

Draft Wetland Investigation and Delineation Report

East Sumner Neighborhood Regional Stormwater Facility
Sumner, Pierce County, Washington



Prepared for:
The City of Sumner
Public Works Department
1104 Maple Street, Suite 260
Sumner, WA 98390

Prepared by:
Widener & Associates
10108 32nd Avenue W Suite D
Everett, WA 98204

January 2014

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SUMMARY

The City of Sumner is proposing to build a new stormwater facility west of the Sumner-Tapps Highway, between 64th Street E and 60th Street East. The study area encompasses approximately 8.1 acres of mostly vacant land with one residence in Sumner, Pierce County, Washington State. The proposed project area is located within Section 19 of Township 20N, Range 5E.

Based on the data collected prior to, and during, site visits, three wetlands exist within the study area, covering approximately 3.9 acres in total.

This report documents the investigation, best professional judgment and conclusions of the investigator. It should be considered a preliminary jurisdictional and boundary determination until it has been reviewed and approved in writing by the U.S. Army Corps of Engineers (USACE) in accordance with Section 404 of the Clean Water Act.

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1. Introduction

1.1 Authorizing agency and reason for the investigation

This Wetland Investigation and Delineation Report was prepared by Widener and Associates on behalf of the City of Sumner to delineate the location and extent of “Waters of the U.S.” (USACE 1986), including wetlands, in the study area in the location of a proposed stormwater facility.

The primary objective of the delineation was to identify and delineate the waters/wetlands within the project boundaries consistent with the *Regional Supplement to the USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory, 2010).

1.2 Site location

The study area is 8.1 acres west of Sumner-Tapps Highway East between 60th Street East and 64th Street East. The study area encompasses vacant land which had been previously used as residences in Sumner, Pierce County, Washington State. The area is zoned as general commercial and low density residential. The proposed project area is located within Section 19 of Range 05E and Township 20N. *Refer to Figure 1 – Vicinity Map.*

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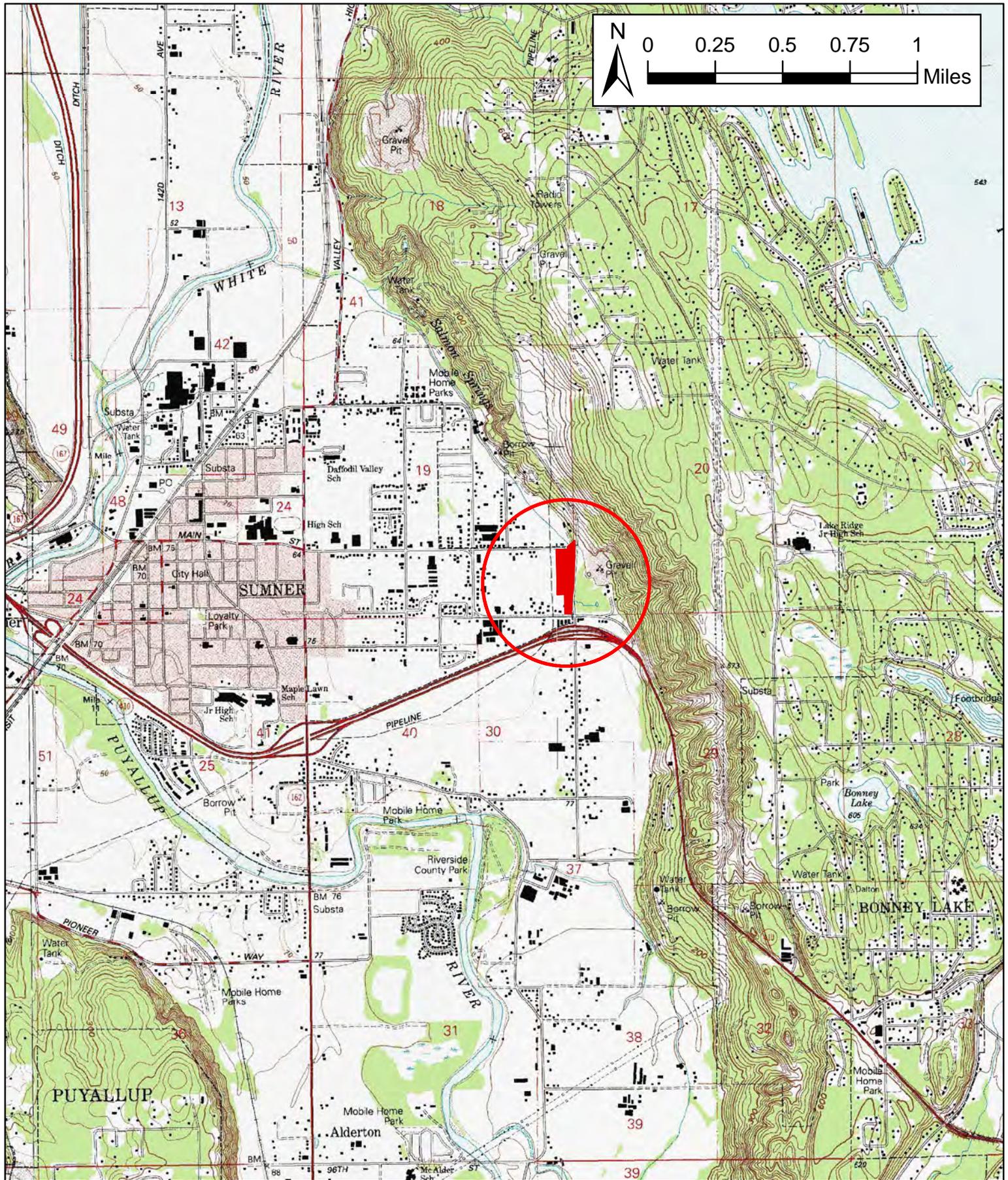


Figure 1: Vicinity Map
 East Sumner Neighborhood Regional Stormwater Facility
 City of Sumner
 January 2014

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1.3 Project description

1.3.1 Existing Condition

Currently, the 8.1-acre project area is mostly a mowed grass field with an area of conifers which were planted, most likely by an adjacent resident. There is the foundation and carport from a previous residence on the north end of the study area and one abandoned residence on the south end. A narrow buffer of trees also exists along Salmon Creek.

The project area is within the limits of the City of Sumner and is owned by the City. The study area and surrounding properties are zoned general commercial and low density residential (City of Sumner 2013).

1.3.2 Proposed Work

The City is proposing to construct a regional stormwater facility. A portion of the property may be used for wetland mitigation for this project as well as other new projects in the vicinity.

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2. Methods

2.1 Wetland Delineation, Identification, and Classification

Waters of the U.S., including wetlands, were delineated within the proposed project boundaries consistent with the technical approaches outlined in the *USACE Wetlands Delineation Manual* (Environmental Laboratory, 1987), the *Washington State Wetland Identification and Delineation Manual* (WSDOE, 1997) and the *Regional Supplement to USACE Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region* (Version 2.0) (Environmental Laboratory, 2010).

