

## Natural Resource Assessment

**To:** Amber Wierck, Clean Water Services  
**Cc:** Nathan Doyel, Applicant  
Chris Goodell, AKS Engineering and Forestry  
**From:** Stacey Reed, Wetland Scientist  
**Date:** May 13, 2013  
**Subject:** Request for Service Provider Letter  
17680 SW Handley Street and 22065 SW Pacific Highway  
Sherwood, Washington County, Oregon  
Tax lot 1600 of tax map 2S 1 30CD and tax lot 2100 of tax map 2S 1 31BA

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### INTRODUCTION AND BACKGROUND

SWCA Environmental Consultants (SWCA) was contracted by Nathan Doyel to conduct a wetland delineation and natural resource assessment at 17680 SW Handley Street (tax lot 2100 of tax map 2S 1 31BA) and 22065 SW Pacific Highway (tax lot 1600 of tax map 2S 1 30CD) located in Sherwood, Washington County, Oregon (Figures 1 and 2). The proposed project is to create paved parking on tax lot 2100 immediately south of the existing development on tax lot 1600. Palustrine emergent (PEM) wetlands and a perennial tributary to Cedar Creek that flows northerly are present along the western portion of tax lot 2100. The on-site wetlands have an adjacent slope of less than 25 percent, requiring a 50-foot-wide vegetated corridor. No vegetated corridor impacts are proposed. This memorandum has been prepared to meet CWS' Natural Resource Assessment requirements listed under Chapter 3 of the June 2007 (amended August 2008) R&O Design and Construction Standards.

### EXISTING CONDITIONS

Tax lot 1600 is developed with commercial buildings and paved parking. A single-family residence and gravel parking are present in the northeastern portion of tax lot 2100. A tributary to Cedar Creek flows northerly near the western site boundary of tax lot 2100. Floodplain wetlands were delineated extending on-site adjacent to the right bank of the tributary. The existing home on tax lot 2100 is positioned on a higher elevation flat area with a westerly slope down to the tributary and wetlands. The adjacent land use is commercial and residential.

According to the Natural Resources Conservation Service (NRCS) Washington County, Oregon area soil survey, hydric Wapato silty clay loam (Unit 43) and Huberly silt loam (Unit 22) are mapped in the western portion of the site along the tributary and adjacent wetlands. Non-hydric Quatama loam with 0 to 3% slopes (Unit 37A), 7 to 12% slopes (Unit 37C), and 12 to 20% slopes (Unit 37D) are mapped throughout the remainder of the study area (Figure 3). Quatama loam soils may have hydric Huberly inclusions. According to the City of Sherwood Local Wetland Inventory (LWI) map, wetlands are mapped in the western portion of the study area (Figure 4). Our site investigation generally agrees with the LWI mapping.

## **Water Quality Sensitive Resources**

The methodology used for determining the presence of wetlands and for delineating wetland boundaries followed the routine approach of the U.S. Army Corps of Engineers' (Corps') *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (Corps 2010), used by both the Corps and the Oregon Department of State Lands (DSL). Fieldwork for delineating the wetland boundaries was conducted on May 1, 2013, by Stacey Reed and Taya MacLean. Soils, vegetation, and indicators of hydrology were recorded at four sample plot locations to document site conditions (Wetland determination data sheets and a list of vegetation observed on the site with scientific names are attached).

The tributary flows northerly through culverts under SW Pacific Highway and generally meanders immediately off-site to the north, except for a small segment of the stream that flows through the northwest corner of tax lot 2100. Palustrine scrub-shrub (PSS) wetlands dominated by willow are present immediately off-site adjacent to the tributary. On-site PEM floodplain wetlands dominated by spreading rush, reed canarygrass, rice cut grass, subartic lady fern, and common horsetail were documented at Plots 1 and 3. The wetland boundary was well defined by a change in the vegetation community from spreading rush, subartic lady fern, or reed canarygrass in wetland to colonial bentgrass, tall fescue, and Himalayan blackberry in the adjacent upland. Along with the change in the vegetation community, there was a distinct change in topography from the low-elevation concave floodplain wetlands to the adjacent steep hillslope (fill slope) convex upland. Adjacent uplands also lacked hydric soil and wetland hydrology indicators, as documented at paired Plots 2 and 4.

The on-site wetland boundaries and Plots 1 through 4 were flagged in the field by SWCA on May 1, 2013, and their locations were professionally land surveyed by AKS Engineering and Forestry (Figure 5, Existing Condition).

## **Extent of Vegetated Corridor**

The slope adjacent to the floodplain wetland is less than 25 percent, which requires a 50-foot-wide vegetated corridor. The total on-site vegetated corridor is 18,199 square feet. The extent of on-site corridor is shown in Figure 5.

## **Existing Condition of the Vegetated Corridor**

The existing condition of the on-site vegetated corridor was determined according to CWS vegetated corridor standards, which are based upon the presence of tree canopy and percent cover of native trees, shrubs, and groundcovers. All of the corridor on the site lacked woody vegetation and was generally dominated by newly sprouting Himalayan blackberry, tall fescue, colonial bentgrass, Canadian thistle, and large sweet vernal grass. The corridor was determined to be in *degraded* condition, as documented at VECO Plot A (Wetland Determination Plot 2). The location of the vegetated corridor plot is shown in Figure 5. Representative photos of the existing condition of the vegetated corridor are also attached for reference.

## PROPOSED VEGETATED CORRIDOR IMPACTS

The project will not result in any permanent or temporary vegetated corridor impacts. The proposed site plan is included as Figure 6 and involves constructing approximately 12,700 square feet of paved parking and curb area in the northern portion of tax lot 2100.

## VEGETATED CORRIDOR ENHANCEMENT

All of the 18,199 square feet of on-site *degraded* condition vegetated corridor on tax lot 2100 will be enhanced to *good* condition. The attached vegetated corridor planting specification table lists the species, size, spacing, and quantities recommended for the vegetated corridor enhancement areas. The proposed planting specifications are in accordance with Appendix A, Planting Requirements, of CWS' updated Design and Construction Standards (R&O 07-20). This is only a recommended list of native plant species that can be used in the vegetated corridor. Final selection of plants may be revised, but plants must be native and planted at densities consistent with CWS planting requirements.

Please do not hesitate to contact me with any questions concerning the proposed project.

## REFERENCES

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Online edition. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. Available at: <http://el.ercd.usace.army.mil/wetlands/pdfs/wlman87.pdf>.
- Natural Resources Conservation Service (NRCS). 2013. Hydric soils in Washington County area, Oregon (survey version 6 dated March 20, 2007). Available at: <http://www.or.nrcs.usda.gov/technical/soil/hydric.html>. Accessed April 2013.
- . 2013. Online soil survey. Available at: <http://websoilsurvey.nrcs.usda.gov/app/>. Accessed April 2013 (link no longer active).
- U.S. Army Corps of Engineers. 2010. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0), ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.

