

# **Wetland Delineation**

## **for the Palmberg Property, McCormick Gardens Road in Gearhart, Oregon**

(Township 6 North, Range 10 West, Sections 3DC & 10AB)

**Prepared for**

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PHS Project Number: 6338

**May 14, 2018**



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## **I. INTRODUCTION**

Pacific Habitat Services, Inc. (PHS) conducted a wetland delineation west of McCormick Gardens Road and north of Pacific Way in Gearhart, Oregon. The project area may include a future residential subdivision. Wetland delineation field work was initially conducted on December 11, 2017; however, a subsequent field review was conducted on March 11, 2018 to determine whether site conditions had changed appreciably during the intervening time and to collect most of the sample point data.

This report presents the results of PHS's wetland delineation. Figures, including a map depicting the location of wetlands within the study area, are located in Appendix A. Data sheets documenting on-site conditions are provided in Appendix B. Ground-level photos of the study area are in Appendix C. A discussion of the wetland delineation methodology is provided in Appendix D for the client.

## **II. RESULTS AND DISCUSSION**

### **A. Landscape Setting and Land Use**

The Palmberg property is the former location of Palmberg Paving Company. Utilization of the site appears to have been limited to the northern portion of the site only. Gravel and concrete pads and the asphalt or concrete access drives that can be observed on the site today were utilized by Palmberg Paving and likely date to the 1980's or early 1990's. The vicinity of the pond and areas to the south, east and west have been periodically mowed but otherwise not utilized. The west and northern extent of the property are dominated by shrub and forested wetlands located several feet in elevation lower than the remaining portions of the site. An approximately 4.7 acre pond located in the central portion of the site was excavated over time during the early to mid-60's when the property was under the management of a sand and gravel company.

The site's topography is gently rolling, with higher elevations located north and east of the pond. Though the forested and shrub wetlands appear to be located in areas with native soil, much of the rest of the site includes a mix of fine sand and sandy loam with varying percentages of gravel and cobble sized aggregate. Past mining and paving related land uses have resulted in a high degree of soil compaction, especially north of the pond to the forested portions of the site.

### **B. Site Alterations**

As indicated above, the site has a history of intensive aggregate and paving land uses. As a result, except for the forested and shrub wetland areas in the north and west, which were presumably too wet to access easily, the site has seen extensive alterations that date back to at least the mid 1950's. There has however been no apparent activity on the site for several years. The herbaceous portions of the site appear to be mowed regularly, primarily to allow access to the pond as it is a popular fishing spot for those with permission to access the site.

### **C. Precipitation Data and Analysis**

The study area was initially delineated on December 11, 2017; no rainfall was recorded within 7 days, with approximately 1.8 inches falling the week prior to that. No precipitation fell on March 28, 2018 when the wetland boundary was confirmed, but approximately 1.43 inches of rain fell

during the preceding week. Total observed precipitation for the water year through March 28 was 54.04 inches, which is 106% of normal.

Table 1 compares the average monthly precipitation to the observed monthly precipitation at Astoria, Oregon in the months prior to and including PHS’ wetland delineation field work. The table also compares the observed precipitation to the normal precipitation range, as identified in the NRCS WETS table for Clatsop County. As shown in Table 1, observed precipitation was somewhat below normal for winter and early spring but well above normal for the preceding fall. Despite the variability, onsite hydrologic conditions were still considered to be typical for this time of year.

**Table 1: Comparison of average and observed monthly precipitation at the Astoria Regional Airport weather station (OR224), both prior to and inclusive of both field dates.**

Month	Average Precipitation <sup>1</sup>	30% Chance Will Have		Observed Precipitation <sup>2</sup>	Percent of Normal
		Less Than Average <sup>1</sup>	More Than Average <sup>1</sup>		
September	2.61	1.00	3.16	3.15	121%
October	5.61	3.27	6.82	8.94	159%
November	10.50	7.60	12.39	14.16	135%
December	10.40	7.62	12.23	7.96	77%
January	9.62	6.41	11.52	11.36	118%
February	7.87	5.57	9.32	7.25	92%
March	7.36	5.63	8.56	4.64	63%

Notes: 1. Source: NRCS WETS Table, Clatsop County, Astoria Regional Airport (<http://agacis.rcc-acis.org/41007/wets>)  
 2. Source: National Weather Service for Astoria (<http://www.weather.gov/climate/index.php?wfo=pqr>)

## D. Methods

PHS delineated the limits of the jurisdictional wetlands in the study area based on the presence of wetland hydrology, hydric soils, and hydrophytic vegetation, in accordance with the Routine On-site Determination, as described in the *Corps of Engineers Wetland Delineation Manual, Wetlands Research Program Technical Report Y-87-1* (“The 1987 Manual”) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region*. PHS conducted the wetland delineation on December 11, 2017 and returned for most of the data collection on March 28, 2014. The time differential between the two site visits allowed for confirmation of the wetland boundaries near the beginning and middle of the winter season. In light of subtle changes in conditions, a portion of the eastern boundary of Wetland B was modified, and three additional features (Wetlands F, H and I) were delineated on March 28.

## E. Description of All Wetlands and Other Non-Wetland Waters

PHS identified the potentially jurisdictional limits of wetlands and other waters within the study area. Descriptions of the delineated resources are provided below.

## **Pond**

The large pond that encompasses nearly half of the southern extent of the study area was excavated in the late 1950's by a sand and gravel operation. After excavation it was not backfilled and as a result of the regional shallow water table, it remains ponded year round, with an apparent small rise in water levels driven by seasonal precipitation. The Cowardin classification is palustrine unconsolidated bottom, permanently flooded, excavated (PUBHx). The area of the pond, which was identified to its outlet at a west flowing ditch north of Pacific Way at the south end of the site, is 204,943 square feet (4.69 acres).

The pond itself has little vegetation, though pond lily (likely yellow pond-lily; *Nuphar lutea* OBL) is present along some of the pond edge. The pond's bank includes red alder (*Alnus rubra*, FAC), along with mixed grasses, Himalayan blackberry (*Rubus armeniacus*, FAC), and slough sedge (*Carex obnupta*, OBL).

## **Wetland A**

Wetland A is a large forested wetland that encompasses the north end of the site and extends offsite to the north. Given its undulating topography, its hydrology appears to be driven by regional water table fluctuations, resulting in seasonal ponding across much of its extent. The Cowardin classification is palustrine forested, seasonally flooded (PFOC). The HGM classification is Slope. The total area of Wetland A within the study area is 124,464 square feet (2.86 acres), but this total is a small part of a much larger wetland.

Sample points 31, 33, 35, and 37 all document wetland conditions within this forested area. The western-central portion of the wetland lies several feet in elevation below that of the eastern portion. As a result, the western area is dominated primarily by Hooker's willow (*Salix hookeriana*, FACW). Though other species of willow are likely present, no other individual species were documented. Primary herbaceous species includes slough sedge. This western portion appears to remain perennially, albeit shallowly, inundated. To the east the mostly closed canopy is comprised largely of red alder, with Hooker's willow common within and adjoining the lowest elevations, and Sitka spruce (*Picea sitchensis*, FAC) common in higher elevations. Shrub and herbaceous cover varies with the wettest, seasonally inundated areas dominated by Douglas spirea (*Spiraea douglasii*, FACW), slough sedge and skunk cabbage (*Lysichiton americanus*, OBL).

## **Wetland B**

Wetland B is a mixed forested, shrub and herbaceous wetland that encompasses the western quarter of the site. Like Wetland A, its western limits are seasonally flooded. Its eastern portion however is unlikely to be inundated and is as a result only seasonally saturated. The wetland therefore has multiple Cowardin classes PFO/SSC for the western portion and PEMY for the eastern third. The HGM classification for the entirety of the wetland is Slope.

In general the forested portion comprises the westernmost 75 to 100 feet, beginning along the western lot line, transitioning to a mixed willow shrub wetland that continues eastward. At the north end of the wetland the eastern limits of the wetland are truncated by a slope break comprised of several feet of mixed aggregate material. Further south the break is less distinct and the shrub community transitions to herbaceous species; primarily slough sedge, reed canarygrass (*Phalaris arundinacea*, FACW), common velvetgrass (*Holcus lanatus*, FAC), and other grass species that

could not be identified due to the early season and apparent grazing. The total area of Wetland B within the study area is 305,673 square feet (7.02 acres).

### **Wetland C**

Wetland C is located west of the areas commonly utilized for paving company activities but is nonetheless in an area that has seen ground disturbance and compaction, even if not for several decades. The soils are comprised of highly compacted sands, commonly with gravel and/or small cobble. Though not utilized for staging or other active uses, the area has been mowed for several decades. Dominant vegetation in the wetland and the adjoining herbaceous upland includes mixed grasses, bird's foot trefoil (*Lotus corniculatus*, FAC), reed canarygrass, narrowleaf plantain (*Plantago lanceolata*, FAC) and slough sedge. It is likely that water shallowly ponds in the wetland during and immediately following precipitation events but infiltration is sufficient enough that such ponding would be ephemeral and not more than a couple inches deep. The Cowardin classification is palustrine emergent, saturated/semipermanent/seasonal (PEMY). The HGM classification is flats. The total area of Wetland C is 10,285 square feet (0.24 acre).

### **Wetland D**

Wetland D is a small herbaceous wetland located beneath the forest canopy within a larger area of upland forest south of Wetland A. Its boundaries are defined by a narrow depression. Given the site's history of disturbance it is assumed that the feature is the result of excavation that occurred decades ago. The wetland is vegetated almost entirely by slough sedge, but also includes salmonberry (*Rubus spectabilis*, FAC), water parsley (*Oenanthe sarmentosa*, OBL), and creeping buttercup (*Ranunculus repens*, FAC). Despite the presence of 3 inches of standing water in late March 2018, as well as evidence that water depths were previously even deeper, the soils lack common hydric soil indicators. Its hydrology appears to be driven by local water table fluctuations, resulting in seasonal ponding in this area of lower topography. The Cowardin classification is palustrine emergent, despite the forested overstory. The wetland appears subject to intermittent flooding. The corresponding Cowardin class is PEMJ. The HGM classification is depressional closed, non-permanent (DCNP). The total area of Wetland D is 1,369 square feet (0.03 acre).

### **Wetlands E and F**

Wetlands E and F are located within subtle depressions in the undulating topography that defines the areas north and northeast of the pond. Soils throughout this area are comprised of sandy loam to loamy sand, with some areas including gravel or cobble. Both features intersect a groundwater elevation that is believed to be near or just above the water level elevation of the pond. Wetland E is located at a lower elevation and as a result shallow ponding appears to be common. Dominant vegetation in Wetland E includes reed canarygrass. Wetland F lies a bit higher topographically and there is no evidence of surface ponding. Rather Wetland F has a water table that extends to within 12 inches of the surface. Wetland F, like the adjoining uplands, is dominated by mixed grasses that could not be identified due to a combination of seasonality and grazing. Slough sedge is a common to locally abundant species in the vicinity of both wetlands. The Cowardin classification of each is palustrine emergent, saturated/semipermanent/seasonal (PEMY). The HGM classification of each is flat. Both wetlands are approximately 0.03 acre in size.

## **Wetland G**

Wetland G includes an area of depressed topography located south of a gravel access drive to the interior of the site. Though likely created in part through excavation, the wetland area extends above the limits of apparent excavation and includes adjoining areas. The feature is separated from Wetland H to the east by a narrow berm. The western extent of Wetland G is dominated by slough sedge, mixed grasses and horsetail (*Equisetum sp.*, FAC to FACW). The central and eastern portions include the same herbaceous species, but also include red alder trees and shrubs, salmonberry, and Himalayan blackberry. The Cowardin classification is accordingly palustrine forested and emergent saturated/semipermanent/seasonal (PFO/EMY). The HGM classification is Slope. The total area of Wetland G is 3,254 square feet (0.07 acre).

## **Wetlands H and I**

Wetlands H and I are located west of McCormick Gardens Road. They are certain to convey stormwater runoff from the road but are much wider than other ditches in the area and at the time of data collection the ditches were ponding water; there was little evidence of directional flow. Culverts connect these wetlands to each other as well as to other ditches to the north and south. Primarily herbaceous in character, these wetlands are vegetated with a mix of bulrush (*Scirpus microcarpus*, OBL), slough sedge, reed canarygrass, and other sedges. The Cowardin classification of each is palustrine emergent, seasonally flooded (PEMC). The HGM classification of each is slope. Together the wetlands total approximately 0.09 acre in size.

## **F. Deviation from LWI or NWI**

The City of Gearhart Local Wetlands Inventory (LWI) identifies several large areas of wetland (W6), as well as the pond. Though generally comparable to the results of the PHS delineation, wetlands are in actuality more or less extensive than mapped. The forest and shrub wetlands west of the site extend much closer to the pond than indicated by the LWI. The opposite is true to the south, where there is an island of upland between the pond and its outlet; a west flowing ditch that parallels Pacific Way. Similarly there are fewer forested wetlands to the north and the delineated boundary is much more convoluted than the LWI boundary would suggest. There is not a large wetland connected to the northeast portion of the pond as suggested by the LWI, though PHS did delineate several smaller wetlands in the same landscape position.

LWI maps are generated primarily through the interpretation of aerial photographs (scale of 1:58,000), with field verification largely dependent on site accessibility. It appears that site access was not allowed for the inventory, as there are no sample points within the project area. The site's subtle but somewhat undulating topography does not lend itself to the accurate determination of wetland boundaries from offsite observation only.