In general, wetland delineation consisted of three main tasks: (1) assessing vegetation, soil, and hydrologic characteristics to identify areas meeting the wetland identification criteria, (2) evaluating constructed drainage features to determine if they would be regulated as wetlands, and (3) marking wetland boundaries.

Hydrology data was collected from field observations and reference documents. Climate records for 30 years for Sumner, WA were obtained from the National Resource Conservation Service (NRCS), National Water and Climate Center website (NRCS 1990). Upon site inspection, the presence of direct and indirect hydrologic indicators was used to infer wetland hydrology. Field indicators of wetland hydrology were determined in accordance with the USACE guidelines (Environmental Laboratory 2010).

Sampling locations were selected at sites representative of the area. Dominant plant species in each of the three strata (tree, sapling/shrub, and herb) were identified. Unless otherwise noted in field data sheets due to local conditions, trees were identified within a 30-foot radius of an established data plot, scrub/shrub vegetation was identified within a 15-foot radius, and herbaceous vegetation was identified within a 5-foot radius. A determination of the presence of hydrophytic vegetation was made at each observation point in accordance with the USACE guidelines (Environmental Laboratory 2010).

The determination of the presence of hydric soils was consistent with the USACE Regional Supplement (Environmental Laboratory 2010). The Soil Survey of Pierce County, Washington provided information regarding the general characterization of the soils in the area, the parent material, as well as series, taxonomy and subgroup information. Soils were examined to a depth of approximately 20 inches, or the depth at which it could be confirmed that positive indicators were either present or absent. Soil colors were described in data forms using the Munsell soil color charts' numbering system (Munsell Color 2000). This numeric color classification system is used by the USACE Regional Supplement in determining if hydric soil indicators are present in a sample.

2.2 Pre-field Review of Information

Aerial photos and project maps of the area were reviewed. These maps were used to help orientate the delineator in the field. Existing information concerning the project area was reviewed prior to fieldwork to identify vegetation patterns, topography, soils, streams, and other natural resources potentially located within the project boundaries. Documents reviewed included the Soil Survey of Pierce County Area, Washington (NRCS 2013), the National Wetlands Inventory Map (USFW 2013), the National List of Hydric Soils in Washington (NRCS 2012a), and the National Wetland Plant List (NRCS 2012b).

3. Affected Environment

3.1 Project Area Setting

The study area is approximately 8 acres of mostly undeveloped property in East Sumner, WA. It lies in a glacial valley bottom. One residence and the foundation remaining from another are located in the study area.

3.1.1 Water Features

The project area is located within the Puyallup-White River watershed (WRIA 10). The principal source of hydrology to the area appears to be precipitation and groundwater. There is little opportunity for surface flow to contribute to the study area from Salmon Creek or any other water body due to the topography of the site. Salmon Creek is located on the east side of the study area and flows year-round (*see Figure 1: Vicinity Map*).

Based on data (NRCS 1990) from the nearest monitoring station (Buckley, WA, approximately 10 miles to the southeast), the growing season in Sumner, WA is 262 days in length, from March 6 to November 23 (using the 5 years in 10 criteria and 28°F). Therefore, the area must be inundated or saturated for 33 consecutive days, in order to have wetland hydrology 12.5 percent of the growing season.

Site visits were conducted September 16-20, 2013. Approximately 0.23 inches of rainfall were recorded during this period. For the two weeks prior to this there was approximately 2.9 inches of precipitation. This is higher than average for September, however when the rainfall for the three months prior to site visits are considered, precipitation is within the normal range. Total rainfall June-September 20 was 5.57 inches which is within the average range of 2.32-6.02 inches. Therefore site visits and delineation were performed during a typical dry season and hydrology could be considered normal for the time of year. *Refer to Appendix B.*

3.1.2 Plant community

The project is located within the Western hemlock (*Tsuga heterophylla*) major vegetation area (Franklin and Dyrness, 1973). The study area is mostly open grass fields, some of which are mowed. Northern portions of the study area had been planted with conifers in the past, most

likely by an adjacent resident. Plants identified on-site include: western red cedar (*Thuja plicata*), red alder (*Alnus rubra*), Himalayan blackberry (*Rubus armeniacus*), reed canarygrass (*Phalaris arundinacea*), common horsetail (*Equisetum arvense*), creeping buttercup (*Ranunculus arvense*) and unidentified grasses and rushes (*juncus* species).

3.1.3 Soils mapped and found

The Pierce County soil survey identifies the soils in the project area as Briscot loam, Puyallup fine sandy loam, Snohomish silty clay loam, and Sultan loam (NRCS 2013).

Briscot loam is found in the western portion of the study area. This is a somewhat poorly drained soil which frequently floods. It appears on floodplains and is formed from alluvium. Briscot loam is listed as hydric on the national list of soils (NRCS 2013).

Puyallup fine sandy loam is found at the southern terminus of the project area. This soil is a well-drained soil found on flood plains and terraces. The parent material is alluvium. This soil does not meet hydric soil criteria (NRCS 2013).

Snohomish silty clay loam is found in the northern portion of the study area near 60th Street E. This soil is found on flood plains and consists of alluvium. It is a poorly drained soil which occasionally floods. Snohomish silty clay loam is listed as hydric on the national list of soils (NRCS 2013).

Sultan loam is found in the eastern portion of the study area. This is moderately well drained soil which occasionally floods. This soil does not meet hydric soil criteria (NRCS 2013).

3.1.4 Existing wetland mapping

The National Wetlands Inventory (NWI) map (USFWS 2013) lists two freshwater emergent wetlands approximately 500 feet to the northwest (Appendix E). The wetlands delineated in this report are not shown in the inventory.

4. Results

4.1 Wetlands

Three wetlands were identified within the study area, covering approximately 3.9 acres (*refer to Figure 2 – Delineated Wetlands*). These wetlands significantly¹ contribute to Salmon Creek, which has surface flow year-round. Salmon Creek is a tributary to the White River, which is a major tributary to the Puyallup River, which drains directly into Puget Sound at the Port of Tacoma, WA. Therefore, these wetlands are under USACE jurisdiction.

The boundary of the wetlands were flagged where indicators of wetland vegetation, hydric soil and wetland hydrology were present, in addition to topology of the landscape. Adjacent uplands were distinguished from the wetland by lack of hydric soils, lack of hydrology, lack of hydrophytic vegetation and/or the presence of upland plants.

Wetland D

Wetland D (10,436 square feet, 0.24 acres) is a palustrine emergent wetland (Cowardin *et al*, 1979) near the southern end of the study area. It is open lawn behind an abandoned residence. The dominant plant species is creeping buttercup (*Ranunculus arvensis*), colonial bentgrass (*Agrostis capillaris*), and other unknown lawn grasses. These species are all representative of hydrophytic vegetation.