### List of Figures:

- Figure 1. U.S. Geological Survey site location map
- Figure 2. Tax lot map
- Figure 3. Soil survey map
- Figure 4. City of Sherwood LWI map
- Figure 5. Existing conditions
- Figure 6. Site plan

**List of Attachments:**

Table of On-Site Vegetation

VECO Data Sheet (Plot A)

Representative On-site Vegetated Corridor Photographs

Vegetated Corridor Enhancement Planting Specifications, May 13, 2013

Sensitive Areas Certification Form

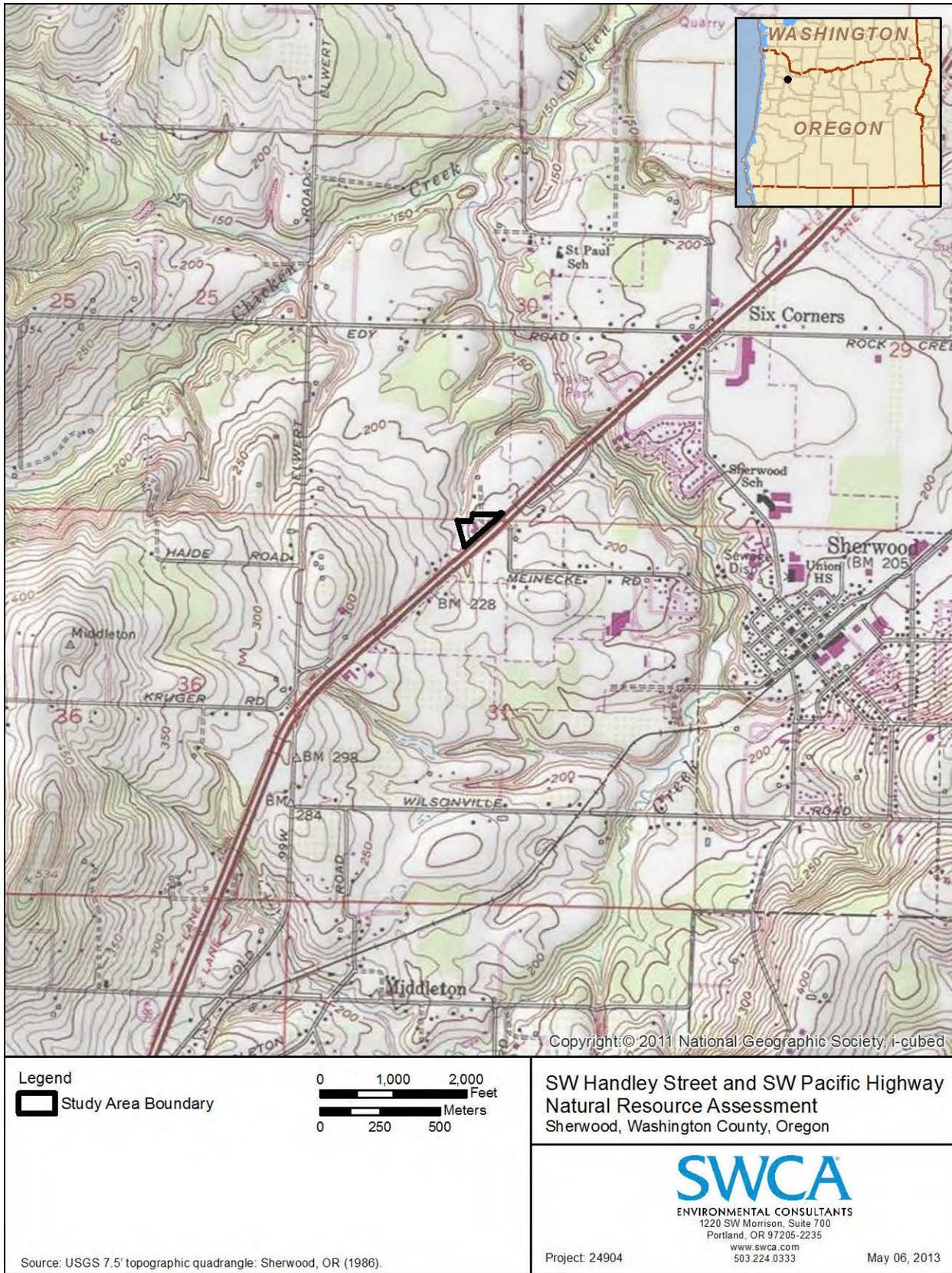
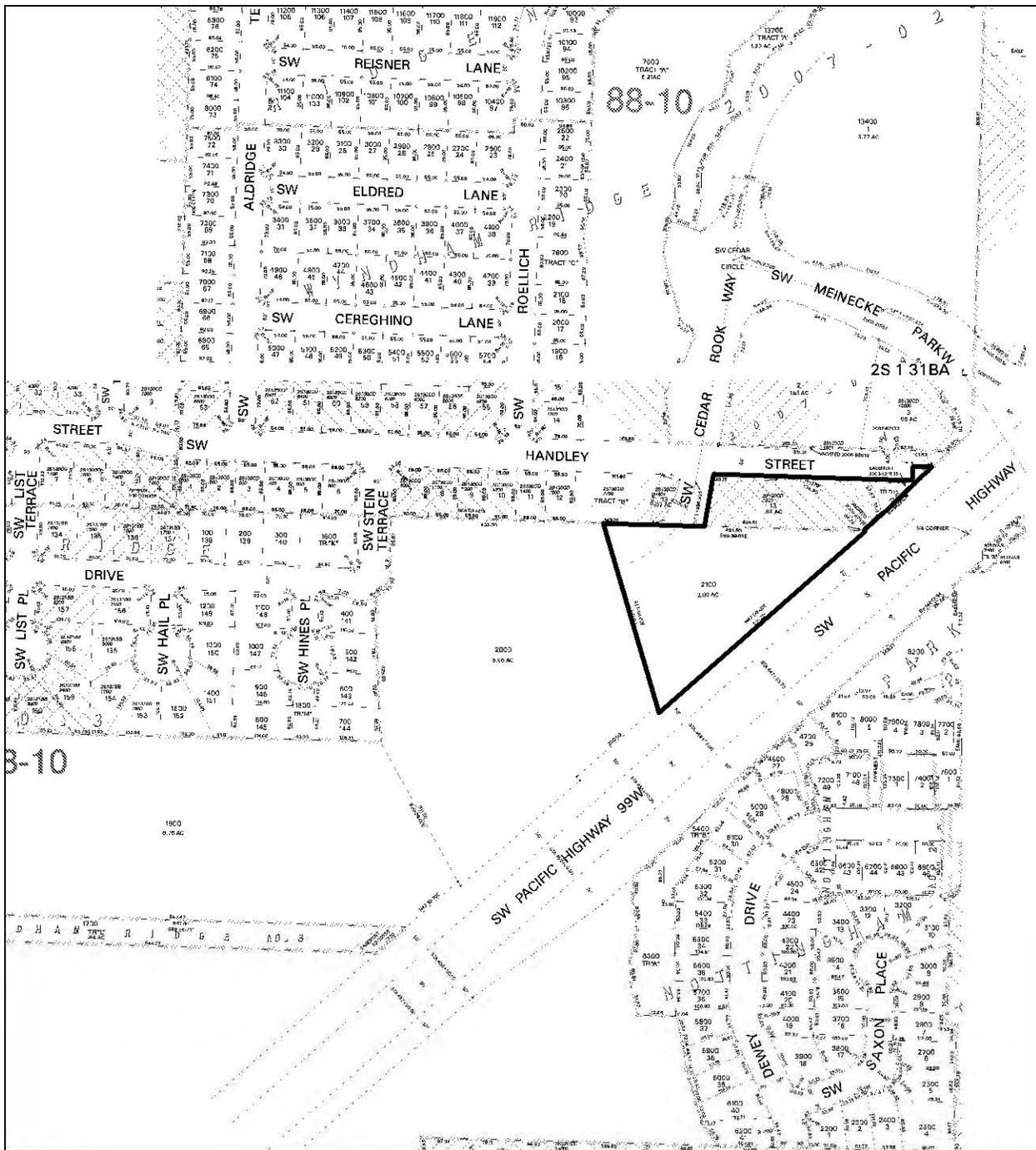


Figure 1. U.S. Geological Survey site location map.