## **G. Mapping Method**

PHS flagged the wetland boundaries with blue flagging. Data points were flagged with lime green surveyor's tape. The wetland boundary flagging was survey-located by OTAK, Inc. The estimated accuracy of the survey is sub-centimeter, with most of the sample points having an accuracy of +/-3 feet. Due to the density of blackberries along the southern portion of the eastern pond edge, in combination with the steepness of the pond edge and proximity to private property owned by an adjoining land owner, the last 250 feet of the southern edge of the pond were not flagged. As a result of the steepness of the slope, the pond edge is readily identifiable on LIDAR. As the LIDAR pond edge was comparable to the flagged boundary where PHS had access, the

LIDAR information was deemed to be an accurate representation of the pond edge. The accuracy of the pond edge were LIDAR was utilized is estimated at +/-5 feet.

## H. Additional Information

None

## I. Results and Conclusions

PHS delineated all or a portion of nine wetlands and an excavated pond within the study area. The total area of wetlands and other waters within the project area is approximately 15.05 acres, as shown in Table 2.

**Table 2: Summary of Wetlands and Other Waters within the Project Site**

<b>Feature</b>	<b>Area Sq. ft. / Acre</b>	<b>Cowardin Class</b>	<b>HGM Class</b>
Pond	204,943 / 4.69	PUBHx	DO
Wetland A	124,434 / 2.86	PFOC	Slope
Wetland B	305,673 / 7.02	PFO/SSC & PEMY	Slope
Wetland C	10,285 / 0.24	PEMY	Flat
Wetland D	1,369 / 0.03	PEMJ	DCNP
Wetland E	1,214 / 0.03	PEMY	Flat
Wetland F	327 / 0.007	PEMY	Flat
Wetland G	3,254 / 0.07	PFO/EMY	Slope
Wetland H	1,684 / 0.04	PEMC	Slope
Wetland I	2,239 / 0.05	PEMC	Slope
<b>Total Wetlands:</b>	<b>450,509 sq. ft. (10.34 acres)</b>		
<b>Total Other Waters:</b>	<b>204,943 sq. ft. (4.69 acres)</b>		

## J. Required Disclaimer

This report documents the investigation, best professional judgment and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.



### III. REFERENCES

- Adamus, P.R. and D. Field. 2001 *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites. Willamette Valley Ecoregion, Riverine Impounding and Slopes/Flats Subclasses*. Oregon Division of State Lands, Salem, OR.
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- Oregon Department of State Lands. September 2001. *Removal-Fill Law (ORS 196.800-196.990) and Removal and Filling in Scenic Waterways (ORS 390.805-390.925)*.
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- US Geologic Survey online, 2018. The National Map Viewer.  
[http://store.usgs.gov/b2c\\_usgs/usgs/maplocator](http://store.usgs.gov/b2c_usgs/usgs/maplocator).

# Appendix A

## Figures



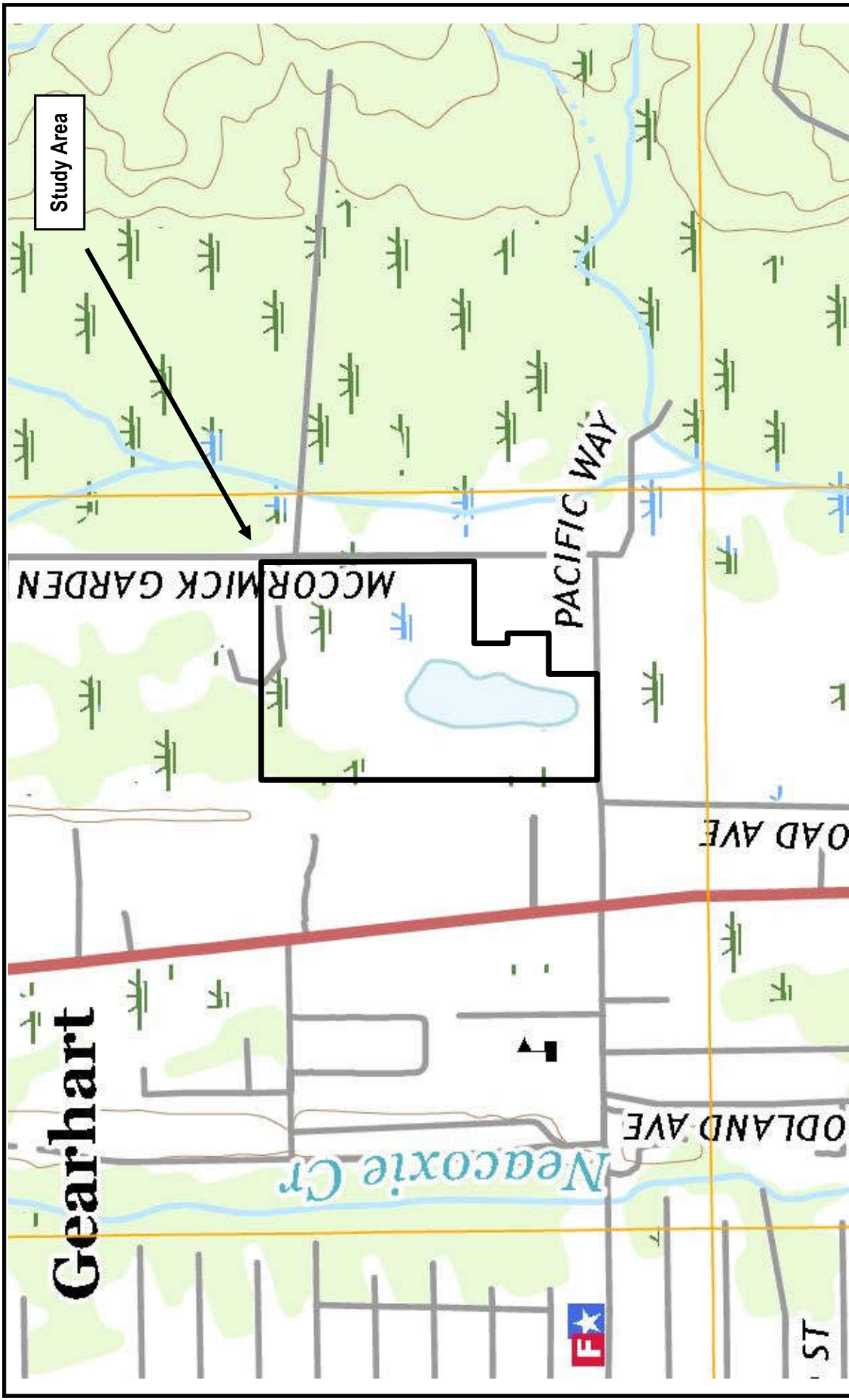
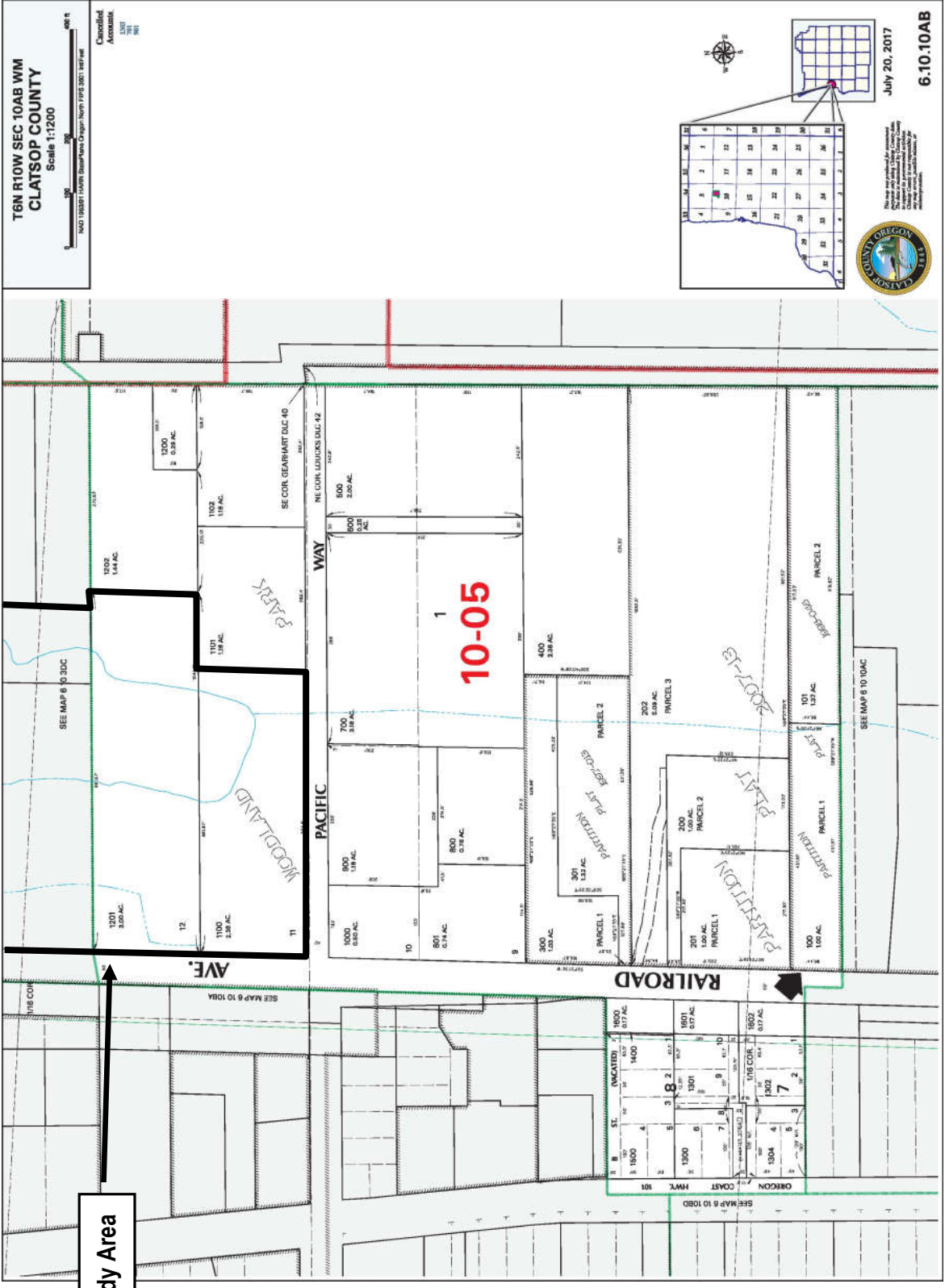


FIGURE  
1

General Location and Topography  
 PalMBERG Property Wetland Delineation - Gearhart, Oregon  
 United States Geological Survey (USGS), Gearhart Quadrangle, Oregon-Clatsop Co., 7.5 Quadrangle, 2017  
 (viewer/nationalmap.gov/basic)



**Study Area**

**FIGURE  
2A**

Tax Lot Map  
Palmborg Property Wetland Delineation - Gearhart, Oregon  
The Oregon Map (ormap.net)





# CITY OF GEARHART LOCAL WETLANDS INVENTORY (LWI)

TITLE: MAP 8 LAST EDITED: SEPTEMBER 2011

- Datapoints**
- Roads
  - Rivers / Streams
  - Tax Lots

- Study Area**
- City Limits
  - Urban Growth Boundary (UGB)

## LOCAL WETLANDS INVENTORY WETLANDS GROUP

- W1
- W2
- W3
- W4
- W5
- W6
- W7
- W8
- W8
- Estuarine Wetland (EW)

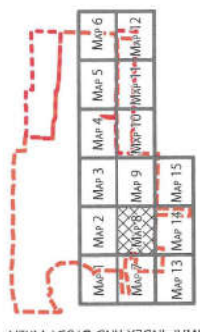
Waterbody

WD 01-0506 DSL Wetland Delineation  
T6N R10W SEC 10 / Public Land Survey System (PLSS)



THE ENTIRE STUDY AREA IS  
LOCATED WITHIN THE  
NECANUM WATERSHED

MAP INDEX AND STUDY AREA

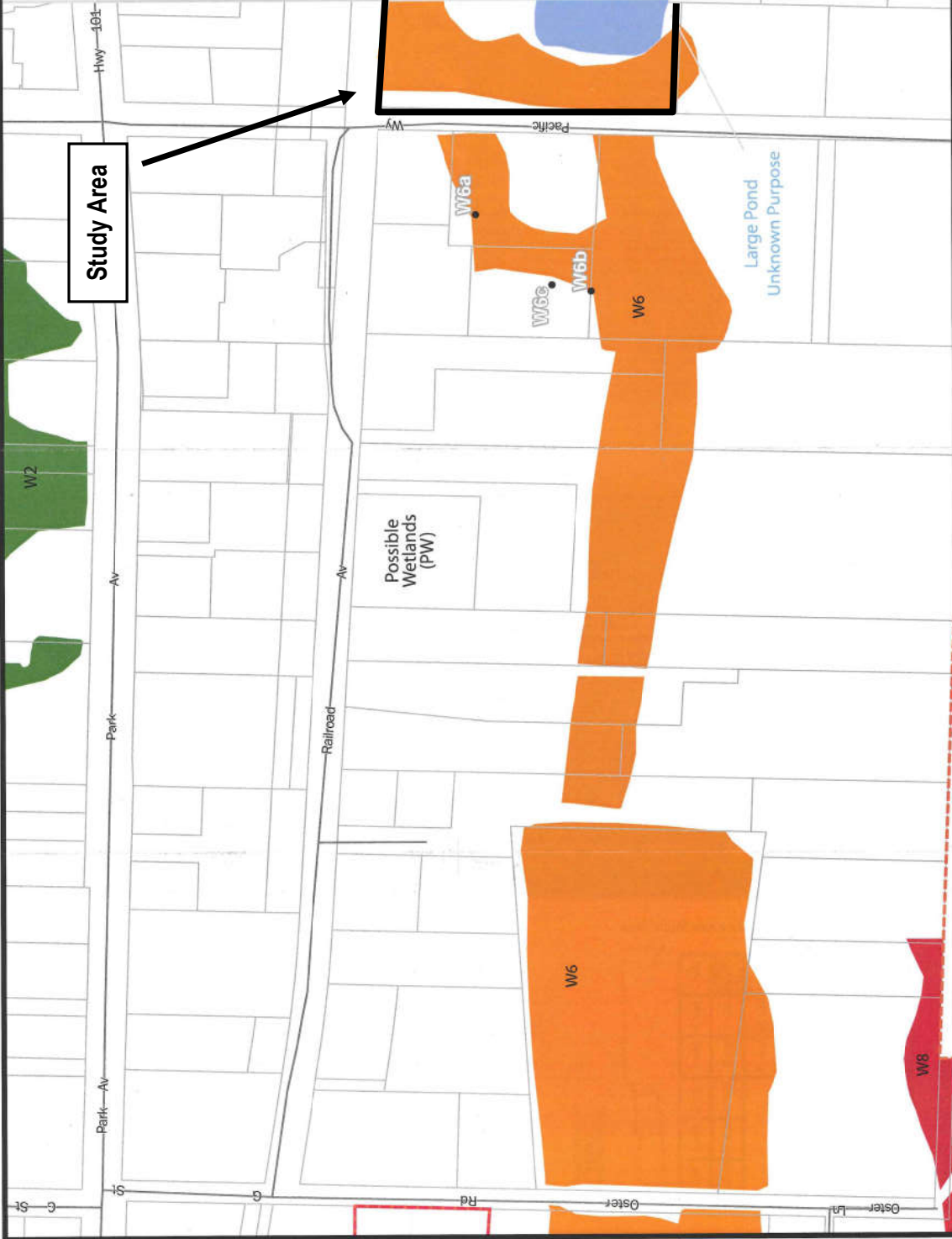


Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters is approximate. There may be unmapped wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands (DSL) approved wetland delineation is required for state permit applications. This map is not intended to be used for regulatory purposes. It is advised to consult with the Oregon Department of State Lands and the U.S. Army Corps of Engineers (ACEC) with any regulatory questions.