The soils were clay loam with a redox dark surface. No water was observed at the time of field investigation but oxidized rhizospheres were found along living roots.



Photo 1: Wetland D looking south

¹ A significant nexus exists if the tributary, together with its adjacent wetlands, has more than an insubstantial or speculative effect on the chemical, physical, and/or biological integrity of a downstream traditional navigable water as defined under RGL 07-01

This wetland is not directly connected to Salmon Creek but its proximity and the topography between the wetland and the creek suggests that there is a surface connection during some portions of the year. Therefore, this wetland is under USACE jurisdiction.



Photo 2: Wetland E looking north

source of hydrology was determined to be precipitation. No water was directly observed during the field visit, wetland hydrology was confirmed through oxidized rhizospheres along living roots.

This wetland directly abuts Salmon Creek. This creek is classified as ‘relatively permanent waters’ and is jurisdictional under the Corps guidance, as is Wetland E, since it directly abuts this tributary.

Wetland E

Wetland E (44,865 square feet, 1.03 acres) is a palustrine emergent wetland (Cowardin *et al*, 1979) in the center of the study area. The majority of the area is mowed grasses with isolated small trees. Plants include: Sitka willow (*Salix sitchensis*), reed canarygrass (*Phalaris arundinacea*), colonial bentgrass, creeping buttercup, soft rush (*Juncus effusus*) and other unknown lawn grasses. These species are all representative of hydrophytic vegetation.

The soils were loam, clay loam, and silty clay with a depleted matrix or redox dark surface. The primary

Wetland F

Wetland F (112,815 square feet, 2.59 acres) is a palustrine forested wetland (Cowardin *et al*, 1979) on the north end of the study area.

The wetland includes forested and emergent portions. Some of the area has been planted with conifers. Dominant plants included red alder (*Alnus rubra*), Himalayan blackberry (*Rubus armeniacus*), creeping buttercup, reed canarygrass and unknown lawn grasses. The majority of these species are all representative of hydrophytic vegetation.

The soils were silty clay loam and loamy sand with a depleted matrix. Surface soil cracks and



Photo 3: Wetland F looking north.

oxidized rhizospheres along living roots were observed. The primary source of hydrology was determined to be precipitation and groundwater.

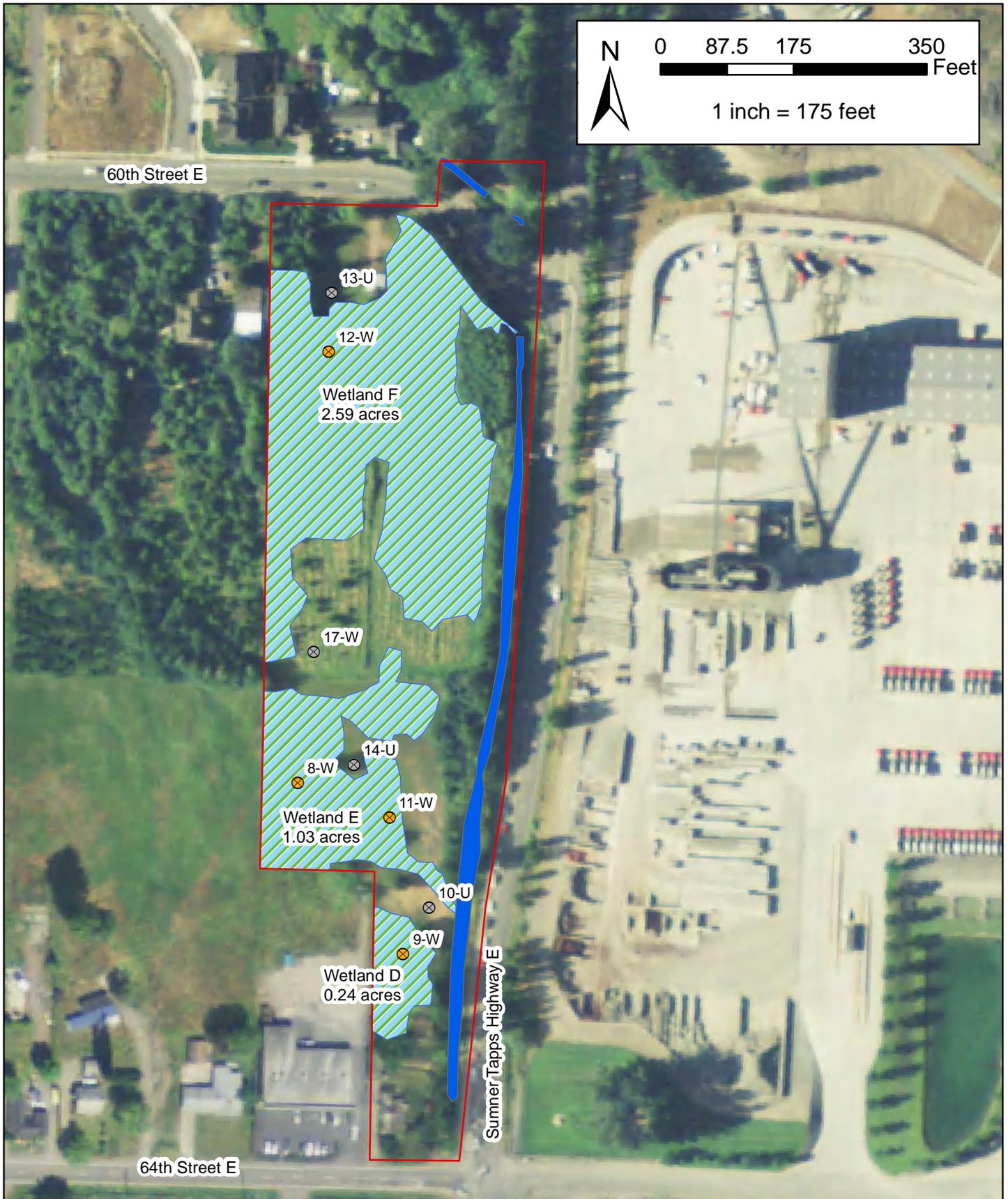
This wetland directly abuts Salmon Creek. This creek is classified as ‘relatively permanent waters’ and is jurisdictional under the Corps guidance, as is Wetland E, since it directly abuts this tributary.

4.2 Jurisdictional drainages

No substantial open drainage ditches run through the study site. The area is relatively flat and level. No jurisdictional drainage ditches were identified during field visits.

4.3 Salmon Creek

Salmon Creek is classified as a type 'F' stream. This creek flows north through the study area where it has been straightened along Sumner-Tapps Highway E. Salmon Creek is a tributary to the White River, which is a major tributary to the Puyallup River, which drains directly into Puget Sound at the Port of Tacoma, WA.