Legend

 Study Area Boundary

0 150 300 Feet

0 50 100 Meters

SW Handley Street and SW Pacific Highway  
 Natural Resource Assessment  
 Sherwood, Washington County, Oregon

**SWCA**  
 ENVIRONMENTAL CONSULTANTS  
 1220 SW Morrison, Suite 700  
 Portland, OR 97205-2235  
 www.swca.com  
 503.224.0333

Source: Tax lot map acquired from www.ormap.com, Washington County 2S 1W Sections 30CD & 31BA.

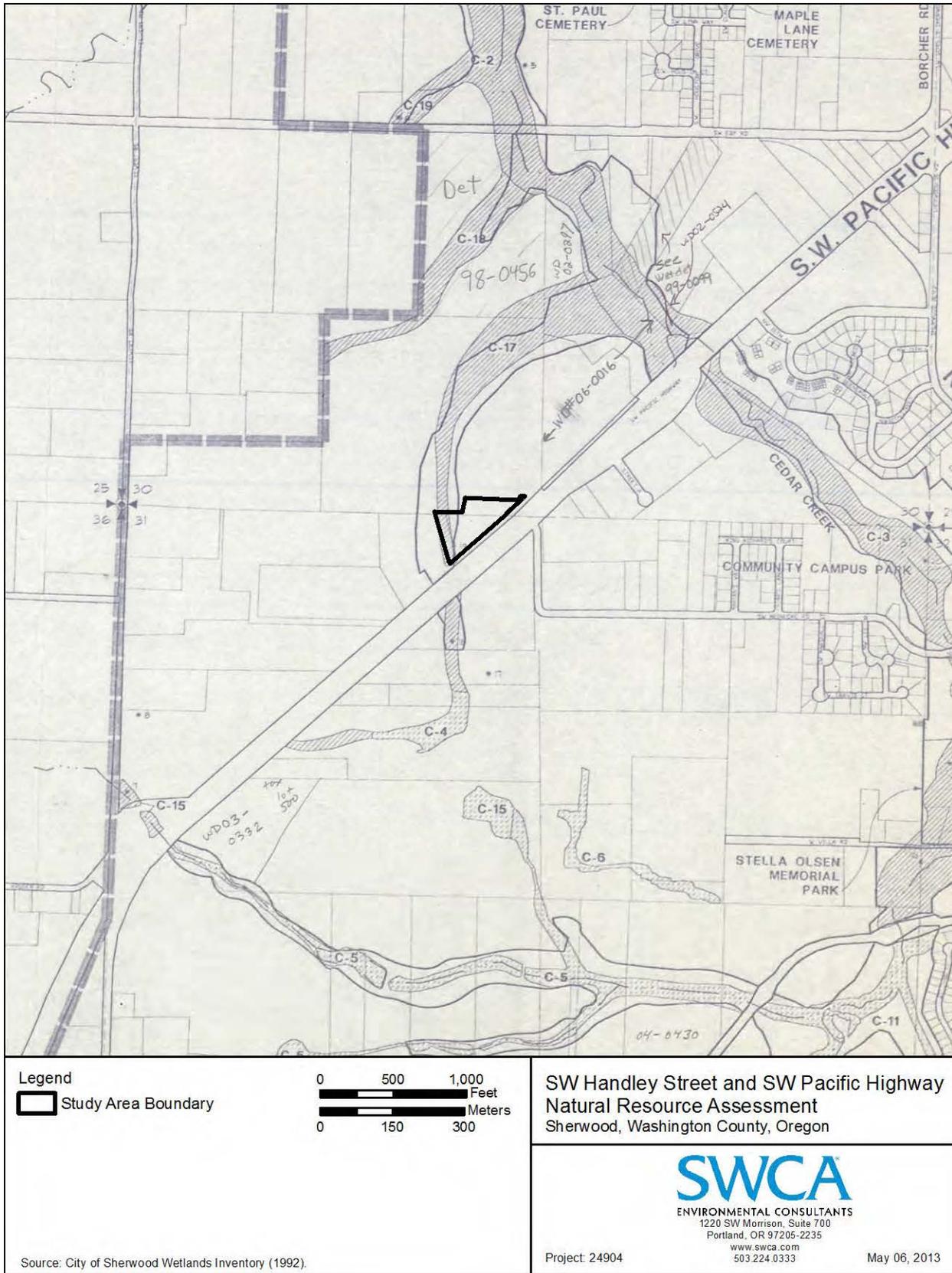
Project 24904

May 06, 2013

Figure 2. Tax lot map.



**Figure 3.** Soil survey map.



**Figure 4.** Local Wetlands Inventory map.

**EXISTING CONDITIONS  
AND WETLAND  
MAP**

**17680 SW HANDLEY ST  
22065 SW PACIFIC HWY  
SHERWOOD OREGON**

WASHINGTON COUNTY TAX MAP 2S1300D AND 2S131BA  
TAX LOTS 1650 AND 2100



**ENGINEERING • PLANNING  
SURVEYING • FORESTRY**  
13810 SW GALBREATH DR.,  
SUITE 100  
SHERWOOD, OR 97140  
PHONE: (503) 925-8799  
FAX: (503) 925-8669