0 100 200 400 Feet

Columbia River Estuary Study Taskforce

**Study Area**



#6338  
1/10/2018



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Local Wetland Inventory Map  
Palmberg Property Wetland Delineation - Gearhart, Oregon  
CREST, 2011

FIGURE  
3A

# CITY OF GEARHART

## LOCAL WETLANDS INVENTORY (LWI)

TITLE: MAP 9  
LAST EDITED: SEPTEMBER 2011

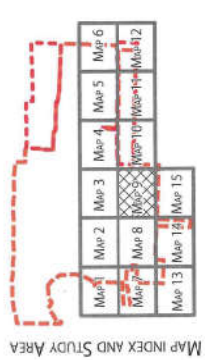
- Datapoints
- Roads
- Rivers / Streams
- Tax Lots
- City Limits
- Urban Growth Boundary (UGB)

- ### LOCAL WETLANDS INVENTORY WETLANDS GROUP
- W1
  - W2
  - W3
  - W4
  - W5
  - W6
  - W7
  - W8
- Estuarine Wetland (EW)

- Waterbody
- WD 01-0506 DSL Wetland Delineation
- T6N R10W SEC 10 / Public Land Survey
- T6N R10W SEC 03 System (PLSS)



THE ENTIRE STUDY AREA IS LOCATED WITHIN THE NECANUM WATERSHED



Information shown on this map is for planning purposes, represents the conditions that exist at the map date, and is subject to change. The location and extent of wetlands and other waters present that are subject to regulation. A current Oregon Department of State Lands (DSL) approved wetland delineation report is available for review at the Oregon Department of State Lands and the U.S. Army Corps of Engineers (ACEC) with any regulatory questions.

0 100 200 400 Feet



#6338  
1/10/2018

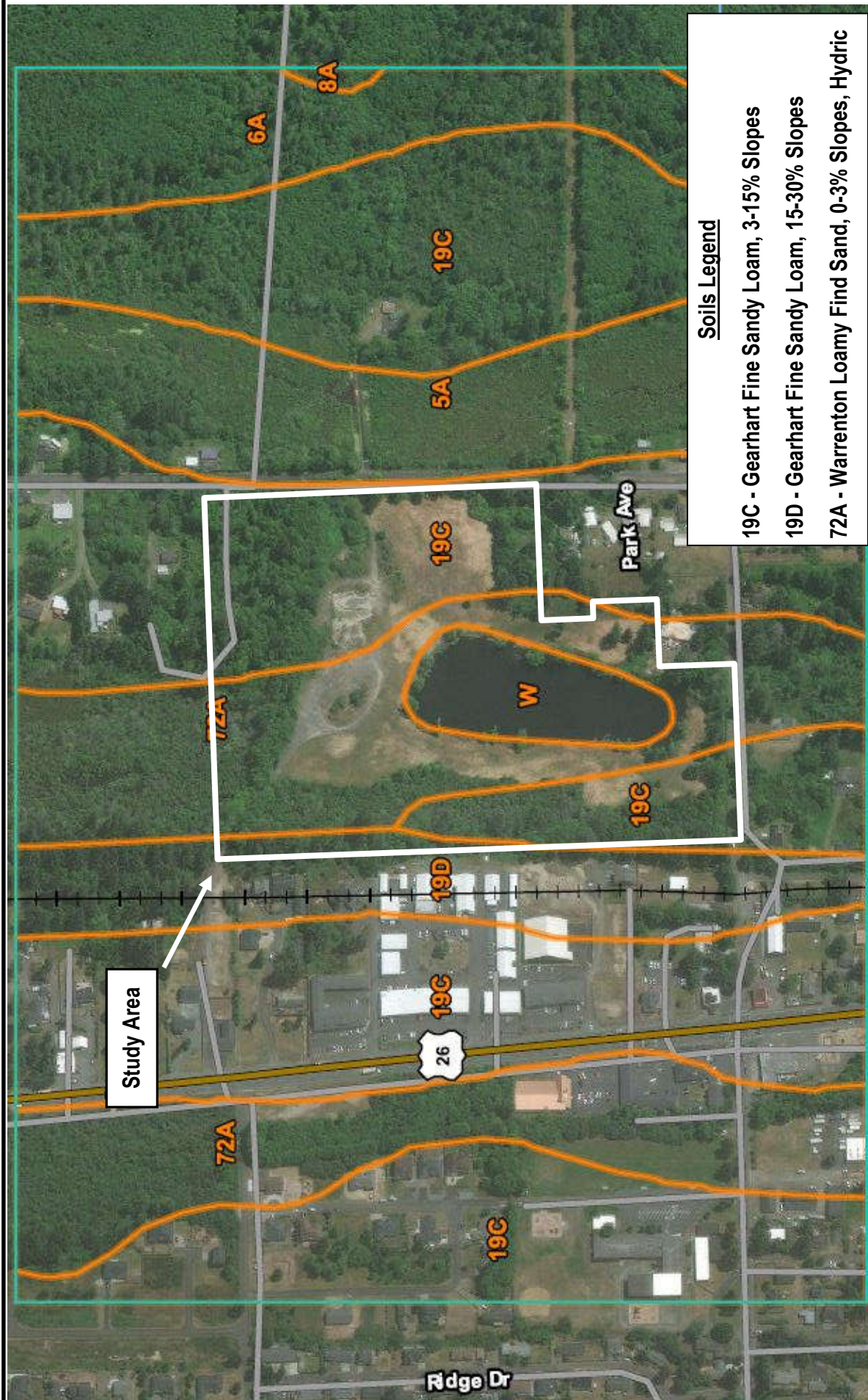


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Local Wetland Inventory Map  
Palmberg Property Wetland Delineation - Gearhart, Oregon  
CREST, 2011

FIGURE  
3B





**Soils Legend**

19C - Gearhart Fine Sandy Loam, 3-15% Slopes

19D - Gearhart Fine Sandy Loam, 15-30% Slopes

72A - Warrenton Loamy Find Sand, 0-3% Slopes, Hydric

Study Area

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Soils  
Palmberg Property Wetland Delineation - Gearhart, Oregon  
Natural Resources Conservation Services, Web Soil Survey, 2017  
(websoilsurvey.sc.egov.usda.gov)

FIGURE  
**4**





#6338  
1/10/2018



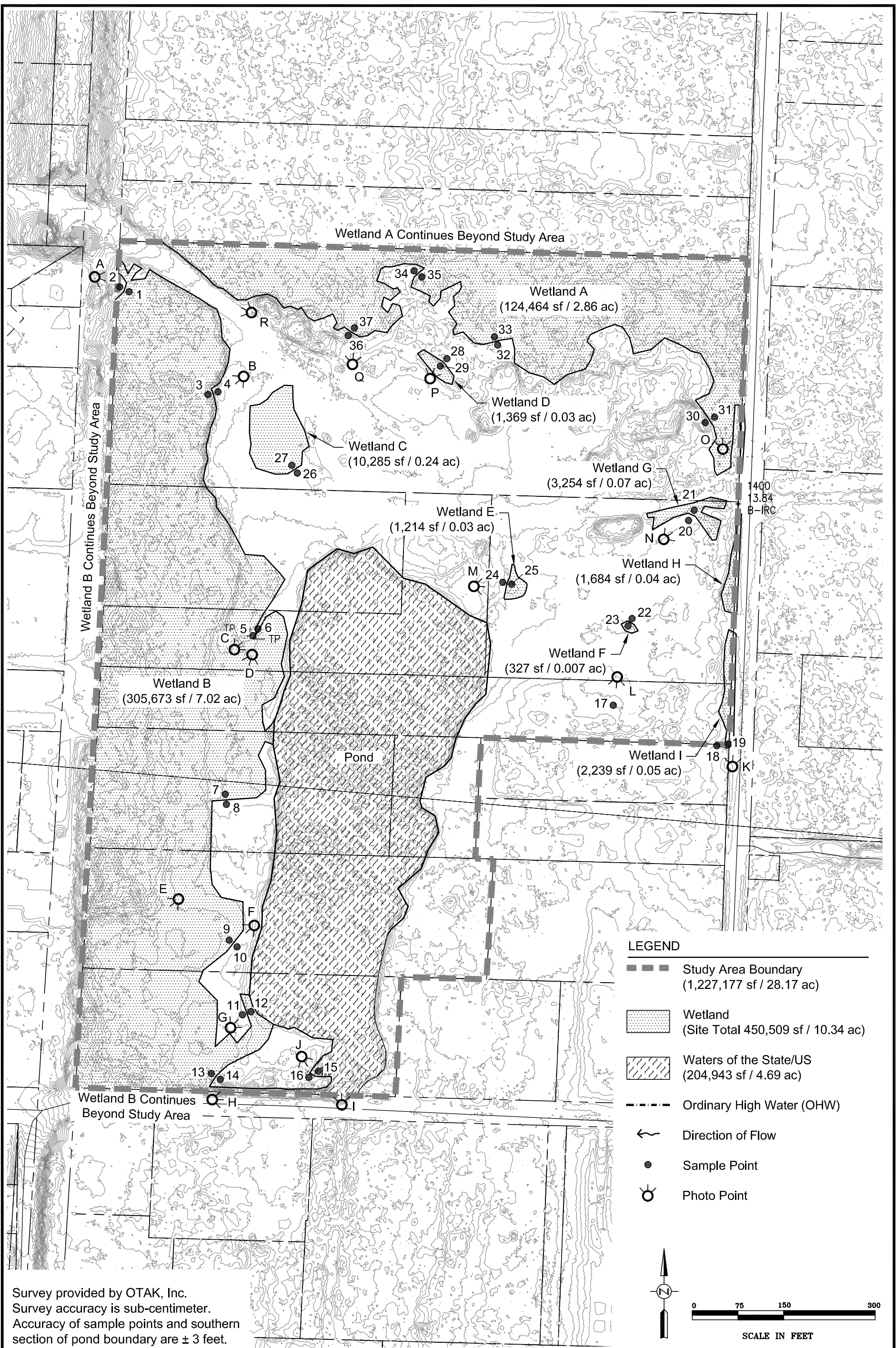
Pacific Habitat Services, Inc.  
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Wilsonville, OR 97070

FIGURE

5

Aerial Photo  
Palimberg Property Wetland Delineation - Gearhart, Oregon  
GoogleEarth, 2017





Survey provided by OTAK, Inc.  
 Survey accuracy is sub-centimeter.  
 Accuracy of sample points and southern  
 section of pond boundary are ± 3 feet.