- ⊗ Upland Test Pit
- ⊗ Wetland Test Pit
- ▨ Jurisdictional Wetland
- Salmon Creek
- Study Area

Figure 2: Delineated Wetlands

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City of Sumner

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5. Conclusion

Based on the data collected prior to and during site visits, three wetlands exist within the study area. Wetland D is a 0.24 acre palustrine emergent wetland located at the southern end of the project area. Wetland E is a 1.03 acre palustrine emergent wetland in the center of the study area. Wetland F is a 2.59 acre palustrine forested wetland in the northern portion of the study area which includes areas which had been planted with conifers and portions of the Salmon Creek forested buffer. Water from the wetlands contribute to Salmon Creek and all wetlands are therefore jurisdictional under USACE guidelines.

Salmon Creek was investigated within the study area and determined to be jurisdictional under Corps guidelines as it is a permanently flowing tributary of the Whiter River. Once impacts to the wetland have been identified and quantified, mitigation will be undertaken in accordance with USACE guidelines if necessary.

This report documents the investigation, best professional judgment and conclusions of the investigator. It should be considered a preliminary jurisdictional determination until it has been reviewed and approved in writing by the USACE in accordance with Section 404 of the Clean Water Act.

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Appendix A: Data Sheets

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/16/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 8-W
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>Populus balsamifera</u>	5	N	FAC	
2. <u>Salix sitchensis</u>	25	Y	FACW	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
30 = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	60	Y	FACW	
2. <u>Juncus effusus</u>	55	Y	FACW	
3. <u>Lolium perenne</u>	2	N	FACU	
4. <u>Ranunculus repens</u>	60	Y	FACW	
5. <u>unknown</u>	15	N	_____	
6. <u>Plantago major</u>	5	N	FAC	
7. <u>unknown grasses</u>	50	N	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
252 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
 Total Number of Dominant Species Across All Strata: 4 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: _____

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 9-W
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
Sapling/Shrub Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
Herb Stratum (Plot size: _____)				
1. <u>Ranunculus repens</u>	90	Y	FACW	
2. <u>Juncus spp.</u>	5	N	_____	
3. <u>unknown grass</u>	20	N	_____	
4. <u>Plantago major</u>	2	N	FAC	
5. <u>Juncus patens</u>	5	N	FACW	
6. <u>Agrostis capillaris</u>	15	N	FAC	
7. <u>Taraxacum officinale</u>	2	N	FACU	
8. <u>unknown</u>	20	N	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				159 = Total Cover
Woody Vine Stratum (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

Hydrophytic Vegetation Indicators:
 Rapid Test for Hydrophytic Vegetation
 Dominance Test is >50%
 Prevalence Index is ≤3.0¹
 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
 Wetland Non-Vascular Plants¹
 Problematic Hydrophytic Vegetation¹ (Explain)

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>

Remarks: _____

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 10-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	<u>Absolute % Cover</u>	<u>Dominant Species?</u>	<u>Indicator Status</u>	
1. _____	_____	_____	_____	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</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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.
1. <u>Taraxacum officinale</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	
2. <u>Rumex crispus</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Agrostis capillaris</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	
4. <u>unknown grass</u>	<u>5</u>	<u>N</u>	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
<u>110</u> = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: _____

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/18/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 11-W
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Ranunculus repens</u>	95	Y	FACW	
2. <u>unknown grass</u>	10	N	_____	
3. <u>Agrostis capillaris</u>	50	Y	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				155 = Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

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

Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
--

Remarks: _____

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 12-W
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Alnus rubra</u>	40	Y	FAC	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>5</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
40 = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
1. <u>Rubus armeniacus</u>	10	Y	FACU	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
10 = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input checked="" type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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.
1. <u>Ranunculus repens</u>	30	Y	FACW	
2. <u>Phalaris arundinacea</u>	30	Y	FACW	
3. <u>unknown lawn grasses</u>	40	Y	FAC	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				Hydrophytic Vegetation Present? Yes <input type="checkbox"/> No <input type="checkbox"/>
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				

Remarks: _____

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 13-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: This location is near the site of a house which was removed.	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
_____ = Total Cover				
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. <u>Rubus armeniacus</u>	30	Y	FACU	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
30 = Total Cover				
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Ranunculus repens</u>	30	Y	FACW	
2. <u>Taraxacum officinale</u>	15	N	FACU	
3. <u>Plantago major</u>	15	N	FAC	
4. <u>Unknown lawn grass</u>	40	Y	FAC	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
100 = Total Cover				
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
_____ = Total Cover				
% Bare Ground in Herb Stratum _____				
Remarks:				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 3 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 66 (A/B)

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

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

Hydrophytic Vegetation Present? Yes No

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 14-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Ranunculus repens</u>	50	Y	FACW	
2. <u>Plantago lanceolata</u>	20	N	FACU	
3. <u>Taraxacum officinale</u>	20	N	FACU	
4. <u>Poa spp</u>	50	Y	FAC	
5. <u>unknown grass</u>	10	N		
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				150 = Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				
Remarks: _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)
 Total Number of Dominant Species Across All Strata: 2 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

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

Hydrophytic Vegetation Present? Yes No

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/19/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 15-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
				_____ = Total Cover
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	100	Y	FACW	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
9. _____	_____	_____	_____	
10. _____	_____	_____	_____	
11. _____	_____	_____	_____	
				100 = Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				
Remarks: _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 11 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

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

Hydrophytic Vegetation Present? Yes No

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/20/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 16-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____	

VEGETATION – Use scientific names of plants.

<u>Tree Stratum</u> (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
				_____ = Total Cover
<u>Sapling/Shrub Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
3. _____				
4. _____				
5. _____				
				_____ = Total Cover
<u>Herb Stratum</u> (Plot size: _____)				
1. <u>Phalaris arundinacea</u>	100	Y	FACW	
2. _____				
3. _____				
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
				_____ = Total Cover
<u>Woody Vine Stratum</u> (Plot size: _____)				
1. _____				
2. _____				
				_____ = Total Cover
% Bare Ground in Herb Stratum _____				
Remarks: _____				

Dominance Test worksheet:
 Number of Dominant Species That Are OBL, FACW, or FAC: 1 (A)
 Total Number of Dominant Species Across All Strata: 1 (B)
 Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

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

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

Hydrophytic Vegetation Present? Yes No

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

Project/Site: East Sumner Neighborhood Improvements City/County: Sumner/Pierce Sampling Date: 9/20/13
 Applicant/Owner: City of Sumner State: WA Sampling Point: 17-U
 Investigator(s): Christina Neff Section, Township, Range: 19, 20N, 5E
 Landform (hillslope, terrace, etc.): _____ Local relief (concave, convex, none): _____ Slope (%): _____
 Subregion (LRR): _____ Lat: _____ Long: _____ Datum: _____
 Soil Map Unit Name: _____ NWI classification: _____