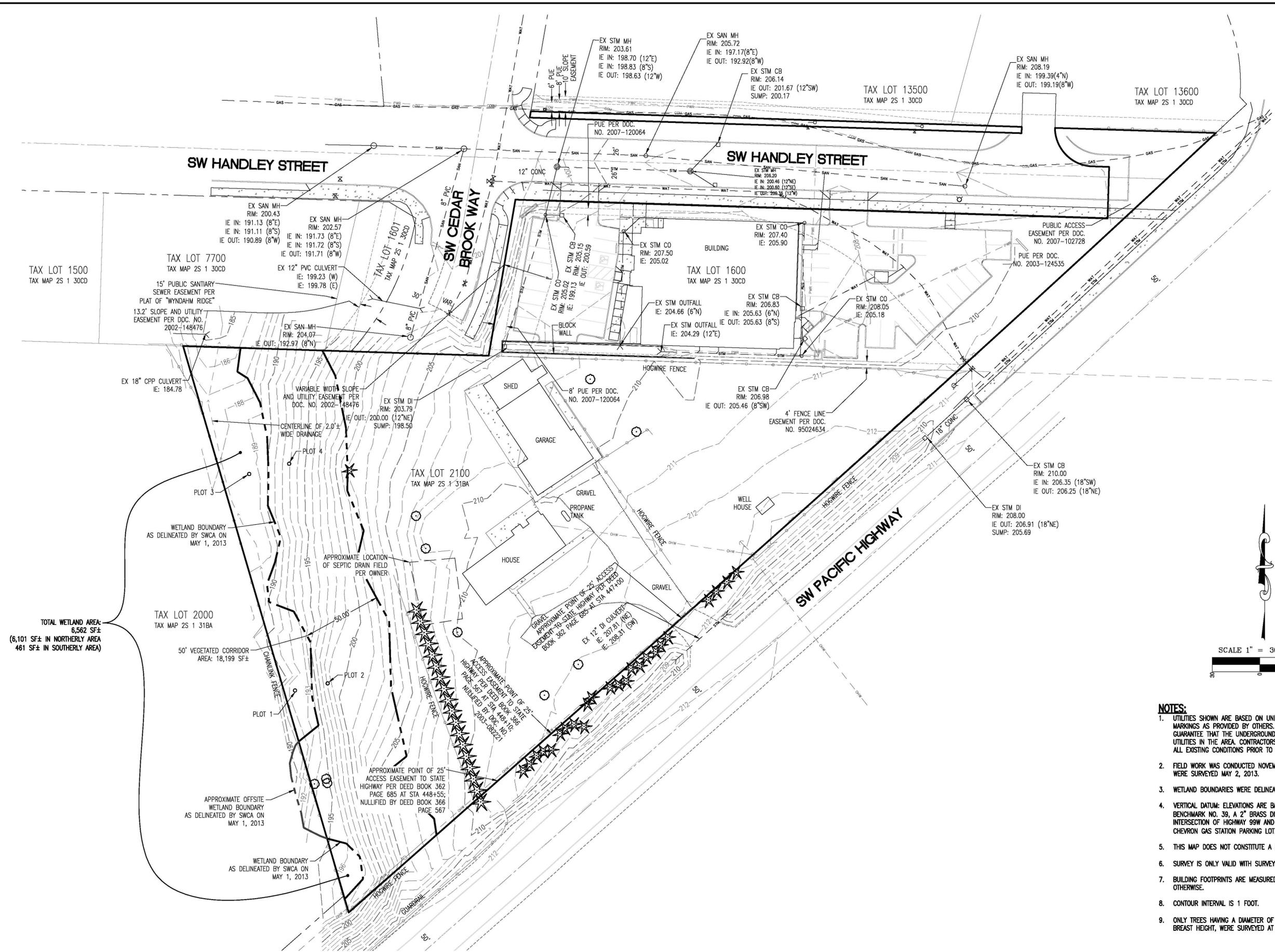
DESIGNED BY:  
DRAWN BY: MSK  
CHECKED BY: NSW  
DRAWING NO.: WETLANDMAP  
SCALE: AS NOTED

**PREPARED FOR:**  
NATHAN DOYEL  
17880 SW HANDLEY ST #101  
SHERWOOD, OR 97140

DATE: 05/08/13  
**REGISTERED  
PROFESSIONAL  
LAND SURVEYOR**

REGON  
MAY 9, 2007  
NICK WHITE  
70652LS

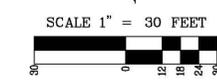
RENEWS: 6/30/14  
JOB NUMBER  
**2721**  
SHEET



TOTAL WETLAND AREA:  
6,562 SF±  
(6,101 SF± IN NORTHERLY AREA  
461 SF± IN SOUTHERLY AREA)

Figure 5  
SW Handley Street and SW Pacific Highway  
Natural Resource Assessment  
Wetland Delineation Map

- NOTES:**
- UTILITIES SHOWN ARE BASED ON UNDERGROUND UTILITY LOCATE MARKINGS AS PROVIDED BY OTHERS. THE SURVEYOR MAKES NO GUARANTEE THAT THE UNDERGROUND LOCATES REPRESENT THE ONLY UTILITIES IN THE AREA. CONTRACTORS ARE RESPONSIBLE FOR VERIFYING ALL EXISTING CONDITIONS PRIOR TO BEGINNING CONSTRUCTION.
  - FIELD WORK WAS CONDUCTED NOVEMBER 1-2, 2010. WETLAND FLAGS WERE SURVEYED MAY 2, 2013.
  - WETLAND BOUNDARIES WERE DELINEATED BY SWCA ON MAY 1, 2013.
  - VERTICAL DATUM: ELEVATIONS ARE BASED ON WASHINGTON COUNTY BENCHMARK NO. 39, A 2" BRASS DISK LOCATED NEAR THE INTERSECTION OF HIGHWAY 99W AND N. SHERWOOD BOULEVARD IN THE CHEVRON GAS STATION PARKING LOT. ELEVATION = 213.90 (NAVD 88).
  - THIS MAP DOES NOT CONSTITUTE A PROPERTY BOUNDARY SURVEY.
  - SURVEY IS ONLY VALID WITH SURVEYOR'S STAMP AND SIGNATURE.
  - BUILDING FOOTPRINTS ARE MEASURED TO SIDING UNLESS NOTED OTHERWISE.
  - CONTOUR INTERVAL IS 1 FOOT.
  - ONLY TREES HAVING A DIAMETER OF 6" AND GREATER, MEASURED AT BREAST HEIGHT, WERE SURVEYED AT THIS TIME.