Wetland Delineation  
 Palmberg Property, McCormick Road - Gearhart, Oregon

FIGURE  
**6**

5-3-2018

# Appendix B

## Wetland Determination Data Sheets



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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 1  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.028 Long: -123.9095 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Thuja plicata</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>4</u> (A)	
2 <u>Alnus rubra</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3 <u>Tsuga sp.</u>	<u>10</u>		<u>(FACU)</u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
4 _____					
	<u>80</u>	= Total Cover			
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				<b>Prevalence Index Worksheet:</b>	
1 <u>Rubus spectabilis</u>	<u>40</u>	<u>X</u>	<u>FAC</u>	Total % Cover of _____ Multiply by: _____	
2 <u>Gaultheria shallon</u>	<u>5</u>		<u>FACU</u>	OBL Species _____ x 1 = <u>0</u>	
3 _____				FACW species _____ x 2 = <u>0</u>	
4 _____				FAC Species _____ x 3 = <u>0</u>	
5 _____				FACU Species _____ x 4 = <u>0</u>	
	<u>45</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1 <u>Carex obnupta</u>	<u>100</u>	<u>X</u>	<u>OBL</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2 _____					
3 _____					
4 _____					
5 _____					
6 _____					
7 _____					
8 _____					
	<u>100</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1 _____				_____ 1- Rapid Test for Hydrophytic Vegetation	
2 _____				_____ <u>X</u> 2- Dominance Test is >50%	
				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
% Bare Ground in Herb Stratum <u>0</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	

Remarks:

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	96	5YR 3/4	4	C	PL	Loamy Sand	
4-12	10YR 2/1	100					Loamy Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" 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)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:  
**Clear indicator for depth requirement.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 2  
 Water Table Present? Yes  No  Depth (inches): 0  
 Saturation Present? Yes  No  Depth (inches): 0  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 1  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.028 Long: -123.9095 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy 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? (Y/N) Y  
 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>	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Tsuga sp.</u>	<u>80</u>	<u>X</u>	<u>(FACU)</u>	That are OBL, FACW, or FAC: <u>1</u> (A)	
2 <u>Alnus rubra</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species That are OBL, FACW, or FAC: <u>33%</u> (A/B)	
4 _____	_____	_____	_____	<b>Prevalence Index Worksheet:</b>	
	<u>100</u>	= Total Cover		Total % Cover of _____ Multiply by: _____	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				OBL Species _____ x 1 = <u>0</u>	
1 <u>Gaultheria shallon</u>	<u>60</u>	<u>X</u>	<u>FACU</u>	FACW species _____ x 2 = <u>0</u>	
2 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
3 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
4 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
5 _____	_____	_____	_____	Column Totals <u>0</u> (A) <u>0</u> (B)	
	<u>60</u>	= Total Cover		Prevalence Index =B/A = <u>#DIV/0!</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b>	
1 <u>Carex obnupta</u>	<u>1</u>	_____	<u>OBL</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
2 _____	_____	_____	_____	_____ 2- Dominance Test is >50%	
3 _____	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
4 _____	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
6 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7 _____	_____	_____	_____	_____	
8 _____	_____	_____	_____	_____	
	<u>1</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes _____ No _____	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**Herbaceous layer covered in duff.**

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

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

<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.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks:  
**12" duff on surface.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >16

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >16

**Wetland Hydrology Present? Yes \_\_\_\_\_ No X**

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 3  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.028 Long: 46.0274 Datum: -123.9091  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 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 _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Salix hookeriana</u>	<u>30</u>	<u>X</u>	<u>FACW</u>	That are OBL, FACW, or FAC: <u>5</u> (A)	
2 <u>Alnus rubra</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>50</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Lonicera involucrata</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u>Rubus armeniacus</u>	<u>7</u>		<u>FAC</u>	FACW species _____ x 2 = <u>0</u>	
3 <u>Rubus ursinus</u>	<u>1</u>		<u>FACU</u>	FAC Species _____ x 3 = <u>0</u>	
4 <u>Spiraea douglasii</u>	<u>1</u>		<u>FACW</u>	FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>59</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Carex obnupta</u>	<u>70</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Phalaris arundinacea</u>	<u>25</u>	<u>X</u>	<u>FACW</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____				_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>95</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>5</u>					

Remarks:



**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>		
0-5	10YR 3/3	95	7.5YR 3/4	5	C	M	Loamy Sand	Fine
5-13	2.5YR 3/1	97	5YR 3/4	3	C	M	Loamy Sand	Fine

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 7  
 Saturation Present? Yes  No  Depth (inches): 4  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 4  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Slope/Berm Local relief (concave, convex, none): Convex Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.028 Long: 46.0274 Datum: -123.9091  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:  
**Sample point is approximately 3 feet higher in elevation than adjoining SP-3.**

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: <u>30</u> )			
1 <u><i>Alnus rubra</i></u>	<u>40</u>	<u>X</u>	<u>FAC</u>
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
	<u>40</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )			
1 <u><i>Alnus rubra</i></u>	<u>25</u>	<u>X</u>	<u>FAC</u>
2 <u><i>Rubus armeniacus</i></u>	<u>5</u>	<u>X</u>	<u>FAC</u>
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
	<u>30</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1 <u><i>Phalaris arundinacea</i></u>	<u>10</u>	<u>X</u>	<u>FACW</u>
2 <u>Unidentified grass</u>	<u>10</u>	<u>X</u>	<u>(FAC)</u>
3 <u><i>Hedera helix</i></u>	<u>2</u>	_____	<u>FACU</u>
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
	<u>22</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>			

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 5 (A)  
 Total Number of Dominant Species Across All Strata: 5 (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 = 0  
 FACW species \_\_\_\_\_ x 2 = 0  
 FAC Species \_\_\_\_\_ x 3 = 0  
 FACU Species \_\_\_\_\_ x 4 = 0  
 UPL Species \_\_\_\_\_ x 5 = 0  
 Column Totals 0 (A) 0 (B)  
 Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

- \_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation
- X 2- Dominance Test is >50%
- \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>
- \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)
- \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>
- \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:  
**Ground covered in leaf litter**



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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 5  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1				That are OBL, FACW, or FAC: <u>4</u> (A)	
2				Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3				Percent of Dominant Species	
4				That are OBL, FACW, or FAC: <u>80%</u> (A/B)	
5	<u>0</u>		= Total Cover	<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1	<u>20</u>	<u>X</u>	<u>FACW</u>	OBL Species _____ x 1 = <u>0</u>	
2	<u>5</u>	<u>X</u>	<u>FAC</u>	FACW species _____ x 2 = <u>0</u>	
3				FAC Species _____ x 3 = <u>0</u>	
4				FACU Species _____ x 4 = <u>0</u>	
5				UPL Species _____ x 5 = <u>0</u>	
	<u>25</u>		= Total Cover	Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>60</u>	<u>X</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>40</u>	<u>X</u>	<u>FACW</u>	1- Rapid Test for Hydrophytic Vegetation	
3	<u>5</u>		<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
4				3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5				4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6				5- Wetland Non-Vascular Plants <sup>1</sup>	
7				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>105</u>		= Total Cover	<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: <u>15</u> )					
1	<u>5</u>	<u>X</u>	<u>FACU</u>		
2					
	<u>5</u>		= Total Cover		
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-16	10YR 2/2	85	7.5YR 2.5/2	25	C	M	Sandy Loam	Cobble 10%

<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.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

**Hydric Soil Present? Yes  No**

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes  No  Depth (inches): >16

Saturation Present? Yes  No  Depth (inches): >16

(includes capillary fringe)

**Wetland Hydrology Present? Yes  No**

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

Remarks: \_\_\_\_\_

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 6  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	
<b>Tree Stratum</b> (plot size: _____)				<b>Dominance Test worksheet:</b> Number of Dominant Species That are OBL, FACW, or FAC: <u>2</u> (A)  Total Number of Dominant Species Across All Strata: <u>4</u> (B)  Percent of Dominant Species That are OBL, FACW, or FAC: <u>50%</u> (A/B)
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				
1 <u>Rubus armeniacus</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	
2 <u>Rubus laciniatus</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	
3 _____	_____	_____	_____	
4 _____	_____	_____	_____	
5 _____	_____	_____	_____	
	<u>25</u>	= Total Cover		
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Prevalence Index Worksheet:</b> Total % Cover of _____ Multiply by: _____ OBL Species <u>5</u> x 1 = <u>5</u> FACW species <u>5</u> x 2 = <u>10</u> FAC Species <u>60</u> x 3 = <u>180</u> FACU Species <u>55</u> x 4 = <u>220</u> UPL Species _____ x 5 = <u>0</u> Column Totals <u>125</u> (A) <u>415</u> (B)  Prevalence Index =B/A = <u>3.32</u>
1 <u>Plantago lanceolata</u>	<u>35</u>	<u>X</u>	<u>FACU</u>	
2 <u>Unidentified Grass</u>	<u>30</u>	<u>X</u>	<u>(FAC)</u>	
3 <u>Hypochaeris radicata</u>	<u>15</u>	_____	<u>FACU</u>	
4 <u>Juncus effusus</u>	<u>5</u>	_____	<u>FACW</u>	
5 <u>Carex obnupta</u>	<u>5</u>	_____	<u>OBL</u>	
6 <u>Lotus corniculatus</u>	<u>5</u>	_____	<u>FAC</u>	
7 <u>Vicia sp.</u>	<u>5</u>	_____	<u>(FAC)</u>	
8 _____	_____	_____	_____	
	<u>100</u>	= Total Cover		
<b>Woody Vine Stratum</b> (plot size: _____)				
1 _____	_____	_____	_____	
2 _____	_____	_____	_____	
	<u>0</u>	= Total Cover		
<b>% Bare Ground in Herb Stratum</b> <u>0</u>				

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

Remarks: \_\_\_\_\_

**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>		
<b>0-10</b>	<b>10YR 2/2</b>	<b>100</b>					<b>Loamy Sand</b>	<b>Fine</b>
<b>10-13</b>	<b>10YR 2/2</b>	<b>99</b>	<b>7.5YR 3/4</b>	<b>1</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Fine</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>13**  
 Saturation Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>13**  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes \_\_\_\_\_ No **X**

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 7  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0256 Long: -123.9089 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
5	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				Total % Cover of _____ Multiply by: _____	
1	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
2	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
3	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
6	<u>0</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>45</u>	<u>X</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>25</u>	<u>X</u>	<u>(FAC)</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	<u>20</u>	<u>X</u>	<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4	<u>10</u>		<u>FAC</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum _____					

Remarks: \_\_\_\_\_



**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>		
<b>0-8</b>	<b>10YR 3/3</b>	<b>100</b>					<b>Sandy Loam</b>	
<b>8-15</b>	<b>7.5YR 2/2</b>	<b>90</b>	<b>7.5YR 3/4</b>	<b>10</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Medium</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:  
**Cobble up to 4 inches in size are common.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 12  
 Saturation Present? Yes  No  Depth (inches): 9  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 8  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): Convex Slope (%): 2  
 Subregion (LRR): LRR A Lat: 46.0256 Long: -123.9089 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Unidentified grass</u> <u>50</u>	<u>X</u>	<u>(FAC)</u>
2	<u>Juncus effusus</u> <u>20</u>	<u>X</u>	<u>FACW</u>
3	<u>Phalaris arundinacea</u> <u>20</u>	<u>X</u>	<u>FACW</u>
4	<u>Lotus corniculatus</u> <u>10</u>		<u>FAC</u>
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>100</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>			

**Dominance Test worksheet:**

Number of Dominant Species That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

\_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

**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>		
<b>0-12</b>	<b>10YR 3/1</b>	<b>100</b>					<b>Loamy Sand</b>	
<b>12-18</b>	<b>10YR 3/1</b>	<b>99</b>	<b>7.5YR 5/8</b>	<b>1</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Fine</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>18**  
 Saturation Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>18**  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes \_\_\_\_\_ No **X**

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 9  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0252 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>90</u>	<u>X</u>	<u>FACW</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>5</u>		<u>FACW</u>		
3	<u>5</u>		<u>(FAC)</u>		
4	<u>&lt;1</u>		<u>FAC</u>		
5	_____	_____	_____		
6	_____	_____	_____		
7	_____	_____	_____		
8	_____	_____	_____		
	<u>100</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
2	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum <u>0</u>				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	

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

Remarks:

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

**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>		
0-6	10YR 3/1	97	5YR 3/4	3	C	PL	Loamy Sand	
6-12	10YR 3/1	100					Loamy Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**Cobble beginning around 6 inches does not appear to be native but part of historic fill.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No \_\_\_\_\_ Depth (inches): 1  
 Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): 0  
 Saturation Present? Yes  No \_\_\_\_\_ Depth (inches): 0  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes AAAAAAA No \_\_\_\_\_

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 10  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0252 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
5	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1	<u>15</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
3	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>15</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>75</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>10</u>	_____	<u>OBL</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	<u>6</u>	_____	<u>FACU</u>	_____ <u>X</u> 2- Dominance Test is >50%	
4	<u>5</u>	_____	<u>FAC</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	<u>2</u>	_____	<u>FACU</u>	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	<u>1</u>	_____	<u>FACU</u>	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	_____	_____	_____	_____	
	<u>99</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum _____					

Remarks: \_\_\_\_\_

**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>		
0-7	7.5YR 2.5/2	100					Loamy Sand	
7-15	7.5YR 2.5/2	95	5YR 3/4	4	C	M	Loamy Sand	
7-15			5YR 3/4	1	C	PL		OR's
15-18	7.5YR 3/3	100					Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >18  
 Saturation Present? Yes  No  Depth (inches): >18  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 11  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PEMIC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>90</u>	<u>X</u>	<u>(FAC)</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>3</u>		<u>FACU</u>		
3	<u>3</u>		<u>FAC</u>		
4	<u>2</u>		<u>FACW</u>		
5	<u>2</u>		<u>OBL</u>		
6	<u>1</u>		<u>FAC</u>		
7	_____	_____	_____		
8	_____	_____	_____		
	<u>101</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
2	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum <u>0</u>				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
Remarks:				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
<b>This area appears to be mechanically mowed occasionally and is seasonally grazed by elk and geese.</b>				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Remarks:



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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-8	7.5YR 2.5/2	89	5YR 3/4	1	C	PL	Sandy Loam	OR's
0-8	Gravel	10						Gravel
8-16	7.5YR 2.5/2	60					Loamy Sand	
8-16	Cobble	40						Gravel & Cobble

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): 13  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes \_\_\_\_\_ No X

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

Remarks:  
**Soils were saturated at depth but not enough water to pond in pit bottom.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 12  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Slope of Pond Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 5-Mar  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PEMIC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>4</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>30</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Rubus armeniacus</u>	<u>5</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____				FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>5</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Unidentified grass</u>	<u>75</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Lotus corniculatus</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 <u>Plantago lanceolata</u>	<u>5</u>		<u>FACU</u>	_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				_____	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**Area is mowed. Cover for Rubus armeniacus is based on BPJ.**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 3/1	95	5YR 3/4	5	C	PL	Loamy Sand	OR's
4-16	10YR 3/1	90	5YR 3/3	2	C	PL	Loamy Sand	OR's
4-16			5YR 3/3	8	C	M	Loamy Sand	Large