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="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status	
Tree Stratum (Plot size: _____)				
1. <u>Thuja plicata</u>	<u>5</u>	<u>Y</u>	<u>FAC</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>6</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>66</u> (A/B)
2. <u>Tseuga heterophylla</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
3. <u>Abies spp</u>	<u>5</u>	<u>Y</u>	<u>FACU</u>	
4. _____				
	<u>15</u>	= Total Cover		
Sapling/Shrub Stratum (Plot size: _____)				
1. _____				Prevalence Index worksheet: Total % Cover of: _____ Multiply by: _____ OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species _____ x 3 = _____ FACU species _____ x 4 = _____ UPL species _____ x 5 = _____ Column Totals: _____ (A) _____ (B) Prevalence Index = B/A = _____
2. _____				
3. _____				
4. _____				
5. _____				
Herb Stratum (Plot size: _____)				
1. <u>Ranunculus repens</u>	<u>30</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators: <input type="checkbox"/> Rapid Test for Hydrophytic Vegetation <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 ¹ <input type="checkbox"/> Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> 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>unknown grass</u>	<u>25</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Mentha arvensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
4. <u>Taraxacum officinale</u>	<u>2</u>	<u>N</u>	<u>FACU</u>	
5. _____				
6. _____				
7. _____				
8. _____				
9. _____				
10. _____				
11. _____				
	<u>77</u>	= Total Cover		
Woody Vine Stratum (Plot size: _____)				
1. _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
				= Total Cover
% Bare Ground in Herb Stratum _____				

Remarks: _____

Appendix B: Hydrologic Data

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WETS Station : KENT, WA4169
 Latitude: 4724 Longitude: 12214 Elevation: 00030
 State FIPS/County(FIPS): 53033 County Name: King
 Start yr. - 1971 End yr. - 2000

Month	Temperature (Degrees F.)			Precipitation (Inches)				
	avg daily max	avg daily min	avg	avg	30% chance will have		avg # of days w/.1 or more	avg total snow fall
					less than	more than		
January	46.8	34.1	40.5	5.29	3.93	6.20	11	0.8
February	51.1	35.5	43.3	4.42	2.89	5.31	11	0.1
March	55.3	37.6	46.4	4.13	3.15	4.81	11	0.4
April	61.0	40.4	50.7	2.82	1.89	3.37	8	0.0
May	67.0	45.4	56.2	2.03	1.37	2.43	5	0.0
June	72.0	50.1	61.0	1.68	1.03	2.03	4	0.0
July	77.3	53.1	65.2	0.91	0.46	1.13	2	0.0
August	77.7	53.2	65.5	1.18	0.42	1.42	2	0.0
September	72.2	48.9	60.5	1.75	0.61	2.16	4	0.0
October	61.3	43.0	52.2	3.36	2.02	4.07	7	0.0
November	51.6	37.7	44.6	5.95	4.07	7.09	12	0.1
December	46.0	33.9	40.0	5.74	4.10	6.79	12	0.4
Annual	-----	-----	-----	-----	30.80	39.66	--	----
Average	61.6	42.7	52.2	-----	-----	-----	--	----
Total	-----	-----	-----	39.26	-----	-----	89	1.8

GROWING SEASON DATES

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	> 365 days > 365 days	3/ 8 to 11/11 249 days	4/13 to 10/26 196 days
70 percent *	> 365 days > 365 days	2/26 to 11/22 270 days	4/ 4 to 11/ 5 216 days

* Percent chance of the growing season occurring between the Beginning and Ending dates. total 1949-2002 prcp Station : WA4169, KENT

----- Unit = inches

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« Previous Month		« 2012		June 2013			2014 »	Next Month »
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
						1  Actual: 73 46 Precip: 0.00 Average: - - Precip: -		
2  Actual: 68 50 Precip: 0.00 Average: - - Precip: -	3  Actual: 71 44 Precip: 0.00 Average: - - Precip: -	4  Actual: 77 44 Precip: 0.00 Average: - - Precip: -	5  Actual: 77 48 Precip: 0.00 Average: - - Precip: -	6  Actual: 77 48 Precip: 0.00 Average: - - Precip: -	7  Actual: 69 50 Precip: 0.00 Average: - - Precip: -	8  Actual: 68 50 Precip: 0.13 Average: - - Precip: -		
9  Actual: 68 46 Precip: 0.00 Average: - - Precip: -	10  Actual: 68 42 Precip: 0.00 Average: - - Precip: -	11  Actual: 62 50 Precip: 0.02 Average: - - Precip: -	12  Actual: 64 50 Precip: 0.03 Average: - - Precip: -	13  Actual: 66 50 Precip: 0.01 Average: - - Precip: -	14  Actual: 66 48 Precip: 0.00 Average: - - Precip: -	15  Actual: 75 41 Precip: 0.00 Average: - - Precip: -		
16  Actual: 75 48 Precip: 0.00 Average: - - Precip: -	17  Actual: 75 55 Precip: 0.01 Average: - - Precip: -	18  Actual: 71 50 Precip: 0.08 Average: - - Precip: -	19  Actual: 66 46 Precip: 0.17 Average: - - Precip: -	20  Actual: 60 51 Precip: 0.12 Average: - - Precip: -	21  Actual: 68 51 Precip: 0.00 Average: - - Precip: -	22  Actual: 77 46 Precip: 0.00 Average: - - Precip: -		
23  Actual: 66 57 Precip: 0.15 Average: - - Precip: -	24  Actual: 68 55 Precip: 0.24 Average: - - Precip: -	25  Actual: 71 53 Precip: 0.30 Average: - - Precip: -	26  Actual: 73 55 Precip: 0.06 Average: - - Precip: -	27  Actual: 69 57 Precip: 0.08 Average: - - Precip: -	28  Actual: 86 59 Precip: 0.00 Average: - - Precip: -	29  Actual: 84 60 Precip: 0.00 Average: - - Precip: -		
30  Actual: 89 57 Precip: 0.00 Average: - - Precip: -								
Calendar Key								