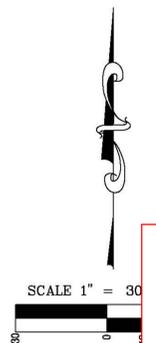
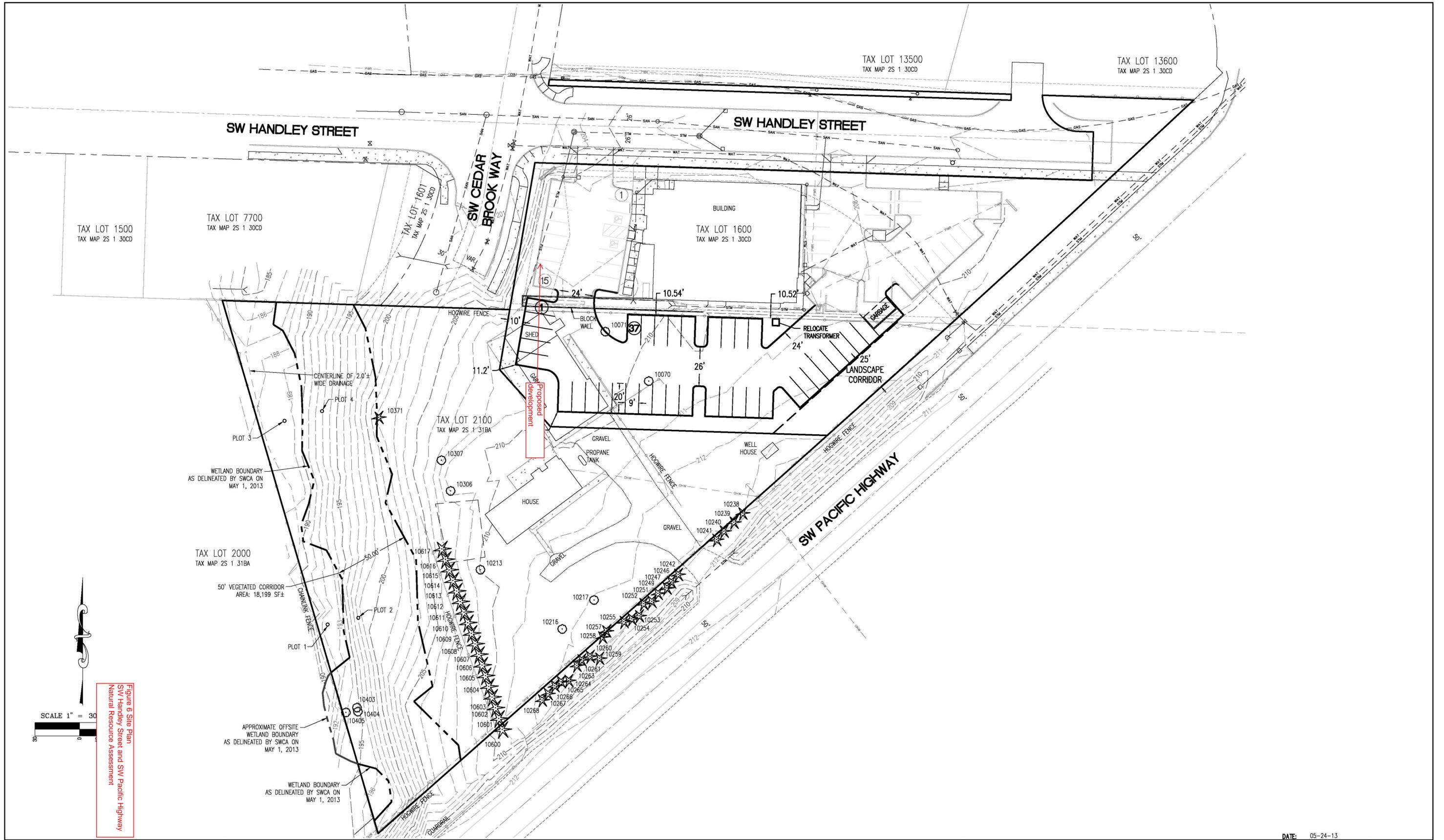


Figure 6 Site Plan  
SW Handley Street and SW Pacific Highway  
Natural Resource Assessment

REVISIONS:


## PRELIMINARY SITE IMPROVEMENT PLAN

**ENGINEERING • PLANNING**  
LICENSED IN OR, WA & AK

**SURVEYING • FORESTRY**

13910 SW GALBREATH DR., SUITE 100  
SHERWOOD, OR 97140  
PHONE: (503) 925-8799  
FAX: (503) 925-8969



Offices Located In:  
SHERWOOD, OREGON  
REDMOND, OREGON  
VANCOUVER, WASHINGTON  
[www.aks-eng.com](http://www.aks-eng.com)

DESIGNED BY:	CG	DRAWING NO.:	2721MPL
DRAWN BY:	RSW	SCALE:	AS NOTED
CHECKED BY:	MBH		
PREPARED FOR:	NATHAN DOYEL 17680 SW HANDLEY ST # 101 SHERWOOD, OR 97140		

**17680 SW HANDLEY ST AND  
22065 SW PACIFIC HWY**

**SHERWOOD OREGON**

TAX LOTS 1850 AND 2100  
WASHINGTON COUNTY TAX MAPS 25130CD AND 25131BA

DATE: 05-24-13

PRELIMINARY NOT FOR CONSTRUCTION	JOB NUMBER	2721
	SHEET	1

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

Project/Site: 17680 SW Handley Street City/County: Sherwood / Washington Sampling Date: 5/1/2013  
 Applicant/Owner: Nathan Doyel State: OR Sampling Point: 1  
 Investigator(s): Stacey Reed and Taya MacLean Section, Township, Range: Sec 30 and 31, T2S, R1W  
 Landform (hillslope, terrace, etc.): Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): <3  
 Subregion (LRR): A, Northwest Forests and Coast Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: 43- Wapato silty clay loam NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: _____					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>					

**VEGETATION**

Tree Stratum (Plot size: <u>30' r</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>4</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>4</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u> )				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. <u>Salix scouleriana</u>	<u>25%</u>	<u>Yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b>	
2. <u>Alnus rubra</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	Total % Cover of: _____ Multiply by: _____	
3. <u>Rubus armeniacus</u>	<u>5%</u>	<u>No</u>	<u>FACU</u>	OBL species	<u>7</u> x 1 = <u>7</u>
4. _____	_____	_____	_____	FACW species	<u>25</u> x 2 = <u>50</u>
5. _____	_____	_____	_____	FAC species	<u>66</u> x 3 = <u>198</u>
40% = Total Cover				FACU species	<u>6</u> x 4 = <u>24</u>
Herb Stratum (Plot size: <u>5' r</u> )				UPL species	<u>2</u> x 5 = <u>10</u>
1. <u>Juncus patens</u>	<u>25%</u>	<u>Yes</u>	<u>FACW</u>	Column Totals:	<u>106</u> (A) <u>289</u> (B)
2. <u>Agrostis capillaris</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>2.73</u>	
3. <u>Leersia oryzoides</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
4. <u>Athyrium filix-femina</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
5. <u>Equisetum arvense</u>	<u>5%</u>	<u>No</u>	<u>FAC</u>	<u>X</u> 2 - Dominance Test is >50%	
6. <u>Cirsium arvense</u>	<u>4%</u>	<u>No</u>	<u>FAC</u>	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7. <u>Urtica dioica</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
8. <u>Carex densa</u>	<u>2%</u>	<u>No</u>	<u>OBL</u>	5 - Wetland Non-Vascular Plants <sup>1</sup>	
9. <u>Vicia sativa</u>	<u>2%</u>	<u>No</u>	<u>UPL</u>	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
10. <u>Cardamine hirsuta</u>	<u>1%</u>	<u>No</u>	<u>FACU</u>	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
66% = Total Cover					
Woody Vine Stratum (Plot size: <u>10' r</u> )					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>34%</u>					

Remarks: Bare ground covered by dead Juncus patens leaf litter from brush cutting. Entered by: sar QC by: cmw

**SOIL**

Sampling Point: 1

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

Depth (inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
0-9	10YR 3/2	80	7.5YR 3/4	10	C	M	sil	
			7.5YR 4/6	5	C	M		
			10YR 4/3	5	C	M		
9-16	10YR 4/2	80	10YR 4/4	10	C	M	sicl	
			7.5YR 3/4	5	C	M		
			10YR 2/1	5	C	M		

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<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) <b>(except MLRA 1)</b>	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input checked="" type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(except MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) <b>(MLRA 1, 2, 4A, and 4B)</b>
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) <b>(LRR A)</b>
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
Surface Water Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): _____	
Water Table Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>&gt;16</u>	
Saturation Present? Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> Depth (inches): <u>&gt;16</u> (includes capillary fringe)	

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

Remarks: Soils moist at 16 inches, but no seeps or saturation. Floodplain bench. Entered by: sar QC by: cmw

