.0% FACU	_____	
5. <u>Impatiens capensis</u>	1	<input type="checkbox"/> 1.0% FACW	_____	
101 = Total Cover				Total % Cover of: Multiply by: OBL species <u>0</u> x 1 = <u>0</u> FACW species <u>61</u> x 2 = <u>122</u> FAC species <u>30</u> x 3 = <u>90</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species <u>0</u> x 5 = <u>0</u> Column Totals: <u>101</u> (A) <u>252</u> (B) Prevalence Index = B/A = <u>2.495</u>
Herb Stratum (Plot size: <u>5 ft x 5 ft</u>)				
1. _____	0	<input type="checkbox"/> 0.0%	_____	
2. _____	0	<input type="checkbox"/> 0.0%	_____	
3. _____	0	<input type="checkbox"/> 0.0%	_____	
4. _____	0	<input type="checkbox"/> 0.0%	_____	
5. _____	0	<input type="checkbox"/> 0.0%	_____	
6. _____	0	<input type="checkbox"/> 0.0%	_____	
7. _____	0	<input type="checkbox"/> 0.0%	_____	
8. _____	0	<input type="checkbox"/> 0.0%	_____	
9. _____	0	<input type="checkbox"/> 0.0%	_____	
10. _____	0	<input type="checkbox"/> 0.0%	_____	
11. _____	0	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
Woody Vine Stratum (Plot size: <u>5 x 5 feet</u>)				
1. _____	_____	<input type="checkbox"/> 0.0%	_____	
2. _____	_____	<input type="checkbox"/> 0.0%	_____	
0 = Total Cover				
% Bare Ground in Herb Stratum: <u>100</u>				

Hydrophytic Vegetation Indicators:
 1 - Rapid Test for Hydrologic Vegetation
 2 - Dominance Test is > 50%
 3 - Prevalence Index is ≤ 3.0¹
 4 - Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 5 - Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)
¹ Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes No

Remarks:

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

Soil

Sampling Point: W2-Sp3

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 ¹	Loc ²		
0-4	10YR	3/3	99	10YR	5/6	1	C	M	Sandy Loam
4-18	10YR	4/4	99	7.5YR	5/8	1	C	M	Sandy Loam

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils³:
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except in MLRA 1)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Muck Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox depressions (F8)	

³Indicators 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:
 Matrix colors too bright and not enough concentrations present to meet an indicator.

Hydrology

Wetland Hydrology Indicators:

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

Field Observations:

Surface Water Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	Wetland Hydrology Present? Yes <input type="radio"/> No <input checked="" type="radio"/>
Water Table Present?	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	
Saturation Present? (includes capillary fringe)	Yes <input type="radio"/> No <input checked="" type="radio"/>	Depth (inches): <input type="text"/>	

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

Remarks:

Appendix B — Precipitation Data

Appendix B-1. Comparison of Observed and Normal Precipitation (NRCS 1997)

Monthly precipitation data for Vancouver, Washington.

		Long-term rainfall records ^a							
	Month	3 yrs. in 10 less than	Average	3 yrs. in 10 more than	Rain fall ^a	Condition dry, wet, normal ^b	Condition Value	Month weight value	Product of previous two columns
1 st prior month	Apr	2.18	3.07	3.63	6.21	W	3	3	9
2 nd prior month	Mar	3.27	4.21	4.87	5.56	W	3	2	6
3 rd prior month	Feb	3.41	4.86	5.76	2.79	D	1	1	1
								Sum	16

^aNRCS 2014

^bConditions are considered normal if they fall within the low and high range around the average.

Note: If sum is

- 6 - 9 then prior period has been drier than normal
- 10 - 14 then period has been normal
- 15 - 18 then period has been wetter than normal

Condition value:

- Dry (D) =1
- Normal (N) =2
- Wet (W) =3

Conclusions: Wetter than normal precipitation conditions were present prior to the field visit.

Appendix B-2. Daily Precipitation 10 days preceding field work, Vancouver, Washington

Date (2014)	Daily Precipitation (inches) ^a
May 4	0.22
May 3	0.00
May 2	0.00
May 1	0.00
Apr 30	0.00
Apr 29	0.00
Apr 28	0.05
Apr 27	0.28
Apr 26	0.00
Apr 25	0.18

^aNOAA 2014

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2. City of Vancouver. 1999. Shoreline Master Program Exemption. Vancouver, WA
3. [USACE] US Army Corps of Engineers. 1993. Department of the Army Individual Permit Number (26) 93-4-00614.
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