« Previous Month	« 2012	July 2013				2014 »	Next Month »
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	
	1 Actual: 89 60 Precip: 0.00 Average: - - Precip: -	2 Actual: 80 57 Precip: 0.00 Average: - - Precip: -	3 Actual: 78 55 Precip: 0.00 Average: - - Precip: -	4 Actual: 68 50 Precip: 0.00 Average: - - Precip: -	5 Actual: 73 53 Precip: 0.00 Average: - - Precip: -	6 Actual: 77 50 Precip: 0.00 Average: - - Precip: -	
7 Actual: 75 51 Precip: 0.00 Average: - - Precip: -	8 Actual: 77 50 Precip: 0.00 Average: - - Precip: -	9 Actual: 84 51 Precip: 0.00 Average: - - Precip: -	10 Actual: 73 51 Precip: 0.00 Average: - - Precip: -	11 Actual: 71 46 Precip: 0.00 Average: - - Precip: -	12 Actual: 68 44 Precip: 0.00 Average: - - Precip: -	13 Actual: 75 42 Precip: 0.00 Average: - - Precip: -	
14 Actual: 82 44 Precip: 0.00 Average: - - Precip: -	15 Actual: 80 46 Precip: 0.00 Average: - - Precip: -	16 Actual: 82 50 Precip: 0.00 Average: - - Precip: -	17 Actual: 69 51 Precip: 0.00 Average: - - Precip: -	18 Actual: 77 50 Precip: 0.00 Average: - - Precip: -	19 Actual: 80 50 Precip: 0.00 Average: - - Precip: -	20 Actual: 77 50 Precip: 0.00 Average: - - Precip: -	
21 Actual: 77 50 Precip: 0.00 Average: - - Precip: -	22 Actual: 78 55 Precip: 0.00 Average: - - Precip: -	23 Actual: 84 50 Precip: 0.00 Average: - - Precip: -	24 Actual: 84 50 Precip: 0.00 Average: - - Precip: -	25 Actual: 84 50 Precip: 0.00 Average: - - Precip: -	26 Actual: 86 48 Precip: 0.00 Average: - - Precip: -	27 Actual: 77 46 Precip: 0.00 Average: - - Precip: -	
28 Actual: 71 48 Precip: 0.00 Average: - - Precip: -	29 Actual: 75 55 Precip: 0.00 Average: - - Precip: -	30 Actual: 78 50 Precip: 0.00 Average: - - Precip: -	31 Actual: 71 53 Precip: 0.00 Average: - - Precip: -				

Calendar Key

Sunny Clear	Mostly Cloudy Partly Sunny	Mostly Sunny Partly Cloudy	Cloudy	Rain	Snow
Hail	Thunderstorms	Hazy Fog	Sleet	'?' denotes 'chance of'	Unknown

Actual: 90 | 58
Precip: 0.00
Average: 71 | 53
Precip: 0.03

Data Category
 Condition
 High Temp.
 Lo Temp.
 Precip. (in inches)
 Daily Avg. Temp.
 Temps in °F

« Previous Month		« 2012		August 2013		2014 »		Next Month »	
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday			
				1	2	3			
				Actual: 66 53 Precip: 0.00 Average: - - Precip: -	Actual: 66 57 Precip: 0.01 Average: - - Precip: -	Actual: 71 57 Precip: 0.00 Average: - - Precip: -			
4	5	6	7	8	9	10			
Actual: 80 55 Precip: 0.00 Average: - - Precip: -	Actual: 86 53 Precip: 0.00 Average: - - Precip: -	Actual: 86 50 Precip: 0.00 Average: - - Precip: -	Actual: 86 50 Precip: 0.00 Average: - - Precip: -	Actual: 82 53 Precip: 0.00 Average: - - Precip: -	Actual: 82 53 Precip: 0.00 Average: - - Precip: -	Actual: 80 59 Precip: 0.01 Average: - - Precip: -			
11	12	13	14	15	16	17			
Actual: 75 57 Precip: 0.00 Average: - - Precip: -	Actual: 77 59 Precip: 0.00 Average: - - Precip: -	Actual: 80 53 Precip: 0.00 Average: - - Precip: -	Actual: 84 51 Precip: 0.01 Average: - - Precip: -	Actual: 68 59 Precip: 0.08 Average: - - Precip: -	Actual: 84 59 Precip: 0.00 Average: - - Precip: -	Actual: 77 57 Precip: 0.00 Average: - - Precip: -			
18	19	20	21	22	23	24			
Actual: 80 57 Precip: 0.00 Average: - - Precip: -	Actual: 80 53 Precip: 0.00 Average: - - Precip: -	Actual: 77 50 Precip: 0.00 Average: - - Precip: -	Actual: 80 46 Precip: 0.00 Average: - - Precip: -	Actual: 82 50 Precip: 0.00 Average: - - Precip: -	Actual: 75 57 Precip: 0.00 Average: - - Precip: -	Actual: 73 57 Precip: 0.00 Average: - - Precip: -			
25	26	27	28	29	30	31			
Actual: 71 48 Precip: 0.00 Average: - - Precip: -	Actual: 75 55 Precip: 0.00 Average: - - Precip: -	Actual: 80 57 Precip: 0.00 Average: - - Precip: -	Actual: 77 60 Precip: 0.33 Average: - - Precip: -	Actual: 75 62 Precip: 0.84 Average: - - Precip: -	Actual: 77 55 Precip: 0.00 Average: - - Precip: -	Actual: 80 50 Precip: 0.00 Average: - - Precip: -			

Calendar Key

	Sunny Clear		Mostly Cloudy Partly Sunny		Mostly Sunny Partly Cloudy		Cloudy		Rain		Snow
	Hail		Thunderstorms		Hazy Fog		Sleet		'?' denotes 'chance of'		Unknown

Actual: 90 | 58
Precip: 0.00
Average: 71 | 53
Precip: 0.03

Data Category
 Condition
 High Temp.
 Lo Temp.
 Precip. (in inches)
 Daily Avg. Temp.
 Temps in °F

« Previous Month	« 2012	September 2013					2014 »	Next Month »
Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday		
1 Actual: 82 53 Precip: 0.00 Average: - - Precip: -	2 Actual: 80 55 Precip: 0.00 Average: - - Precip: -	3 Actual: 73 55 Precip: 0.04 Average: - - Precip: -	4 Actual: 71 55 Precip: 0.00 Average: - - Precip: -	5 Actual: 68 57 Precip: 0.99 Average: - - Precip: -	6 Actual: 66 59 Precip: 1.80 Average: - - Precip: -	7 Actual: 71 55 Precip: 0.00 Average: - - Precip: -		
8 Actual: 77 51 Precip: 0.00 Average: - - Precip: -	9 Actual: 75 55 Precip: 0.00 Average: - - Precip: -	10 Actual: 77 51 Precip: 0.00 Average: - - Precip: -	11 Actual: 89 53 Precip: 0.06 Average: - - Precip: -	12 Actual: 78 59 Precip: 0.00 Average: - - Precip: -	13 Actual: 64 57 Precip: 0.00 Average: - - Precip: -	14 Actual: 68 55 Precip: 0.00 Average: - - Precip: -		
15 Actual: 64 53 Precip: 0.00 Average: - - Precip: -	16 Actual: 68 57 Precip: 0.03 Average: - - Precip: -	17 Actual: 64 53 Precip: 0.01 Average: - - Precip: -	18 Actual: 68 48 Precip: 0.00 Average: - - Precip: -	19 Actual: 77 41 Precip: 0.00 Average: - - Precip: -	20 Actual: 73 46 Precip: 0.12 Average: - - Precip: -	21 Actual: 68 50 Precip: 0.13 Average: - - Precip: -		
22 Actual: 62 51 Precip: 0.65 Average: - - Precip: -	23 Actual: 59 50 Precip: 0.04 Average: - - Precip: -	24 Actual: 59 46 Precip: 0.14 Average: - - Precip: -	25 Actual: 55 41 Precip: 0.06 Average: - - Precip: -	26 Actual: 62 37 Precip: 0.00 Average: - - Precip: -	27 Actual: 57 44 Precip: 0.02 Average: - - Precip: -	28 Actual: 62 50 Precip: 1.48 Average: - - Precip: -		
29 Actual: 59 48 Precip: 0.74 Average: - - Precip: -	30 Actual: 55 46 Precip: 0.82 Average: - - Precip: -							