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

Project/Site: 17680 SW Handley Street City/County: Sherwood / Washington Sampling Date: 5/1/2013  
 Applicant/Owner: Nathan Doyel State: OR Sampling Point: 2  
 Investigator(s): Stacey Reed and Taya MacLean Section, Township, Range: Sec 30 and 31, T2S, R1W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5  
 Subregion (LRR): A, Northwest Forests and Coast Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: 37D- Quatama loam, 12-20% slopes NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>		
Hydric Soil Present?	Yes _____	No <u>X</u>		Yes _____	No <u>X</u>
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Precipitation prior to fieldwork: _____					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>					

**VEGETATION**

Tree Stratum (Plot size: <u>30' r</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>3</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>5</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u> )				That Are OBL, FACW, or FAC: <u>60%</u> (A/B)	
1. <u>Rubus armeniacus</u>	<u>15%</u>	<u>Yes</u>	<u>FACU</u>	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
3. _____	_____	_____	_____	OBL species	<u>0</u> x 1 = <u>0</u>
4. _____	_____	_____	_____	FACW species	<u>5</u> x 2 = <u>10</u>
5. _____	_____	_____	_____	FAC species	<u>20</u> x 3 = <u>60</u>
15% = Total Cover				FACU species	<u>25</u> x 4 = <u>100</u>
Herb Stratum (Plot size: <u>5' r</u> )				UPL species	<u>0</u> x 5 = <u>0</u>
1. <u>Agrostis capillaris</u>	<u>15%</u>	<u>Yes</u>	<u>FAC</u>	Column Totals:	<u>50</u> (A) <u>170</u> (B)
2. <u>Cirsium arvense</u>	<u>5%</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = B/A = <u>3.40</u>	
3. <u>Epilobium ciliatum</u>	<u>5%</u>	<u>Yes</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
4. <u>Galium aparine</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	1 - Rapid Test for Hydrophytic Vegetation	
5. <u>Cardamine hirsuta</u>	<u>3%</u>	<u>No</u>	<u>FACU</u>	<u>X</u> 2 - Dominance Test is >50%	
6. <u>Senecio jacobaea</u>	<u>2%</u>	<u>No</u>	<u>FACU</u>	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
7. _____	_____	_____	_____	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	5 - Wetland Non-Vascular Plants <sup>1</sup>	
9. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
10. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____		
35% = Total Cover				<b>Hydrophytic Vegetation Present?</b>	
Woody Vine Stratum (Plot size: <u>10' r</u> )				Yes <u>X</u> No _____	
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>65%</u>					
Remarks: _____ Entered by: <u>sar</u> QC by: <u>cmw</u>					

**SOIL**

Sampling Point: 2

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

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

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

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

<input type="checkbox"/> 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) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	wetland hydrology must be present,
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	unless disturbed or problematic.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soil Present? Yes \_\_\_\_\_ No X**

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<u>Primary Indicators (minimum of one required; check all that apply)</u>		<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> )	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> )
<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 along 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) ( <b>LRR A</b> )	<input type="checkbox"/> Raised Ant Mounds (D6) ( <b>LRR A</b> )
<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 _____ No <u>X</u>	Depth (inches): _____	<b>Wetland Hydrology Present?</b> Yes _____ No <u>X</u>
Water Table Present?	Yes _____ No <u>X</u>	Depth (inches): <u>&gt;16</u>	
Saturation Present?	Yes _____ No <u>X</u>	Depth (inches): <u>&gt;16</u>	
(includes capillary fringe)			

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

Remarks: Soils were very dry throughout. Entered by: sar QC by: cmw

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

Project/Site: 17680 SW Handley Street City/County: Sherwood / Washington Sampling Date: 5/1/2013  
 Applicant/Owner: Nathan Doyel State: OR Sampling Point: 3  
 Investigator(s): Stacey Reed and Taya MacLean Section, Township, Range: Sec 30 and 31, T2S, R1W  
 Landform (hillslope, terrace, etc.): Floodplain Terrace Local relief (concave, convex, none): Concave Slope (%): <3  
 Subregion (LRR): A, Northwest Forests and Coast Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: 22- Huberly silt loam NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes <u>X</u>	No _____	<b>Is the Sampled Area within a Wetland?</b>	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			
Precipitation prior to fieldwork: _____					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>					
<u>Plot located approximately 15 feet east of stream.</u>					

**VEGETATION**

Tree Stratum (Plot size: <u>30' r</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. _____	_____	_____	_____	Number of Dominant Species	
2. _____	_____	_____	_____	That Are OBL, FACW, or FAC: <u>2</u> (A)	
3. _____	_____	_____	_____	Total Number of Dominant	
4. _____	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
0% = Total Cover				Percent of Dominant Species	
Sapling/Shrub Stratum (Plot size: <u>10' r</u> )				That Are OBL, FACW, or FAC: <u>100%</u> (A/B)	
1. <u>Salix scouleriana</u>	<u>10%</u>	<u>Yes</u>	<u>FAC</u>	<b>Prevalence Index worksheet:</b>	
2. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____	
3. _____	_____	_____	_____	OBL species	<u>5</u> x 1 = <u>5</u>
4. _____	_____	_____	_____	FACW species	<u>95</u> x 2 = <u>190</u>
5. _____	_____	_____	_____	FAC species	<u>10</u> x 3 = <u>30</u>
10% = Total Cover				FACU species	<u>0</u> x 4 = <u>0</u>
Herb Stratum (Plot size: <u>5' r</u> )				UPL species	<u>0</u> x 5 = <u>0</u>
1. <u>Phalaris arundinacea</u>	<u>95%</u>	<u>Yes</u>	<u>FACW</u>	Column Totals:	<u>110</u> (A) <u>225</u> (B)
2. <u>Lysichiton americanus</u>	<u>5%</u>	<u>No</u>	<u>OBL</u>	Prevalence Index = B/A = <u>2.05</u>	
3. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
4. _____	_____	_____	_____	<u>1</u> - Rapid Test for Hydrophytic Vegetation	
5. _____	_____	_____	_____	<u>X</u> <u>2</u> - Dominance Test is >50%	
6. _____	_____	_____	_____	<u>3</u> - Prevalence Index is ≤3.0 <sup>1</sup>	
7. _____	_____	_____	_____	<u>4</u> - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
8. _____	_____	_____	_____	<u>5</u> - Wetland Non-Vascular Plants <sup>1</sup>	
9. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
10. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
11. _____	_____	_____	_____		
100% = Total Cover				<b>Hydrophytic Vegetation Present?</b>	
Woody Vine Stratum (Plot size: <u>10' r</u> )					
1. _____	_____	_____	_____	Yes <u>X</u>	No _____
2. _____	_____	_____	_____		
0% = Total Cover					
% Bare Ground in Herb Stratum <u>0%</u>					
Remarks: _____ Entered by: <u>sar</u> QC by: <u>cmw</u>					

**SOIL**

Sampling Point: **3**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 3/2	80	7.5YR 3/4	20	C	M	sicl	

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

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

<input type="checkbox"/> 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) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

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

**Hydric Soil Present? Yes  No**

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (minimum of one required; check all that apply)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> )
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> )
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input 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) ( <b>LRR A</b> )
	<input type="checkbox"/> Frost-Heave Hummocks (D7)

**Field Observations:**

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	<b>Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/></b>
Water Table Present? Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>9</u>	
Saturation Present? Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>Surface</u>	
(includes capillary fringe)		