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input checked="" 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >16  
 Saturation Present? Yes  No  Depth (inches): >16  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 13  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>70</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>70</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Alnus rubra</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____				FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>50</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Carex obnupta</u>	<u>100</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Hedera helix</u>	<u>1</u>		<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____				_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>101</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**The transition from Carex dominated to mowed portion includes Juncus effusus, Oenanthe sarmentosa, and Lonicera involucrata.**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-4	10YR 2/1	100					Sandy Loam	
4-9	10YR 2/2	88	7.5YR 3/3	2	C	M	Sandy Loam	Fine
4-9	Gravel	10						Gravel
9-12	10YR 2/2	95	5YR 3/3	5	C	M	Sandy Loam	Fine

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**Area clearly remains saturated throughout winter into early spring. Gravel at depth is evidence of modified conditions; likely from decades prior. Soils have a high organic content but are not quite mucky enough to be considered histic. From 4 to 9 mottles are 1 chroma below distinct, and below 9 inches the soils are 1 inch too deep to meet the criteria for Redox dark surface.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 5  
 Saturation Present? Yes  No  Depth (inches): 1  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 14  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Mound Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>60%</u> (A/B)	
	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1	<u>40</u>	<u>X</u>	<u>FACU</u>	OBL Species _____ x 1 = <u>0</u>	
2	<u>30</u>	<u>X</u>	<u>(FAC)</u>	FACW species _____ x 2 = <u>0</u>	
3	<u>20</u>	<u>X</u>	<u>(FAC)</u>	FAC Species _____ x 3 = <u>0</u>	
4	<u>10</u>	_____	<u>FACU</u>	FACU Species _____ x 4 = <u>0</u>	
5	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>100</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>60</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>10</u>	_____	<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	_____	_____	_____	_____ <u>X</u> 2- Dominance Test is >50%	
4	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	<u>70</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1	<u>10</u>	<u>X</u>	<u>FACU</u>		
2	_____	_____	_____		
	<u>10</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:

**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>		
0-2	7.5YR 3/1	100					Loamy Sand	
2-10	7.5YR 2.5/3	100					Loamy Sand	
10-12	10YR 3/3	100					Sand	

<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.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks:  
**2" organics on surface. Refusal at 10" due to log.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >12

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >12  
(includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 15  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9082 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>30</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
	<u>30</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Physocarpus capitatus</u>	<u>20</u>	<u>X</u>	<u>FACW</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____				FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>20</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Carex obnupta</u>	<u>40</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Hedera helix</u>	<u>10</u>	<u>X</u>	<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____				_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				_____	
	<u>50</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>50</u>					

Remarks:  
 ~ 30% moss cover. 50% open water



**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>		
0-12	10YR 2/1	60					Loamy Sand	Mucky Fine
0-12	Cobble	40						Cobble

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" 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)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**Mucky soil, greasy**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input checked="" 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 checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 2  
 Water Table Present? Yes  No  Depth (inches): 2  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 16  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Berm Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0246 Long: -123.9082 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PFOC  
 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? (Y/N) Y  
 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>	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<u>Tree Stratum</u> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Picea sitchensis</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 <u>Tsuga heterophylla</u>	<u>10</u>	<u>X</u>	<u>FACU</u>		
3 <u>Alnus rubra</u>	<u>5</u>	<u>X</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>9</u> (B)	
4 _____				Percent of Dominant Species	
	<u>25</u>	= Total Cover		That are OBL, FACW, or FAC: <u>33%</u> (A/B)	
<u>Sapling/Shrub Stratum</u> (plot size: <u>15</u> )				<b>Prevalence Index Worksheet:</b>	
1 <u>Rubus ursinus</u>	<u>30</u>	<u>X</u>	<u>FACU</u>	Total % Cover of	Multiply by:
2 <u>Gaultheria shallon</u>	<u>30</u>	<u>X</u>	<u>FACU</u>	OBL Species _____	x 1 = <u>0</u>
3 <u>Cytisus scoparius</u>	<u>20</u>	<u>X</u>	<u>UPL</u>	FACW species _____	x 2 = <u>0</u>
4 <u>Symphoricarpos albus</u>	<u>10</u>		<u>FACU</u>	FAC Species _____	x 3 = <u>0</u>
5 <u>Physocarpus capitatus</u>	<u>10</u>		<u>FACW</u>	FACU Species _____	x 4 = <u>0</u>
	<u>100</u>	= Total Cover		UPL Species _____	x 5 = <u>0</u>
<u>Herb Stratum</u> (plot size: <u>5</u> )				Column Totals	<u>0</u> (A) <u>0</u> (B)
1 <u>Polystichum munitum</u>	<u>20</u>	<u>X</u>	<u>FACU</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2 <u>Carex obnupta</u>	<u>10</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3 <u>Pteridium aquilinum</u>	<u>10</u>	<u>X</u>	<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
4 _____				_____ 2- Dominance Test is >50%	
5 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
8 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>40</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<u>Woody Vine Stratum</u> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1 _____				Yes _____	No <u>X</u>
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>60</u>					

Remarks:  
**Moss covered ground and duff.**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 2/1	100					Loamy Sand	Organic/roots
3-12	10YR 3/4	70					Loamy Sand	Fine
3-12	Cobble	30						Cobbles

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >12  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >12  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 17  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Pit Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR): LRR A Lat: 46.026 Long: -123.9065 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>60</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species	
4 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>60</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Rubus armeniacus</u>	<u>60</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u>Cytisus scoparius</u>	<u>5</u>	_____	<u>(UPL)</u>	FACW species _____ x 2 = <u>0</u>	
3 _____	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>65</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Unidentified grass</u>	<u>20</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Polystichum munitum</u>	<u>10</u>	_____	<u>FACU</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
4 _____	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____	_____	_____	_____	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>30</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**Ground covered in leaf litter**

**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>		
<b>0-4</b>	<b>10YR 2/1</b>	<b>100</b>					<b>Loamy Sand</b>	
<b>4-12</b>	<b>10YR 2/1</b>	<b>95</b>	<b>5YR 3/4</b>	<b>5</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Diffuse - Large</b>
<b>12-20</b>	<b>10YR 2/1</b>	<b>5</b>	<b>5YR 3/4</b>	<b>95</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Large</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:  
**From 12-20" sand grains are coated.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >20  
 Saturation Present? Yes  No  Depth (inches): >20  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 18  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.027 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: <u>30</u> )			
1 <u><i>Picea sitchensis</i></u>	<u>20</u>	<u>X</u>	<u>FAC</u>
2 <u><i>Unidentified Laurel</i></u>	<u>20</u>	<u>X</u>	<u>(FAC)</u>
3 <u><i>Alnus rubra</i></u>	<u>10</u>	<u>X</u>	<u>FAC</u>
4 _____	_____	_____	_____
	<u>50</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )			
1 <u><i>Gaultheria shallon</i></u>	<u>30</u>	<u>X</u>	<u>FACU</u>
2 <u><i>Rubus spectabilis</i></u>	<u>30</u>	<u>X</u>	<u>FAC</u>
3 <u><i>Rubus armeniacus</i></u>	<u>15</u>	<u>X</u>	<u>FAC</u>
4 <u><i>Prunus sp. (Laurel)</i></u>	<u>10</u>	_____	<u>(FAC)</u>
5 <u><i>Ilex aquifolium</i></u>	<u>5</u>	_____	<u>FACU</u>
	<u>90</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1 <u><i>Pteridium aquilinum</i></u>	<u>10</u>	<u>X</u>	<u>FACU</u>
2 <u><i>Blechnum spicant</i></u>	<u>10</u>	<u>X</u>	<u>FAC</u>
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
	<u>20</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>10</u>			

**Dominance Test worksheet:**

Number of Dominant Species That are OBL, FACW, or FAC: 6 (A)

Total Number of Dominant Species Across All Strata: 8 (B)

Percent of Dominant Species That are OBL, FACW, or FAC: 75% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species _____	x 1 =	<u>0</u>
FACW species _____	x 2 =	<u>0</u>
FAC Species _____	x 3 =	<u>0</u>
FACU Species _____	x 4 =	<u>0</u>
UPL Species _____	x 5 =	<u>0</u>
Column Totals <u>0</u> (A)		<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation

X 2- Dominance Test is >50%

\_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>

\_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)

\_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>

\_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:  
**Ground mostly covered in leaf litter.**

**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>		
0-18	10YR 2/1	100					Sandy Loam	

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

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >18

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >18

(includes capillary fringe)

**Wetland Hydrology Present?**  
Yes \_\_\_\_\_ No X

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

Remarks: \_\_\_\_\_

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 19  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Ditch Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.027 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
5	_____	_____	_____	<b>Prevalence Index Worksheet:</b>	
			<u>0</u> = Total Cover	Total % Cover of _____ Multiply by: _____	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				OBL Species _____ x 1 = <u>0</u>	
1	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
2	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
3	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
4	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
5	_____	_____	_____	Column Totals <u>0</u> (A) <u>0</u> (B)	
			<u>0</u> = Total Cover	Prevalence Index =B/A = <u>#DIV/0!</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b>	
1	<u>Carex sp.</u>	<u>70</u>	<u>X</u>	<u>X</u> 1- Rapid Test for Hydrophytic Vegetation	
2	<u>Carex obnupta</u>	<u>5</u>	_____	_____ 2- Dominance Test is >50%	
3	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
4	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
6	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7	_____	_____	_____	_____	
8	_____	_____	_____	_____	
			<u>75</u> = Total Cover	<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1	_____	_____	_____	Yes <u>X</u> No _____	
2	_____	_____	_____		
			<u>0</u> = Total Cover		

Remarks: **Carex sp is found growing only in wetlands; not in adjoining upland.**





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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 20  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.027 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PEMIC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>90</u>	<u>X</u>	<u>(FAC)</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>10</u>		<u>FACW</u>		
3	<u>2</u>		<u>(FAC)</u>		
4	<u>1</u>		<u>FAC</u>		
5	_____	_____	_____		
6	_____	_____	_____		
7	_____	_____	_____		
8	_____	_____	_____		
	<u>103</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
2	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	

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

Remarks: **Mowed and grazed. Unidentified species likely include Agrostis, Holcus lanatus, Alopecurus pratensis. Percent cover of Equisetum will increase as it matures.**

**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>		
0-6	7.5YR 2.5/2	100					Silt Loam	10% gravel
6-11	10YR 3/3	100					Silt Loam	
11-16	2.5YR 3/3	93	10YR 3/4	7	C	M	Fine Sand	Medium

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes **X** No \_\_\_\_\_ Depth (inches): **17**  
 Saturation Present? Yes **X** No \_\_\_\_\_ Depth (inches): **15**  
 (includes capillary fringe)

Wetland Hydrology Present?  
 Yes \_\_\_\_\_ No **X**

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 21  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.027 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PEMIC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>20</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>5</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>20</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Rubus armeniacus</u>	<u>15</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u>Alnus rubra</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>25</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Unidentified grass</u>	<u>65</u>	<u>X</u>	<u>(FAC)</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Juncus effusus</u>	<u>25</u>	<u>X</u>	<u>FACW</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 <u>Equisetum sp.</u>	<u>10</u>		<u>(FAC)</u>	_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				_____	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**Equisetum will make up a much larger portion of cover when mature; plants are only 2 to 4 inches tall at this time.**

**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>		
0-7	10YR 2/2	96	5YR 3/4	3	C	M	Loamy Sand	Fine
0-7			5YR 3/4	1	C	PL		OR's
7-12	10YR 2/1	97	7.5YR 2.5/3	3	C	M	Loamy Sand	
12-14	2.5YR 3/1	90	10YR 3/6	10	C	M	Sand	Medium

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 8  
 Saturation Present? Yes  No  Depth (inches): 5  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 22  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): Convex Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9063 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PEMIC

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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Poa sp.</u>	<u>X</u>	<u>(FAC)</u>
2	<u>Juncus effusus</u>	<u>10</u>	<u>FACW</u>
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>100</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>			

**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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
X 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

**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>		
<b>0-4</b>	<b>10YR 3/1</b>	<b>100</b>					<b>Loamy Sand</b>	
<b>4-16</b>	<b>10YR 3/1</b>	<b>98</b>	<b>5YR 3/4</b>	<b>2</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	
<b>16-24</b>	<b>10YR 4/2</b>	<b>50</b>	<b>10YR 3/6</b>	<b>50</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): >24  
 Saturation Present? Yes  No  Depth (inches): 16  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:  
**Saturation is likely from water infiltration being delayed by hard packed sand at depth. It is not associated with a water table within 24 inches.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 23  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Subtle Depression Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9063 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PEMIC

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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Unidentified grass</u>	<u>70</u>	<u>X</u> (FAC)
2	<u>Juncus effusus</u>	<u>30</u>	<u>X</u> FACW
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>100</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>0</u>			

**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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
X 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:



**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>		
0-7	10YR 2/2	94	5YR 3/4	1	C	M	Sandy Loam	Fine
0-7			7.5YR 2.5/3	5				
7-11	10YR 2/1	98	7.5YR 2.5/3	2	C	M	Loamy Sand	Fine
11-15	10YR 2/2	90	7.5YR 3/4	10	C	M	Loamy Sand	Medium
15-17	10YR 3/3	50	7.5YR 3/4	10	C	M	Loamy Sand	Medium-Fine
15-17	10YR 3/2	40					Loamy Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**3/2 at depth may be a reduction of the 3/3 soils.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input checked="" 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  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 10  
 Saturation Present? Yes  No  Depth (inches): 8  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

**Water level stabilized in pit at 10 inches, but is believed to be sitting on confining layer below that slows infiltration.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 24  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9073 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:  
**Sample point is just west of delineated wetland boundary.**

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Phalaris arundinacea</u>	<u>60</u>	<u>X</u> <b>FACW</b>
2	<u>Unidentified grass</u>	<u>30</u>	<u>X</u> <b>(FAC)</b>
3	<u>Juncus effusus</u>	<u>10</u>	<b>FACW</b>
4	<u>Rumex crispus</u>	<u>1</u>	<b>FAC</b>
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>101</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= 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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
X 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