Calendar Key

Sunny Clear	Mostly Cloudy Partly Sunny	Mostly Sunny Partly Cloudy	Cloudy	Rain	Snow
Hail	Thunderstorms	Hazy Fog	Sleet	'?' denotes 'chance of'	Unknown

Actual: 90 58 Precip: 0.00 Average: 71 53 Precip: 0.03	<ul style="list-style-type: none"> Data Category Condition High Temp. Lo Temp. Precip. (in inches) Daily Avg. Temp. Temps in °F
---	--

Appendix C: Observed Plants

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Plants observed at East Sumner Regional Stormwater Facility

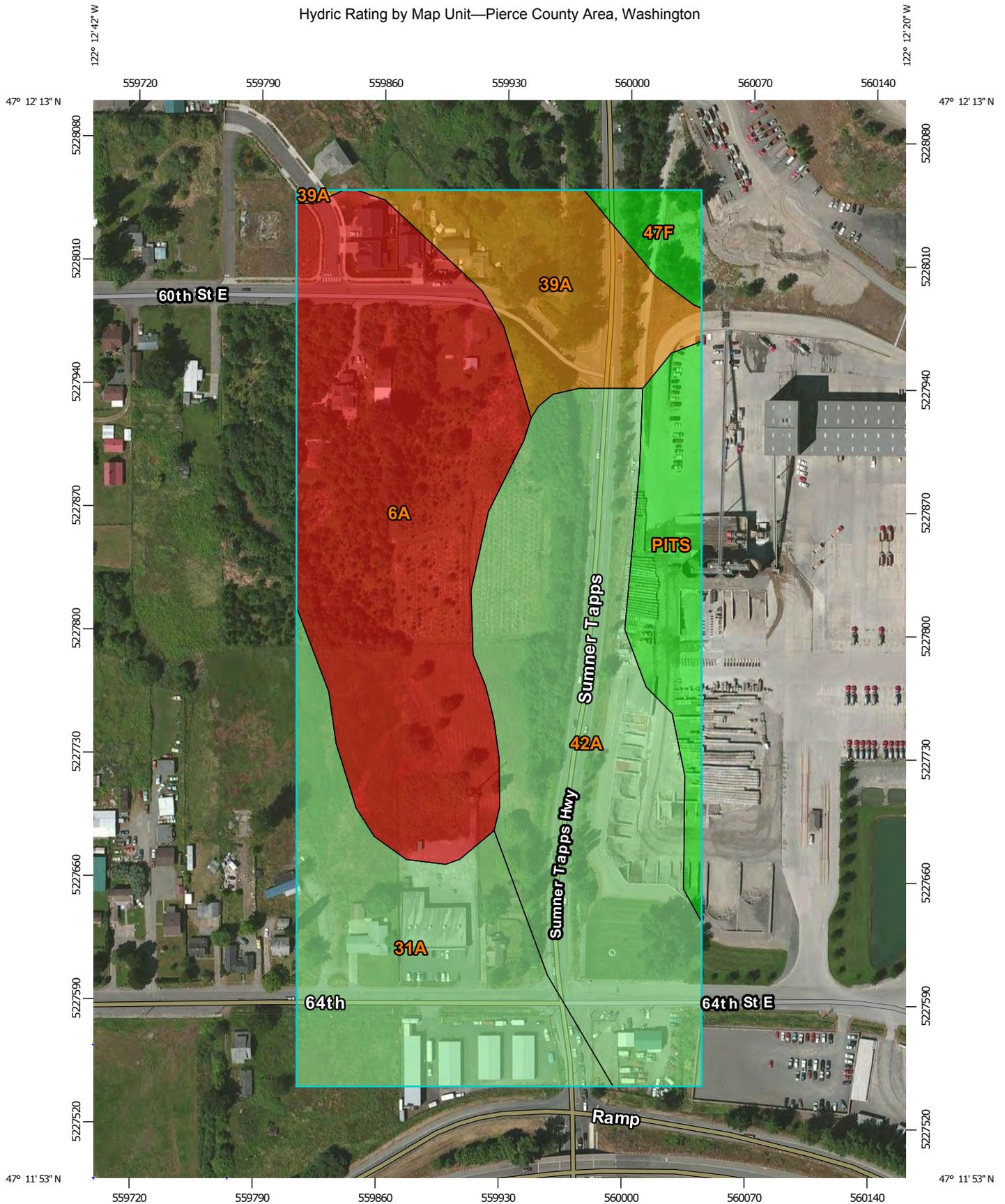
Scientific Name	Common Name	Type	Indicator
<i>Abies spp</i>	Fir	T	FACU
<i>Alnus rubra</i>	Red Alder	T	FAC
<i>Thuja plicata</i>	Western Red Cedar	T	FAC
<i>Pinus contorta</i>	Lodgepole Pine	T	FAC-
<i>Pinus sitchensis</i>	Sitka Spruce	T	FAC
<i>Pseudotsuga menziesii</i>	Douglas-fir	T	FACU
<i>Populus balsamifera</i>	Black Cottowood	T	FAC
<i>Cornus sericea</i>	Red-osier Dogwood	S	FACW
<i>Lonicera involucrata</i>	Black Twinberry	S	FAC+
<i>Rosa nutkana</i>	Nootka Rose	S	FAC
<i>Rubus armeniacus</i>	Himalayan Blackberry	S	FACU
<i>Rubus spectabilis</i>	Salmonberry	S	FAC+
<i>Rubus ursinus</i>	Trailing Blackberry	S	FACU
<i>Salix lucida</i>	Pacific Willow	S	FACW+
<i>Salix sitchensis</i>	Sitka Willow	S	FACW
<i>Spiraea douglasii</i>	Douglas Spirea	S	FACW
<i>Agrostis capillaris</i>	Colonial Bentgrass	H	FAC
<i>Holcus lanatus</i>	Common Velvetgrass	H	FACU
<i>Lolium perenne</i>	Perennial Ryegrass	H	FACU
<i>Phalaris arundinacea</i>	Reed Canarygrass	H	FACW
<i>Poa spp,</i>		H	
<i>Juncus effusus</i>	Soft Rush	H	FACW
<i>Juncus spp</i>		H	
<i>Equisetum arvense</i>	Common Horsetail	H	FAC
<i>Mentha arvensis</i>	Wild Mint	H	FACW
<i>Plantago lanceolata</i>	Narrowleaf Plantain	H	FACU
<i>Plantago major</i>	Common Plantain	H	FAC
<i>Ranunculus repens</i>	Creeping Buttercup	H	FACW
<i>Rumex crispus</i>	Curly Dock	H	FAC
<i>Taraxacum officinale</i>	Dandelion	H	FACU
<i>Trifolium repens</i>	White Clover	H	FAC

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Appendix D: Pierce County Soil Survey Data

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Hydric Rating by Map Unit—Pierce County Area, Washington



Map Scale: 1:2,980 if printed on A portrait (8.5" x 11") sheet.