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

Remarks: \_\_\_\_\_ Entered by: sar QC by: cmw

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

Project/Site: 17680 SW Handley Street City/County: Sherwood / Washington Sampling Date: 5/1/2013  
 Applicant/Owner: Nathan Doyel State: OR Sampling Point: 4  
 Investigator(s): Stacey Reed and Taya MacLean Section, Township, Range: Sec 30 and 31, T2S, R1W  
 Landform (hillslope, terrace, etc.): Hillslope Local relief (concave, convex, none): Convex Slope (%): 5  
 Subregion (LRR): A, Northwest Forests and Coast Lat: \_\_\_\_\_ Long: \_\_\_\_\_ Datum: \_\_\_\_\_  
 Soil Map Unit Name: 37D- Quatama loam, 7-12% slopes NWI classification: None  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes _____	No <u>X</u>	<b>Is the Sampled Area within a Wetland?</b>	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			
Precipitation prior to fieldwork: _____					
Remarks: <u>NA means Not Applicable (used on plowed and planted agricultural crop sites in reference to the vegetation).</u>					

**VEGETATION**

Tree Stratum (Plot size: <u>30' r</u> )	Absolute % Cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
1. <u>Pseudotsuga menziesii</u>	<u>5%</u>	<u>Yes</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)	
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b>	
<u>5%</u> = Total Cover				Total % Cover of: _____ Multiply by: _____	
<b>Sapling/Shrub Stratum (Plot size: <u>10' r</u>)</b>				OBL species <u>0</u> x 1 = <u>0</u>	
1. <u>Rubus armeniacus</u>	<u>8%</u>	<u>Yes</u>	<u>FACU</u>	FACW species <u>0</u> x 2 = <u>0</u>	
2. _____	_____	_____	_____	FAC species <u>52</u> x 3 = <u>156</u>	
3. _____	_____	_____	_____	FACU species <u>38</u> x 4 = <u>152</u>	
4. _____	_____	_____	_____	UPL species <u>3</u> x 5 = <u>15</u>	
5. _____	_____	_____	_____	Column Totals: <u>93</u> (A) <u>323</u> (B)	
<u>8%</u> = Total Cover				Prevalence Index = B/A = <u>3.47</u>	
<b>Herb Stratum (Plot size: <u>5' r</u>)</b>				<b>Hydrophytic Vegetation Indicators:</b>	
1. <u>Agrostis capillaris</u>	<u>35%</u>	<u>Yes</u>	<u>FAC</u>	1 - Rapid Test for Hydrophytic Vegetation	
2. <u>Anthoxanthum odoratum</u>	<u>30%</u>	<u>Yes</u>	<u>FACU</u>	2 - Dominance Test is >50%	
3. <u>Schedonorus phoenix</u>	<u>15%</u>	<u>No</u>	<u>FAC</u>	3 - Prevalence Index is ≤3.0 <sup>1</sup>	
4. <u>Geranium dissectum</u>	<u>3%</u>	<u>No</u>	<u>NOL</u>	4 - Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
5. <u>Equisetum arvense</u>	<u>2%</u>	<u>No</u>	<u>FAC</u>	5 - Wetland Non-Vascular Plants <sup>1</sup>	
6. _____	_____	_____	_____	Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
8. _____	_____	_____	_____		
9. _____	_____	_____	_____		
10. _____	_____	_____	_____		
11. _____	_____	_____	_____		
<u>85%</u> = Total Cover				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <u>X</u>	
<b>Woody Vine Stratum (Plot size: <u>10' r</u>)</b>					
1. _____	_____	_____	_____		
2. _____	_____	_____	_____		
<u>0%</u> = Total Cover					
% Bare Ground in Herb Stratum <u>15%</u>					
Remarks: _____ Entered by: <u>sar</u> QC by: <u>cmw</u>					

**SOIL**

Sampling Point: 4

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

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

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

<b>Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)</b>		<b>Indicators for Problematic Hydric Soils<sup>3</sup>:</b>
<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) ( <b>except MLRA 1</b> )	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Matrix (F3)	<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

<b>Restrictive Layer (if present):</b>	<b>Hydric Soil Present? Yes _____ No <u>X</u></b>
Type: _____ Depth (inches): _____	

Remarks: s = sand; si = silt; c = clay; l = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	
<u>Primary Indicators (minimum of one required; check all that apply)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>except MLRA 1, 2, 4A, and 4B</b> )
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Water-Stained Leaves (B9) ( <b>MLRA 1, 2, 4A, and 4B</b> )
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Salt Crust (B11)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Aquatic Invertebrates (B13)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Presence of Reduced Iron (C4)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Recent Iron Reduction in Tilled Soils (C6)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Stunted or Stressed Plants (D1) ( <b>LRR A</b> )
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)	<input type="checkbox"/> Frost-Heave Hummocks (D7)

<b>Field Observations:</b>	<b>Wetland Hydrology Present? Yes _____ No <u>X</u></b>
Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____	
Water Table Present? Yes _____ No <u>X</u> Depth (inches): <u>&gt;16</u>	
Saturation Present? (includes capillary fringe) Yes _____ No <u>X</u> Depth (inches): <u>&gt;16</u>	

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

Remarks: Soils were very dry throughout. Entered by: sar QC by: cmw

**SW Handley Street and SW Pacific Highway  
Vegetation Table  
May 1, 2013**

Common Name	Scientific Name	Wetland Indicator Status	Native / Introduced & Invasive / Noxious
<b>WETLAND VEGETATION</b>			
Colonial Bent	<i>Agrostis capillaris</i>	FAC	introduced
Red Alder	<i>Alnus rubra</i>	FAC	native
Subarctic Lady Fern	<i>Athyrium filix-femina</i>	FAC	native
Field Horsetail	<i>Equisetum arvense</i>	FAC	native
Spreading Rush	<i>Juncus patens</i>	FACW	native
Rice Cut Grass	<i>Leersia oryzoides</i>	OBL	native
Yellow-Skunk-Cabbage	<i>Lysichiton americanus</i>	OBL	native
Reed Canary Grass	<i>Phalaris arundinacea</i>	FACW	invasive
Creeping Buttercup	<i>Ranunculus repens</i>	FAC	introduced
Himalayan Blackberry	<i>Rubus armeniacus</i>	FACU	invasive, noxious
Scouler's Willow	<i>Salix scouleriana</i>	FAC	native
Stinging Nettle	<i>Urtica dioica</i>	FAC	native
<b>UPLAND VEGETATION</b>			
Colonial Bent	<i>Agrostis capillaris</i>	FAC	introduced
Large Sweet Vernal Grass	<i>Anthoxanthum odoratum</i>	FACU	introduced
Canadian Thistle	<i>Cirsium arvense</i>	FAC	invasive, noxious
Fringed Willowherb	<i>Epilobium ciliatum</i>	FACW	native
Field Horsetail	<i>Equisetum arvense</i>	FAC	native
Sticky-Willy	<i>Galium aparine</i>	FACU	native
cutleaf geranium	<i>Geranium dissectum</i>	NOL	introduced
dovefoot geranium	<i>Geranium molle</i>	NOL	introduced
Common Velvet Grass	<i>Holcus lanatus</i>	FAC	introduced
Douglas-Fir	<i>Pseudotsuga menziesii</i>	FACU	native
Himalayan Blackberry	<i>Rubus armeniacus</i>	FACU	invasive, noxious
Curly Dock	<i>Rumex crispus</i>	FAC	introduced
tall fescue	<i>Schedonorus phoenix</i>	FAC	introduced
Tansy Ragwort	<i>Senecio jacobaea</i>	FACU	noxious
Common Dandelion	<i>Taraxacum officinale</i>	FACU	introduced

An asterisk (\*) following an indicator identifies tentative assignment in Region 9 of the USFWS plant list.

A question mark (?) preceded by a space indicates our default assumption that the plant is FAC.

Wetland Indicator Status for the WMVC Region per the National Wetland Plant List:

[https://wetland\\_plants.usace.army.mil](https://wetland_plants.usace.army.mil) accessed April 30, 2012 using Firefox

See USDA Plants Database for non-wetland plants: <http://plants.usda.gov/>

Native per Hitchcock & Cronquist 1973 and <http://plants.usda.gov/>

Invasive status per Clean Water Services 2008:

<http://www.cleanwaterservices.org/PermitCenter/DesignAndConstruction/default.aspx>

Noxious per ODA 2012

<http://www.oregon.gov/ODA/PLANT/WEEDS/lists.shtml>

<b>WETLAND INDICATOR STATUS - Western Mountains, Valleys, and Coast Region</b>	
OBL	<b>Obligate Wetland</b> - Plants that occur almost always in wetlands (estimated probability >99%) under natural conditions, but which may also rarely occur in non-wetlands (<1% probability). Examples: broadleaf cattail, skunk cabbage
FACW	<b>Facultative Wetland</b> - Plants that usually occur in wetlands (estimated probability 67%-99%), but also occur in non-wetlands an estimated 1%-33% of the time. Examples: Oregon ash, red-osier dogwood
FAC	<b>Facultative</b> - Plants that are equally likely to occur in wetlands or non-wetlands (estimated probability 34%-66%). Examples: red alder, salmonberry
FACU	<b>Facultative Upland</b> - Plants that usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands (estimated probability 1%-33%). Examples: bigleaf maple, Himalayan blackberry
UPL	<b>Upland</b> - Plants that almost always occur in non-wetlands (<1% probability of occurring in wetlands).
NOL	<b>Not Listed</b> - Plants that are not on the list; assumed to be UPL but may not have occurred in the region when indicators were assigned.

**Vegetated Corridor (VECO) Condition Assessment for CWS Natural Resource Assessment**

<b>Site:</b>	<u>SW Handley St and SW Pacific Hwy</u>		
<b>Investigators:</b>	<u>Stacey Reed and Taya MacLean</u>		
<b>Date:</b>	<u>May 1, 2013</u>		
<b>Community:</b>	Grass / Himalayan blackberry		
<b>Location:</b>	Adjacent to Floodplain Wetland		
<b>Plot ID:</b>	VECO A / Wet Det 2		
Tree species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			
			0%
Shrub species, % Cover, Native, Invasive - 30 foot radius, >5% cover:			
			15%
* <i>Rubus armeniacus</i>	Himalayan Blackberry	invasive, noxious	15%
Herb Species, % Cover, Native, Invasive - 10 foot radius, >5% cover:			
			35%
* <i>Agrostis capillaris</i>	Colonial Bent	introduced	15%
<i>Cirsium arvense</i>	Canadian Thistle	invasive, noxious	5%
<i>Epilobium ciliatum</i>	Fringed Willowherb	native	5%
<i>Galium aparine</i>	Sticky-Willy	native	5%
<i>Cardamine hirsuta</i>	Hairy Bittercress	introduced	3%
<i>Senecio jacobaea</i>	Tansy Ragwort	noxious	2%
* Dominant			
		Total Cover	50%
	Absolute areal cover		
<b>% Tree canopy:</b>	<b>0%</b>		
% Cover by natives:	10%		
% Invasive:	20%		
% Noxious:	2%		
% Non-native:	18%		
	<hr/>		
	50%		
<b>Corridor Condition:</b>	Degraded		



**Photo A.** View south of degraded condition vegetated corridor.



**Photo C.** View west of Plot 1.



**Photo B.** View west of Plot 2.



**Photo D.** View west of Plot 4.

**SW Handley Street and SW Pacific Highway  
Vegetated Corridor Planting Specifications Table  
May 13, 2013**

Vegetated Corridor Enhancement of *degraded* corridor to *good* condition upland forest  
(total planting area = 0.42 acre / 18,199 square feet)

Scientific Name	Common Name	Size*	Spacing/Seeding Rate	Quantity
<b>Trees (total 182)</b>				
<i>Acer macrophyllum</i>	bigleaf maple	2 gallon	10 feet on center	91
<i>Pseudotsuga menziesii</i>	Douglas fir	1 gallon	10 feet on center	91
<b>Shrubs (total 910)</b>				
<i>Holcus discolor</i>	oceanspray	1 gallon	4-5 feet on center	227
<i>Mahonia aquifolium</i>	tall Oregon grape	1 gallon	4-5 feet on center	228
<i>Rosa pisocarpa</i>	clustered rose	1 gallon	4-5 feet on center	227
<i>Symphoricarpus albus</i>	snowberry	1 gallon	4-5 feet on center	228
<b>Seed Mix</b>				
<i>Bromus carinatus</i>	California brome	seed	10 lb pls/acre	As needed for bare soil areas >25 square feet
<i>Elymus glaucus</i>	Blue wildrye	seed	10 lbs pls/acre	

\* Bare root plants may be substituted for container plants based on availability. If bare root plants are used, they must be planted during the late winter/early spring dormancy period.

Planting Notes (per CWS Design & Construction Standards, Appendix A Planting Requirements, June 2007):

- Plantings should preferably be installed between February 1 and May 1 or between October 1 and November 15. Plants may be installed at other times of the year; however, additional measures may be necessary to ensure plant survival. Irrigation or other water practices (i.e. polymer, plus watering) shall be used during the two-year maintenance period. Watering shall be provided at a rate of at least one inch per week between June 15 and October 15.
- Plantings shall be mulched a minimum of three inches in depth and 18 inches in diameter to retain moisture and discourage weed growth around newly installed plant material.
- Tree plantings shall be protected from wildlife damage (beaver, nutria) by installing tree-protector tubes or wire mesh cylinders around newly installed plantings.

Maintenance Plan:

- Clean Water Services requires a two-year maintenance period for vegetated corridor mitigation. The mitigation site is to be inspected annually, a minimum of three times during the growing season and one time prior to onset of the growing season. Invasive species control is to be conducted as needed based upon the site inspections.
- Clean Water Services' success criterion for vegetated corridor landscaping is 80% survival of tree and shrub plantings during the 2 years following planting. The vegetated corridor landscaping should be monitored annually in the spring or fall to assess survival of tree and shrub plantings. If any mortality is noted on the site, the factor likely to have caused mortality of plantings is to be determined and corrected if possible. If survival falls below 80% at any time during the two-year maintenance period, the plantings shall be replaced, and other corrective measures, such as additional mulching or irrigation, may need to be implemented. If replanting is necessary, the maintenance period will be extended for two years from the date of replanting.