**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>		
<b>0-16</b>	<b>10YR 2/2</b>	<b>90</b>					<b>Sandy Loam</b>	
<b>0-16</b>	<b>Cobble</b>	<b>10</b>						<b>Large Cobble</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes **X** No \_\_\_\_\_ Depth (inches): **14**  
 Saturation Present? Yes **X** No \_\_\_\_\_ Depth (inches): **11**  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes \_\_\_\_\_ No **X**

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

Remarks:  
**Water level appeared to be at similar elevation to water ponded in wetland.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 25  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 0  
 Subregion (LRR): LRR A Lat: 46.0267 Long: -123.9073 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 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 _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
5	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				Total % Cover of _____ Multiply by: _____	
1	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
2	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
3	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
6	<u>0</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>100</u>	<u>X</u>	<u>FACW</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
4	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1	_____	_____	_____	Yes <u>X</u> No _____	
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:

**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>		
<b>0-4</b>	<b>10YR 2/1</b>	<b>100</b>					<b>Loamy Sand</b>	
<b>4-14</b>	<b>10YR 2/1</b>	<b>90</b>	<b>5YR 3/4</b>	<b>10</b>	<b>C</b>	<b>M</b>	<b>Loamy Sand</b>	<b>Medium</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:  
**Appears to be an old barrier area.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 5  
 Water Table Present? Yes  No  Depth (inches): 0  
 Saturation Present? Yes  No  Depth (inches): 0  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 26  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0272 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>3</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>67%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>45</u>	<u>X</u>	<u>(FAC)</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>40</u>	<u>X</u>	<u>OBL</u>		
3	<u>25</u>	<u>X</u>	<u>FACU</u>		
4	<u>5</u>		<u>FAC</u>		
5	<u>2</u>		<u>FAC</u>		
6	<u>2</u>		<u>FACW</u>		
7	_____	_____	_____		
8	_____	_____	_____		
	<u>119</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Indicators:</b>	
1	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
2	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
	<u>0</u>	= Total Cover		_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
% Bare Ground in Herb Stratum _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
Remarks: _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	

Remarks: \_\_\_\_\_

**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>		
0-6	10YR 3/3	100					Sandy Loam	
6-11	10YR 3/2	70	7.5YR 3/3	20	C	M	Loamy Sand	Medium
6-11	Gravel	10						Gravel
11-15	10YR 3/4	60					Sand	
11-15	Gravel	20						Gravel
11-15	10YR 3/3	20					Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>15**  
 Saturation Present? Yes **X** No \_\_\_\_\_ Depth (inches): **3-8**  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes \_\_\_\_\_ No **X**

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

Remarks:

**Clearly saturated zone from 3 to 8 inches, dry below that depth. Water from recent rains appears to be slowly infiltrating. Water ponded in bottom of open pit but is not representation of a water table.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 27  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): Slightly concave Slope (%): 0  
 Subregion (LRR): LRR A Lat: 46.0272 Long: -123.9087 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>3</u> (A)	
2	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3	_____	_____	_____	Percent of Dominant Species	
4	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>0</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1	<u>5</u>	<u>X</u>	<u>(FAC)</u>	OBL Species _____ x 1 = <u>0</u>	
2	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
3	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
4	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>5</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1	<u>60</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2	<u>20</u>	<u>X</u>	<u>(FAC)</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3	<u>10</u>	_____	<u>FACW</u>	<u>X</u> 2- Dominance Test is >50%	
4	<u>10</u>	_____	<u>OBL</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5	<u>&lt;1</u>	_____	<u>FACU</u>	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6	<u>&lt;1</u>	_____	<u>FACU</u>	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8	_____	_____	_____	_____	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1	_____	_____	_____		
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>10</u>					

Remarks:  
**Some Juncus effusus east of plot. Vegetation is mowed, including shrub layer. Percent composition based on BPJ.**



**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>		
0-5	10YR 3/3	99	7.5YR 4/6	1	C	M	Silt Loam	Fine
5-11	10YR 4/1	85	2.5YR 2.5/1	5	C	M	Loamy Sand	Large
5-11			5YR 3/4	10	C	M	Loamy Sand	Large
11-16	10YR 4/2	100					Loamy Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

**No water at this location on December 10, 2017.**

Remarks:

**Saturation from surface to 8". Sandy soil at 8" are very compacted. Area several feet north of sample point inundated 2".**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 28  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Pit Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0278 Long: -123.9075 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u><i>Alnus rubra</i></u>	<u>75</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>5</u> (A)	
2 _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____	_____	_____	_____	Percent of Dominant Species	
4 _____	_____	_____	_____	That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>75</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1 <u><i>Rubus armeniacus</i></u>	<u>10</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u><i>Rubus spectabilis</i></u>	<u>10</u>	<u>X</u>	<u>FAC</u>	FACW species _____ x 2 = <u>0</u>	
3 <u><i>Lonicera involucrata</i></u>	<u>5</u>	<u>X</u>	<u>FAC</u>	FAC Species _____ x 3 = <u>0</u>	
4 _____	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
5 _____	_____	_____	_____	UPL Species _____ x 5 = <u>0</u>	
	<u>25</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u><i>Ranunculus repens</i></u>	<u>60</u>	<u>X</u>	<u>FAC</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u><i>Equisetum arvense</i></u>	<u>10</u>	_____	<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 <u><i>Polystichum munitum</i></u>	<u>5</u>	_____	<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
4 <u><i>Juncus effusus</i></u>	<u>1</u>	_____	<u>FACW</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 <u><i>Lapsana communis</i></u>	<u>1</u>	_____	<u>FACU</u>	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 <u><i>Oenanthe sarmentosa</i></u>	<u>1</u>	_____	<u>OBL</u>	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____	_____	_____	_____	_____	
	<u>78</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____	_____	_____	_____		
2 _____	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>20</u>					

Remarks:  
**Hedera helix is abundant on the Alder trees. As the trees were much further than 5 feet from the sample point they are not recorded in the woody vine stratum.**

**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>		
<b>0-19</b>	<b>10YR 3/3</b>	<b>100</b>					<b>Silt Loam</b>	

<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.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks: \_\_\_\_\_

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >19

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >19  
(includes capillary fringe)

**Wetland Hydrology Present?**  
Yes \_\_\_\_\_ No X

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

Remarks: \_\_\_\_\_

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 29  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0278 Long: -123.9075 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>1</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>1</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: _____)				<b>Prevalence Index Worksheet:</b>	
1	_____	_____	_____	Total % Cover of _____ Multiply by: _____	
2	_____	_____	_____	OBL Species _____ x 1 = <u>0</u>	
3	_____	_____	_____	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>0</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>Carex obnupta</u>	<u>100</u>	<u>X</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b>	
3	_____	_____	_____	_____ 1- Rapid Test for Hydrophytic Vegetation	
4	_____	_____	_____	<u>X</u> 2- Dominance Test is >50%	
5	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
7	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
8	_____	_____	_____	_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
	<u>100</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b>	
1	_____	_____	_____	Yes <u>X</u> No _____	
2	_____	_____	_____		
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>0</u>					

Remarks:  
**Rubus spectabilis, Oenanthe sarmentosa, and Ranunculus repens are common in this hydrologic regime, just not in the immediate vicinity.**

**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>		
<b>0-7</b>	<b>10YR 3/3</b>	<b>100</b>					<b>Silt Loam</b>	
<b>7-12</b>	<b>10YR 3/3</b>	<b>93</b>	<b>10YR 3/6</b>	<b>7</b>	<b>C</b>	<b>M</b>	<b>Silt Loam</b>	<b>Medium</b>

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**The sample area vicinity is ponded for at least 14 consecutive days during the growing season. Land form concentrates water. Pit excavation stopped at 12 inches because the sample point was located under water and profile depths could no longer be accurately determined.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

Secondary Indicators (2 or more required)

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No \_\_\_\_\_ Depth (inches): 3  
 Water Table Present? Yes  No \_\_\_\_\_ Depth (inches): 0  
 Saturation Present? Yes  No \_\_\_\_\_ Depth (inches): 0  
 (includes capillary fringe)

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 30  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Pit Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0274 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC

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? (Y/N) Y  
 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>	Is Sampled Area within a Wetland? Yes _____ No <u>X</u>
Hydric Soil Present? Yes _____ No <u>X</u>	
Wetland Hydrology Present? Yes _____ No <u>X</u>	

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
3 _____	_____	_____	_____
4 _____	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )			
1 <u>Sambucus racemosa</u>	<u>90</u>	<u>X</u>	<u>FACU</u>
2 <u>Rubus spectabilis</u>	<u>10</u>	_____	<u>FAC</u>
3 _____	_____	_____	_____
4 _____	_____	_____	_____
5 _____	_____	_____	_____
	<u>100</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1 <u>Ranunculus repens</u>	<u>60</u>	<u>X</u>	<u>FAC</u>
2 <u>Polystichum munitum</u>	<u>3</u>	_____	<u>FACU</u>
3 <u>Equisetum arvense</u>	<u>1</u>	_____	<u>FAC</u>
4 <u>Cardamine sp.</u>	<u>1</u>	_____	<u>(FAC)</u>
5 _____	_____	_____	_____
6 _____	_____	_____	_____
7 _____	_____	_____	_____
8 _____	_____	_____	_____
	<u>65</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1 _____	_____	_____	_____
2 _____	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>35</u>			

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 1 (A)

Total Number of Dominant Species Across All Strata: 2 (B)

Percent of Dominant Species  
 That are OBL, FACW, or FAC: 50% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
 \_\_\_\_\_ 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes \_\_\_\_\_ No X

Remarks: \_\_\_\_\_

**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>		
0-11	10YR 2/2	100					Sandy Loam	
11-16	10YR 3/3	100					Sandy Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 Saturation Present? Yes \_\_\_\_\_ No X Depth (inches): >16  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 31  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0274 Long: -123.9059 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>80</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>5</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
	<u>80</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Rubus spectabilis</u>	<u>25</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 <u>Spiraea douglasii</u>	<u>10</u>	<u>X</u>	<u>FACW</u>	FACW species _____ x 2 = <u>0</u>	
3 <u>Lonicera involucrata</u>	<u>10</u>	<u>X</u>	<u>FAC</u>	FAC Species _____ x 3 = <u>0</u>	
4 <u>Alnus rubra</u>	<u>5</u>		<u>FAC</u>	FACU Species _____ x 4 = <u>0</u>	
5 <u>Rubus armeniacus</u>	<u>2</u>		<u>FAC</u>	UPL Species _____ x 5 = <u>0</u>	
	<u>52</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Carex obnupta</u>	<u>75</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Athyrium americanum</u>	<u>5</u>		<u>FAC</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 <u>Ranunculus repens</u>	<u>5</u>		<u>FAC</u>	<u>X</u> 2- Dominance Test is >50%	
4 <u>Geum macrophyllum</u>	<u>3</u>		<u>FAC</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 <u>Lysichiton americanus</u>	<u>1</u>		<u>OBL</u>	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
	<u>89</u>	= Total Cover		<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>15</u>					

Remarks:  
**Skunk cabbage is just coming up and will take up a larger percentage of cover in near future.**



**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>		
0-9	2.5Y 2.5/1	75	7.5YR 2.5/3	5	C	M	Loamy Sand	Fine
0-9	Gravel	20						Gravel
9-14	2.5Y 3/3	93	5YR 4/6	7	C	M	Sand	Fine to Medium
14-17	10YR 2/2	100					Mucky Peat	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 2 cm Muck (A10)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1) (except MLRA 1)	<input type="checkbox"/> Very Shallow Dark Surface (TF12)
<input checked="" 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)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	<input type="checkbox"/> Redox Depressions (F8)	

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input checked="" 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 Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 4  
 Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 2

**Wetland Hydrology Present?**

Yes  No

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

Remarks:

**High water table may actually be perched water table.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 32  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0278 Long: -123.9075 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:  
**Sample point is located immediately south of the wetland boundary.**

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: _____)				Number of Dominant Species	
1	_____	_____	_____	That are OBL, FACW, or FAC: <u>2</u> (A)	
2	_____	_____	_____	Total Number of Dominant	
3	_____	_____	_____	Species Across All Strata: <u>2</u> (B)	
4	_____	_____	_____	Percent of Dominant Species	
	<u>0</u>	= Total Cover		That are OBL, FACW, or FAC: <u>100%</u> (A/B)	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				<b>Prevalence Index Worksheet:</b>	
1	<u>50</u>	<u>X</u>	<u>FAC</u>	Total % Cover of _____ Multiply by: _____	
2	<u>10</u>	_____	<u>FACU</u>	OBL Species _____ x 1 = <u>0</u>	
3	<u>10</u>	_____	<u>FACU</u>	FACW species _____ x 2 = <u>0</u>	
4	_____	_____	_____	FAC Species _____ x 3 = <u>0</u>	
5	_____	_____	_____	FACU Species _____ x 4 = <u>0</u>	
	<u>70</u>	= Total Cover		UPL Species _____ x 5 = <u>0</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Column Totals <u>0</u> (A) <u>0</u> (B)	
1	<u>40</u>	<u>X</u>	<u>OBL</u>	Prevalence Index =B/A = <u>#DIV/0!</u>	
2	<u>10</u>	_____	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b>	
3	<u>2</u>	_____	<u>OBL</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
4	_____	_____	_____	_____ <u>X</u> 2- Dominance Test is >50%	
5	_____	_____	_____	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
6	_____	_____	_____	_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting	
7	_____	_____	_____	_____ data in Remarks or on a separate sheet)	
8	_____	_____	_____	_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
	<u>52</u>	= Total Cover		_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
<b>Woody Vine Stratum</b> (plot size: _____)				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless	
1	_____	_____	_____	disturbed or problematic.	
2	_____	_____	_____	<b>Hydrophytic</b>	
	<u>0</u>	= Total Cover		<b>Vegetation Present?</b> Yes <u>X</u> No _____	
% Bare Ground in Herb Stratum <u>48</u>					

Remarks:

**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>		
0-18	10YR 3/2	100					Silt Loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.

<sup>2</sup>Location: PL=Pore Lining, M=Matrix.

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

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input checked="" type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes **X** No \_\_\_\_\_ Depth (inches): **11**  
 Saturation Present? Yes **X** No \_\_\_\_\_ Depth (inches): **9**  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes **X** No \_\_\_\_\_

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 33  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0278 Long: -123.9075 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )			
1	<u>Rosa pisocarpa</u> <u>40</u>	<u>X</u>	<u>FAC</u>
2	<u>Sambucus racemosa</u> <u>10</u>	<u>X</u>	<u>FACU</u>
3	_____	_____	_____
4	_____	_____	_____
5	_____	_____	_____
	<u>50</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Carex obnupta</u> <u>30</u>	<u>X</u>	<u>OBL</u>
2	<u>Lysichiton americanus</u> <u>3</u>	_____	<u>OBL</u>
3	<u>Pteridium aquilinum</u> <u>1</u>	_____	<u>FACU</u>
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>34</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>% Bare Ground in Herb Stratum</b> <u>66</u>			

**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: 67% (A/B)

**Prevalence Index Worksheet:**

Total % Cover of	Multiply by:	
OBL Species	x 1 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index =B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
X 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:

**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>		
0-6	10YR 3/2	30	5GY3	70	D	M	Silt Loam	matrix has depleted to gley
6-10	10YR 4/2	100					Silt Loam	
10-16	10YR 4/2	90	5GY3	10	D	M	Silt Loam	depleting matrix but not as much as upper profile

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input checked="" type="checkbox"/> Surface Water (A1)	<input checked="" type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): 8  
 Saturation Present? Yes  No  Depth (inches): 6  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 34  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0281 Long: -123.9078 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks: \_\_\_\_\_

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u><i>Alnus rubra</i></u>	<u>60</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 <u><i>Ilex aquifolium</i></u>	<u>10</u>		<u>FACU</u>	Total Number of Dominant Species Across All Strata: <u>5</u> (B)	
3 <u><i>Thuja plicata</i></u>	<u>10</u>		<u>FAC</u>	Percent of Dominant Species That are OBL, FACW, or FAC: <u>60%</u> (A/B)	
4 _____				<b>Prevalence Index Worksheet:</b>	
	<u>80</u>	= Total Cover		Total % Cover of _____ Multiply by: _____	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )				OBL Species _____ x 1 = <u>0</u>	
1 <u><i>Sambucus racemosa</i></u>	<u>40</u>	<u>X</u>	<u>FACU</u>	FACW species _____ x 2 = <u>0</u>	
2 <u><i>Rubus spectabilis</i></u>	<u>10</u>	<u>X</u>	<u>FAC</u>	FAC Species _____ x 3 = <u>0</u>	
3 _____				FACU Species _____ x 4 = <u>0</u>	
4 _____				UPL Species _____ x 5 = <u>0</u>	
5 _____				Column Totals <u>0</u> (A) <u>0</u> (B)	
	<u>50</u>	= Total Cover		Prevalence Index =B/A = <u>#DIV/0!</u>	
<b>Herb Stratum</b> (plot size: <u>5</u> )				<b>Hydrophytic Vegetation Indicators:</b>	
1 <u><i>Carex obnupta</i></u>	<u>50</u>	<u>X</u>	<u>OBL</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
2 <u><i>Polystichum munitum</i></u>	<u>20</u>	<u>X</u>	<u>FACU</u>	<u>X</u> 2- Dominance Test is >50%	
3 <u><i>Maianthemum dilatatum</i></u>	<u>5</u>		<u>FAC</u>	_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
4 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
5 _____				_____ 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, unless disturbed or problematic.	
8 _____				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
	<u>75</u>	= Total Cover			
<b>Woody Vine Stratum</b> (plot size: _____)					
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>25</u>					

Remarks: \_\_\_\_\_

**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>		
<b>0-5</b>	<b>7.5YR 2.5/2</b>	<b>100</b>					<b>Loam</b>	
<b>5-19</b>	<b>10YR 2/2</b>	<b>100</b>					<b>Loamy Sand</b>	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

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

**Secondary Indicators (2 or more required)**

<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No **X** Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>19**  
 Saturation Present? Yes \_\_\_\_\_ No **X** Depth (inches): **>19**  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes \_\_\_\_\_ No **X**

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 35  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): \_\_\_\_\_ Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0281 Long: -123.9078 Datum: WGS84  
 Soil Map Unit Name: Gearhart Fine Sandy Loam NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status
<b>Tree Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
3	_____	_____	_____
4	_____	_____	_____
	<u>0</u>	= Total Cover	
<b>Sapling/Shrub Stratum</b> (plot size: <u>10</u> )			
1	<u>Rubus spectabilis</u> <u>25</u>	<u>X</u>	<u>FAC</u>
2	<u>Lonicera involucrata</u> <u>10</u>	<u>X</u>	<u>FAC</u>
3	<u>Rubus armeniacus</u> <u>3</u>		<u>FAC</u>
4	_____	_____	_____
5	_____	_____	_____
	<u>38</u>	= Total Cover	
<b>Herb Stratum</b> (plot size: <u>5</u> )			
1	<u>Carex obnupta</u> <u>80</u>	<u>X</u>	<u>OBL</u>
2	<u>Athyrium americanum</u> <u>10</u>		<u>FAC</u>
3	<u>Polystichum munitum</u> <u>5</u>		<u>FACU</u>
4	_____	_____	_____
5	_____	_____	_____
6	_____	_____	_____
7	_____	_____	_____
8	_____	_____	_____
	<u>95</u>	= Total Cover	
<b>Woody Vine Stratum</b> (plot size: _____)			
1	_____	_____	_____
2	_____	_____	_____
	<u>0</u>	= Total Cover	
% Bare Ground in Herb Stratum <u>5</u>			

**Dominance Test worksheet:**

Number of Dominant Species  
 That are OBL, FACW, or FAC: 3 (A)

Total Number of Dominant Species Across All Strata: 3 (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 =	<u>0</u>
FACW species	x 2 =	<u>0</u>
FAC Species	x 3 =	<u>0</u>
FACU Species	x 4 =	<u>0</u>
UPL Species	x 5 =	<u>0</u>
Column Totals	<u>0</u> (A)	<u>0</u> (B)

Prevalence Index = B/A = #DIV/0!

**Hydrophytic Vegetation Indicators:**

\_\_\_\_\_ 1- Rapid Test for Hydrophytic Vegetation  
X 2- Dominance Test is >50%  
 \_\_\_\_\_ 3-Prevalence Index is ≤ 3.0<sup>1</sup>  
 \_\_\_\_\_ 4-Morphological Adaptations<sup>1</sup> (provide supporting data in Remarks or on a separate sheet)  
 \_\_\_\_\_ 5- Wetland Non-Vascular Plants<sup>1</sup>  
 \_\_\_\_\_ Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)

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

**Hydrophytic Vegetation Present?** Yes X No \_\_\_\_\_

Remarks:  
**Lady fern has not begun to grow but last year's growth is evident just beyond sample area limits.**



**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>		
0-11	10YR 2/2	100					Sand	Mucky
11-14	7.5YR2.5/1	98	7.5YR 3/4	2	C	M	Sand	

<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.)**

**Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

Hydric Soil Present? Yes  No

Remarks:  
**Saturated/Ponded for at least 2 weeks. Land form that concentrated water.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)	
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)	
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)	
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)	
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input checked="" type="checkbox"/> Geomorphic Position (D2)	
<input type="checkbox"/> Drift Deposits (B3)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Shallow Aquitard (D3)	
<input type="checkbox"/> Algal Mat or Crust (B4)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input checked="" type="checkbox"/> Fac-Neutral Test (D5)	
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)	
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)	
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)			
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)			

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 8  
 Water Table Present? Yes  No  Depth (inches): >14  
 Saturation Present? Yes  No  Depth (inches): Surface  
 (includes capillary fringe)

**Wetland Hydrology Present?**  
 Yes  No

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

Remarks:  
**Water is 8" deep within 2 feet of pit. At excavation point the soils are saturated to the surface but it is not associated with a water table, but rather likely from adjoining ponded water source.**

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 36  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Slope Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): 100  
 Subregion (LRR): LRR A Lat: 46.0279 Long: -123.9083 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes _____	No <u>X</u>
Hydric Soil Present?	Yes _____	No <u>X</u>			
Wetland Hydrology Present?	Yes _____	No <u>X</u>			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	<b>Dominance Test worksheet:</b>	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u><i>Alnus rubra</i></u>	<u>100</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>3</u> (A)	
2 <u><i>Picea sitchensis</i></u>	<u>5</u>		<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>4</u> (B)	
3 <u><i>Tsuga sp.</i></u>	<u>5</u>		<u>(FACU)</u>	Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>75%</u> (A/B)	
	<u>110</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>15</u> )				Total % Cover of _____ Multiply by: _____	
1 <u><i>Rubus armeniacus</i></u>	<u>30</u>	<u>X</u>	<u>FAC</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____				FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>30</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>5</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u><i>Polystichum munitum</i></u>	<u>20</u>	<u>X</u>	<u>FACU</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 <u>Unidentified grass</u>	<u>10</u>	<u>X</u>	<u>(FAC)</u>	_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____				_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				_____	
	<u>30</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum <u>70</u>					

Remarks:  
**Bare ground percentage is actually covered in moss.**

**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>		
<b>0-16</b>	<b>10YR 3/2</b>	<b>100</b>					<b>Silt Loam</b>	

<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.)** **Indicators for Problematic Hydric Soils<sup>3</sup>:**

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

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

**Restrictive Layer (if present):**

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

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

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

Remarks:  
**Some gravel and charcoal in sample.**

**HYDROLOGY**

**Wetland Hydrology Indicators:**

Primary Indicators (minimum of one required; check all that apply)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water stained Leaves (B9) (Except MLRA 1, 2, 4A, and 4B)	<input type="checkbox"/> Water stained Leaves (B9) (MLRA1, 2, 4A, and 4B)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Water Marks (B1)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Sediment Deposits (B2)	<input type="checkbox"/> Oxidized Rhizospheres 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 Plowed Soils (C6)	<input type="checkbox"/> Fac-Neutral Test (D5)
<input type="checkbox"/> Iron Deposits (B5)	<input type="checkbox"/> Stunted or Stressed Plants (D1) (LRR A)	<input type="checkbox"/> Raised Ant Mounds (D6) (LRR A)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Frost-Heave Hummocks (D7)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)		
<input type="checkbox"/> Sparsely Vegetated Concave Surface (B8)		

**Field Observations:**

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

Water Table Present? Yes \_\_\_\_\_ No X      Depth (inches): >16

Saturation Present? Yes \_\_\_\_\_ No X      Depth (inches): >16  
(includes capillary fringe)

**Wetland Hydrology Present?**  
Yes \_\_\_\_\_ No X

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

Remarks:

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

Project/Site: Palmberg Property City/County: Gearhart/Clatsop Sampling Date: 3/28/2018  
 Applicant/Owner: Bill Palmberg State: OR Sampling Point: 37  
 Investigator(s): SE/JT/CM/CR Section, Township, Range: Section 10, Township 6N, Range 10W  
 Landform (hillslope, terrace, etc.): Depression Local relief (concave, convex, none): \_\_\_\_\_ Slope (%): \_\_\_\_\_  
 Subregion (LRR): LRR A Lat: 46.0279 Long: -123.9083 Datum: WGS84  
 Soil Map Unit Name: Warrenton Loamy Fine Sand NWI Classification: PFOC  
 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? (Y/N) Y  
 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 _____	Is Sampled Area within a Wetland?	Yes <u>X</u>	No _____
Hydric Soil Present?	Yes <u>X</u>	No _____			
Wetland Hydrology Present?	Yes <u>X</u>	No _____			

Remarks:

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

	absolute % cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
<b>Tree Stratum</b> (plot size: <u>30</u> )				Number of Dominant Species	
1 <u>Alnus rubra</u>	<u>50</u>	<u>X</u>	<u>FAC</u>	That are OBL, FACW, or FAC: <u>2</u> (A)	
2 _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)	
3 _____				Percent of Dominant Species	
4 _____				That are OBL, FACW, or FAC: <u>67%</u> (A/B)	
	<u>50</u>	= Total Cover		<b>Prevalence Index Worksheet:</b>	
<b>Sapling/Shrub Stratum</b> (plot size: <u>20</u> )				Total % Cover of _____ Multiply by: _____	
1 <u>Oemleria cerasiformis</u>	<u>5</u>	<u>X</u>	<u>FACU</u>	OBL Species _____ x 1 = <u>0</u>	
2 _____				FACW species _____ x 2 = <u>0</u>	
3 _____				FAC Species _____ x 3 = <u>0</u>	
4 _____				FACU Species _____ x 4 = <u>0</u>	
5 _____				UPL Species _____ x 5 = <u>0</u>	
	<u>5</u>	= Total Cover		Column Totals <u>0</u> (A) <u>0</u> (B)	
<b>Herb Stratum</b> (plot size: <u>20</u> )				Prevalence Index =B/A = <u>#DIV/0!</u>	
1 <u>Carex obnupta</u>	<u>60</u>	<u>X</u>	<u>OBL</u>	<b>Hydrophytic Vegetation Indicators:</b>	
2 _____				_____ 1- Rapid Test for Hydrophytic Vegetation	
3 _____				_____ <u>X</u> 2- Dominance Test is >50%	
4 _____				_____ 3-Prevalence Index is ≤ 3.0 <sup>1</sup>	
5 _____				_____ 4-Morphological Adaptations <sup>1</sup> (provide supporting data in Remarks or on a separate sheet)	
6 _____				_____ 5- Wetland Non-Vascular Plants <sup>1</sup>	
7 _____				_____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
8 _____				_____	
	<u>60</u>	= Total Cover		<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.	
<b>Woody Vine Stratum</b> (plot size: _____)				<b>Hydrophytic Vegetation Present?</b> Yes <u>X</u> No _____	
1 _____					
2 _____					
	<u>0</u>	= Total Cover			
% Bare Ground in Herb Stratum _____					

Remarks:  
**Plot size for herbaceous and shrub layer was increased to 20 foot radius to encompass typical conditions in this area.**



# Appendix C

## Site Photos





**Photo A:**

View to the east of Wetland B from the northwest corner of the study area.

(Photo taken: March 28, 2018)

**Photo B:**

View to the southwest. Photos shows the forested and shrub community typical of Wetland B.

(Photo taken: March 28, 2018)



Project #6338

4/24/2018



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Wilsonville, OR 97070

Photo documentation

PalMBERG Property Wetland Delineation - Gearhart, Oregon





**Photo C:**

View to the northeast across the northern, herbaceous portion of Wetland B. Photo includes the north end of the pond in the background.

(Photo taken: December 11, 2017)

**Photo D:**

View to south across the east-central portion of Wetland B. Pond lies to the east (left).

(Photo taken: December 11, 2017)



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Photo documentation

Palmberg Property Wetland Delineation - Gearhart, Oregon





**Photo E:**

View to the southeast. Shows the character of the south-central portion of Wetland B.

(Photo taken: March 28, 2018)

**Photo F:**

View to the southwest. Shows the transition from herbaceous to forested conditions along the east side of Wetland B.

(Photo taken: March 28, 2018)



Project #6338

4/24/2018

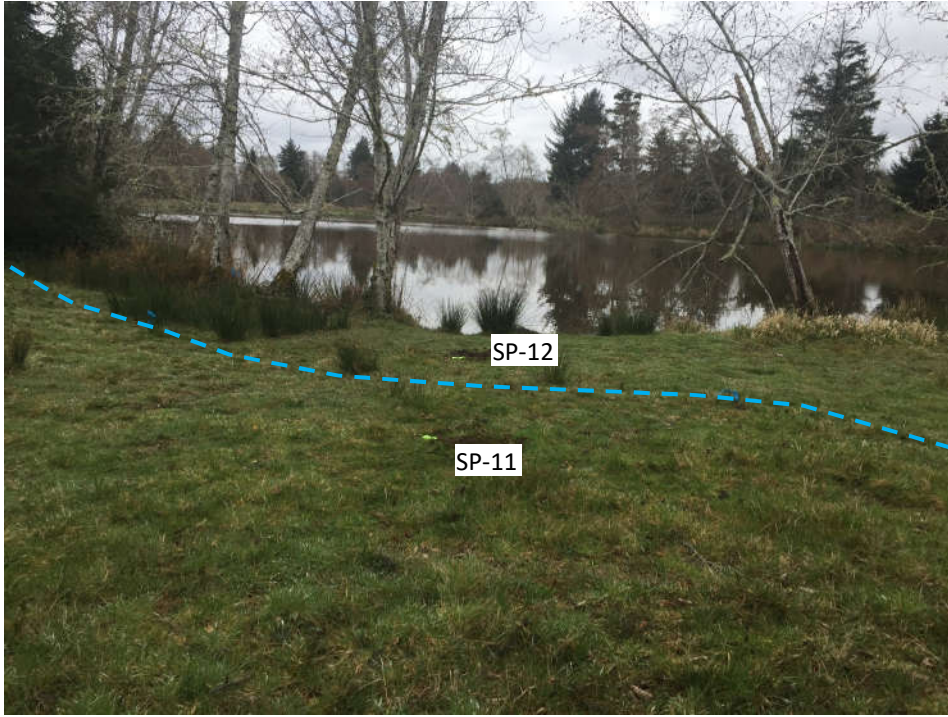


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Wilsonville, OR 97070

Photo documentation

PalMBERG Property Wetland Delineation - Gearhart, Oregon





**Photo G:**

View to the north east.  
Foreground includes herbaceous upland (Sample point 11), which transitions to herbaceous wetland along the pond edge.

(Photo taken: March 28, 2018)

**Photo H:**

View to the east along the roadside ditch north of Pacific Way that serves as the outlet channel for the onsite pond.

(Photo taken: March 28, 2018)



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4/24/2018



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Wilsonville, OR 97070

Photo documentation

Palmberg Property Wetland Delineation - Gearhart, Oregon





**Photo I:**

View to the north. Includes the southern limits of the pond as seen from Pacific Way south of the site.

(Photo taken: March 28, 2018)

**Photo J:**

View to the southeast. Includes the south end of the pond.

(Photo taken: March 28, 2018)



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Photo documentation

PalMBERG Property Wetland Delineation - Gearhart, Oregon





**Photo K:**

View to the north. Includes the south end of Wetland I. McCormick Gardens Road is to the right.

(Photo taken: March 28, 2018)

**Photo L:**

View to the south of typical upland conditions in the southeastern portion of the study area.

(Photo taken: March 28, 2018)



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Photo documentation

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**Photo M:**

View of Wetland E as seen from the west (looking east).

(Photo taken: March 28, 2018)

**Photo N:**

View to the east of the eastern portion of Wetland G.

(Photo taken: December 11, 2017)



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Photo documentation

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**Photo O:**

View to the north at the east end of Wetland A.

(Photo taken: March 28, 2018)

**Photo P:**

View to the north of Wetland D (in the foreground) and adjoining forested upland beyond.

(Photo taken: March 28, 2018)



Project #6338

4/24/2018

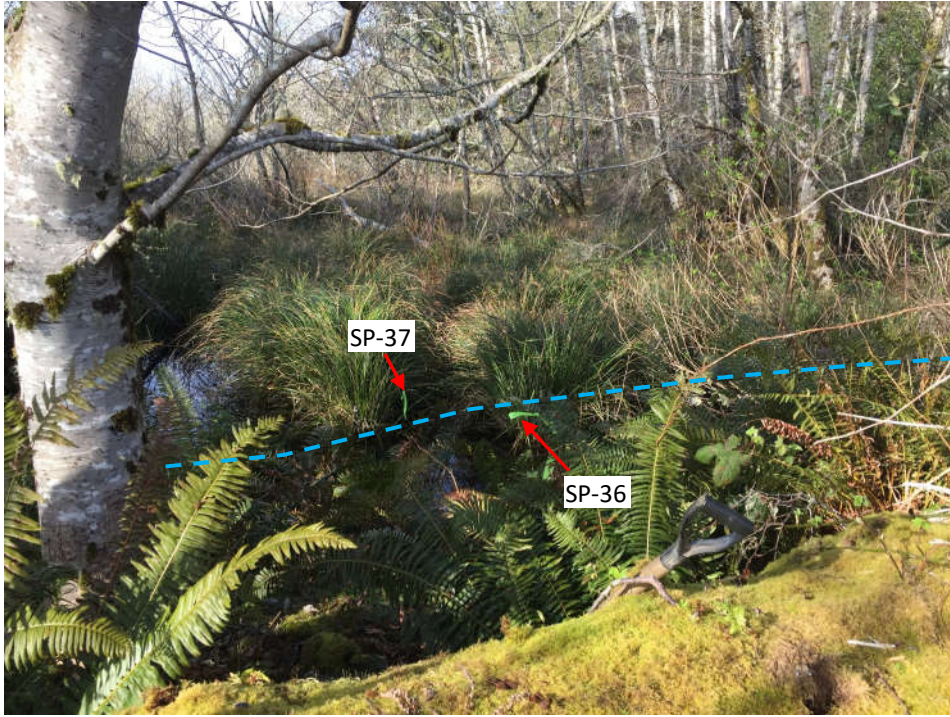


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**Photo Q:**

View to the north of typical conditions in Wetland A.

(Photo taken: March 28, 2018)

**Photo R:**

View to the west. Shows western access road that lies between Wetland A (to the right) and Wetland B (to the left).

(Photo taken: March 28, 2018)



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4/24/2018



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Photo documentation

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# Appendix D

## Wetland Definitions, Methodology, and References





# **WATERS OF THE STATE AND WETLAND DEFINITION AND CRITERIA**

## **Regulatory Jurisdiction**

Wetlands and water resources in Oregon are regulated by the Oregon Department of State Lands (DSL) under the Removal-Fill Law (ORS 196.800-196.990) and by the U.S. Army Corps of Engineers (COE) through Section 404 of the Clean Water Act.

The primary source document for wetland delineations within Oregon is the *Corps of Engineers Wetlands Delineation Manual, Technical Report Y-87-1* (Environmental Laboratory 1987) which is recognized by both DSL and COE.

## **Waters of the State and Wetland Definition**

Waters of the State are defined as “natural waterways including all tidal and nontidal bays, intermittent streams, constantly flowing streams, lakes, wetlands and other bodies of water in this state, navigable and nonnavigable...”. “Natural waterways” is further defined as waterways created naturally by geological and hydrological processes, waterways that would be natural but for human-caused disturbances (e.g. channelized or culverted streams, impounded waters, partially drained wetlands or ponds created in wetlands)...”(DSL, 2001).

Wetlands are defined as “those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions” (DSL, 2001).

## **Wetland Criteria**

Based on the above definition, three major factors characterize a wetland: hydrology, substrate, and biota.

### **Wetland Hydrology**

Wetland hydrology is related to duration of saturation, frequency of saturation, and critical depth of saturation. The 1987 manual defines wetland hydrology as inundation or saturation within a major portion of the root zone (usually above 12 inches), typically for at least 12.5% of the growing season. The wetland hydrology criterion can be met, however, if saturation within the major portion of the root zone is present for only 5% of the growing season, depending on other evidence.

The growing season is defined as the portion of the year when soil temperatures at 19.7 inches below the soil surface are higher than biological zero (41 degrees Fahrenheit, 5 degrees Celsius), but also allows approximation from frost free days, based on air temperature. The growing season for any given site or location is determined from US Natural Resources Conservation Service, (formerly Soil Conservation Service) data and information.

Wetland hydrologic indicators include the following: visual observation of inundation or saturation, watermarks, drift lines, sediment deposits, drainage pattern, and/or oxidized rhizospheres with living roots. Oxidized rhizospheres are defined as yellowish-red zones around the roots and rhizomes of some plants that grow in frequently saturated soils.

### Wetland Substrate (Soils)

Most wetlands are characterized by hydric soils. Hydric soils are those that are ponded, flooded, or saturated for long enough during the growing season to develop anaerobic conditions. Periodic saturation of soils causes alternation of reduced and oxidized conditions, which leads to the formation of redoximorphic features (gleying and mottling). Mineral hydric soils will be either gleyed or will have bright mottles and/or low matrix chroma. The redoximorphic feature known as gley is a result of greatly reduced soil conditions, which result in a characteristic grayish, bluish or greenish soil color. The term mottling is used to describe areas of contrasting color within a soil matrix. The soil matrix is the portion of the soil layer that has the predominant color. Soils that have brightly colored mottles and a low matrix chroma are indicative of a fluctuating water table.

Hydric soil indicators include: organic content of greater than 50% by volume, sulfidic material or “rotten egg” odor, and/or presence of redoximorphic features and dark soil matrix, as determined by the use of a Munsell Soil Color Chart. This chart establishes the chroma, value and hue of soils based on comparison with color chips. Mineral hydric soils usually have a matrix chroma of 2 or less in mottled soils, or a matrix chroma of 1 or less in unmottled soils.

### Wetland Biota (Vegetation)

Wetland biota is defined as hydrophytic vegetation. A hydrophyte is a plant species that is capable of growing in substrates that are periodically deficient in oxygen as a result of saturated soil conditions. The U.S. Fish and Wildlife Service, in the *National List of Plant Species that Occur in Wetlands*, has established five basic groups of vegetation based on their frequency of occurrence in wetlands. These categories, referred to as the "wetland indicator status", are as follows: obligate wetland plants (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), and obligate upland (UPL). Table 1 gives a definition of the plant indicator codes.

**Table 1. Description of Wetland Plant Indicator Status Codes**

Indicator Code	Status
OBL	Obligate wetland. Estimated to occur almost exclusively in wetlands (>99%)
FACW	Facultative wetland. Estimated to occur 67-99% of the time in wetlands.
FAC	Facultative. Occur equally in wetlands and non-wetlands (34-66%).
FACU	Facultative upland. Usually occur in non-wetlands (67-99%).
UPL	Obligate upland. Estimated to occur almost exclusively in non-wetlands (>99%). If a species is not assigned to one of the four groups described above it is assumed to be obligate upland.
NI	Has not yet received a wetland indicator status, but is probably not obligate upland.

Observations of hydrology, soils, and vegetation, were made using the "Routine On-site" delineation method as defined in the 1987 manual for areas that were not currently in agricultural production. One-foot diameter soil pits were excavated to 16 inches and soil profiles were examined for hydric soil and wetland hydrology field indicators. In addition, a visual percent-

cover estimate of the dominant species of the plant community was performed using soil pit locations as a center of reference. Dominant plant species are based on estimates of percent cover for herbaceous, woody vine, and shrub species within a 5 foot radius of the sample point, and basal area cover for tree species within a 30 foot radius of the sample point. Plant species in each vegetative layer, which are estimated at less than 20%, are not considered to be dominant. The wetland indicator status is then used to determine if there is an overall dominance (greater than 50%) of wetland or upland plant species.

During data collection, the soil profiles were examined for hydric soil and wetland hydrology field indicators. Plant species and cover were recorded. Data was recorded on standard data sheets which contain the information specified in the 1987 Corps manual.