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

MAP LEGEND

Area of Interest (AOI)

 Area of Interest (AOI)

Soils

Soil Rating Polygons

-  Hydric (100%)
-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Soil Rating Lines

-  Hydric (100%)
-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Soil Rating Points

-  Hydric (100%)

-  Predominantly Hydric (66 to 99%)
-  Partially hydric (33 to 65%)
-  Predominantly nonhydric (1 to 32%)
-  Nonhydric (0%)
-  Not rated or not available

Water Features

 Streams and Canals

Transportation

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

Background

 Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: Pierce County Area, Washington
 Survey Area Data: Version 7, Jul 19, 2012

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

Date(s) aerial images were photographed: Jul 9, 2010—Aug 20, 2011

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

Hydric Rating by Map Unit

Hydric Rating by Map Unit— Summary by Map Unit — Pierce County Area, Washington (WA653)				
Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
6A	Briscot loam	100	9.2	31.7%
31A	Puyallup fine sandy loam	2	5.5	19.1%
39A	Snohomish silty clay loam	95	3.1	10.5%
42A	Sultan silt loam	8	8.5	29.3%
47F	Xerochrepts, 45 to 70 percent slopes	0	0.6	2.2%
PITS	Pits	0	2.1	7.3%
Totals for Area of Interest			29.1	100.0%

Description

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

"Hydric" means that all components listed for a given map unit are rated as being hydric. "Predominantly hydric" means components that comprise 66 to 99 percent of the map unit are rated as hydric. "Partially hydric" means components that comprise 33 to 66 percent of the map unit are rated as hydric. "Predominantly nonhydric" means components that comprise up to 33 percent of the map unit are rated as hydric. "Nonhydric" means that none of the components are rated as hydric. The assumption here is that all components of the map unit are rated as hydric or nonhydric in the underlying database. A "Not rated or not available" map unit rating is displayed when none of the components within a map unit have been rated.

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

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

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

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

References:

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

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

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

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

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

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

Rating Options

Aggregation Method: Percent Present

Component Percent Cutoff: None Specified

Tie-break Rule: Lower

Map Unit Description (Brief, Generated)

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions in this report, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

The Map Unit Description (Brief, Generated) report displays a generated description of the major soils that occur in a map unit. Descriptions of non-soil (miscellaneous areas) and minor map unit components are not included. This description is generated from the underlying soil attribute data.

Additional information about the map units described in this report is available in other Soil Data Mart reports, which give properties of the soils and the limitations, capabilities, and potentials for many uses. Also, the narratives that accompany the Soil Data Mart reports define some of the properties included in the map unit descriptions.

Report—Map Unit Description (Brief, Generated)

Pierce County Area, Washington

Map Unit: 6A—Briscot loam

Component: Briscot (100%)

The Briscot component makes up 100 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is somewhat poorly drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is frequently flooded. It is not ponded. A seasonal zone of water saturation is at 18 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 4w. Irrigated land capability classification is 4w. This soil meets hydric criteria.

Map Unit: 31A—Puyallup fine sandy loam

Component: Puyallup (85%)

The Puyallup component makes up 85 percent of the map unit. Slopes are 0 to 3 percent. This component is on flood plains, terraces. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is high. Available water to a depth of 60 inches is moderate. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 60 inches during January, February, March, April, December. Organic matter content in the surface horizon is about 6 percent. Nonirrigated land capability classification is 3w. Irrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Briscot (2%)

Generated brief soil descriptions are created for major components. The Briscot soil is a minor component.

Map Unit: 39A—Snohomish silty clay loam

Component: Snohomish (85%)

The Snohomish component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. This component is on flood plains. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is poorly drained. Water movement in the most restrictive layer is low. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 12 inches during January, February, March, April, May, November, December. Organic matter content in the surface horizon is about 15 percent. Nonirrigated land capability classification is 5w. Irrigated land capability classification is 5w. This soil meets hydric criteria.

Component: Puget (5%)

Generated brief soil descriptions are created for major components. The Puget soil is a minor component.

Component: Sultan (5%)

Generated brief soil descriptions are created for major components. The Sultan soil is a minor component.

Map Unit: 42A—Sultan silt loam

Component: Sultan (85%)

The Sultan component makes up 85 percent of the map unit. Slopes are 0 to 2 percent. The parent material consists of alluvium. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is moderately well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is high. Shrink-swell potential is low. This soil is occasionally flooded. It is not ponded. A seasonal zone of water saturation is at 21 inches during January, February, March, April, November, December. Organic matter content in the surface horizon is about 8 percent. Nonirrigated land capability classification is 3w. This soil does not meet hydric criteria.

Component: Briscot (6%)

Generated brief soil descriptions are created for major components. The Briscot soil is a minor component.

Component: Puget (2%)

Generated brief soil descriptions are created for major components. The Puget soil is a minor component.

Map Unit: 47F—Xerochrepts, 45 to 70 percent slopes

Component: Xerochrepts (100%)

The Xerochrepts component makes up 100 percent of the map unit. Slopes are 45 to 70 percent. This component is on valley sides. The parent material consists of sandy and gravelly outwash and/or glacial till. Depth to a root restrictive layer is greater than 60 inches. The natural drainage class is well drained. Water movement in the most restrictive layer is moderately high. Available water to a depth of 60 inches is low. Shrink-swell potential is low. This soil is not flooded. It is not ponded. There is no zone of water saturation within a depth of 72 inches. Organic matter content in the surface horizon is about 1 percent. Nonirrigated land capability classification is 7e. This soil does not meet hydric criteria.

Component: Coastal Beaches (%)

Generated brief soil descriptions are created for major components. The Coastal Beaches soil is a minor component.

Map Unit: PITS—Pits

Component: Pits (100%)

Generated brief soil descriptions are created for major soil components. The Pits is a miscellaneous area.

Data Source Information

Soil Survey Area: Pierce County Area, Washington

Survey Area Data: Version 7, Jul 19, 2012

Appendix E: National Wetlands Inventory Map

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U.S. Fish and Wildlife Service

National Wetlands Inventory

Wetlands Near YMCA Site

Nov 15, 2013



Wetlands

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

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

User Remarks: