WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

Fully completed and signed report cover forms and applicable fees are required before report review timelines are initiated by the Department of State Lands. Make checks payable to the Oregon Department of State Lands. To pay fees by credit card, go online at: https://apps.oregon.gov/DSL/EPS/program?key=4.

Attach this completed and signed form to the front of an unbound report or include a hard copy with a digital version (single PDF file of the report cover form and report, minimum 300 dpi resolution) and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279.** A single PDF of the completed cover from and report may be e-mailed to: **Wetland_Delineation@dsl.state.or.us**. For submittal of PDF files larger than 10 MB, e-mail DSL instructions on how to access the file from your ftp or other file sharing website.

Contact and Authorization Information

☒ Applicant ☐ Owner Name, Firm and Address:
Chris Workman, Philomath City Manager
PO Box 400
1515 Willow Lane
Philomath, OR 97370

Business phone # (541) 929-6148
Mobile phone # (optional)
E-mail: Chris.Workman@philomathoregon.gov

☐ Authorized Legal Agent, Name and Address (if different):

Business phone #
Mobile phone # (optional)
E-mail:

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.

Typed/Printed Name: Chris Workman **Signature:** [signature]

Date: _____ Special instructions regarding site access: Contact consultant.

Project and Site Information

Project Name: Philomath Water Treatment Plant

Latitude: 44.536786° N Longitude: -123.374411° W
decimal degree - centroid of site or start & end points of linear project

Proposed Use:
New Water Treatment Plant Reservoir and new outfall to Marys River.

Tax Map # 12S 6W 11D
Tax Lot(s) Portions of 400, 700, 1100, and 1200

Tax Map # 12S 6W 12C
Tax Lot(s) Portions of 400 and and 9th Street ROW

Project Street Address (or other descriptive location):
400 N 9th St., west of Marys River Park

Township 12S Range 6W Section 11D, 12C QQ 11SE,12S
Use separate sheet for additional tax and location information

City: Philomath County: Benton

Waterway: Marys River River Mile: ~12.75

Wetland Delineation Information

Wetland Consultant Name, Firm and Address:
C. Mirth Walker, SPWS
SWCA Environmental Consultants
1220 SW Morrison St., Suite 700
Portland, OR 97205

Phone # (503) 914-6055
Mobile phone # (if applicable) (503) 860-1708
E-mail: cmwalker@swca.com

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.
Consultant Signature: C. Mirth Walker Date: 02/26/2021

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent

Wetland/Waters Present? ☒ Yes ☐ No Study Area size: 6.85 Total Wetland Acreage: 0.6100

Check Applicable Boxes Below

☐ R-F permit application submitted
☐ Mitigation bank site
☐ EFSC/ODOE Proj. Mgr: _____
☐ Wetland restoration/enhancement project (not mitigation)
☒ Previous delineation/application on parcel
If known, previous DSL # WD1995-0326

☒ Fee payment submitted $ 475 Check to be mailed with WD#
☐ Resubmittal of rejected report ($100)
☐ Request for Reissuance. See eligibility criteria. (no fee)
DSL # _____ Expiration date_____
☒ LWI shows wetlands or waters on parcel
Wetland ID code MR 8

For Office Use Only

DSL Reviewer: MU Fee Paid Date: ____/____/____ DSL WD # 2021-0101

Date Delineation Received: 3 / 3 / 21 Scanned: ☐ Electronic: ☒ DSL App.# _____

NOTICE: REPORTS ARE CONSIDERED DRAFT DOCUMENTS UNTIL REVIEW IS COMPLETED BY DSL. WETLAND MAPS MAY CHANGE AS A RESULT OF DSL REVIEW.

City of Philomath
Water Treatment Plant
Wetland Delineation Report

FEBRUARY 2021

PREPARED FOR

Westech Engineering, Inc.

PREPARED BY

SWCA Environmental Consultants

CITY OF PHILOMATH WATER TREATMENT PLANT WETLAND DELINEATION REPORT

TOWNSHIP 12 SOUTH, RANGE 6 WEST, SECTION 11D, PORTIONS OF TAX LOTS 400, 700, 1100, AND 1200 ON TAX MAP 12 6 11D, AND SECTION 12C, PORTIONS OF TAX LOT 400 AND 9TH STREET RIGHT-OF-WAY, BENTON COUNTY, PHILOMATH, OREGON

Prepared for

Westech Engineering, Inc.
3841 Fairview Industrial Drive SE, Suite 100
Salem, Oregon 97302

Prepared by

SWCA Environmental Consultants
1220 SW Morrison Street, Suite 700
Portland, Oregon 97205
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February 2021

SWCA Project No. 30470.05

CONTENTS

Tables

Appendices

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1 INTRODUCTION

SWCA Environmental Consultants (SWCA) conducted a wetland delineation on portions of the City of Philomath Water Treatment Plant property located at 400 S 9th Street in Philomath, Oregon (Figure 1; all figures are in Appendix A). The approximately 6.85-acre study area includes portions of Tax Lots 400, 700, 1100, and 1200 on Tax Map 12 6 11D, and portions of Tax Lot 400 and the 9th Street right-of-way (ROW) on Tax Map 12 6 12C, Benton County (Figures 2 and 3). The study area includes a portion the City-owned Marys River Park. The center of the study area is located at 44.536786° N and –123.374411° W. This report presents the results of the delineation of two wetlands, one ditch, a small portion of the Marys River, a portion of two natural ponds, and two artificial backwash ponds.

Part of the current study area boundary was previously delineated in 1995 under Oregon Department of State Lands (DSL) File No. WD1995-0326 (Appendix B). The WD found that the upper segment of the ditch appeared to be artificial and not jurisdictional, but a lower undefined segment of the ditch was jurisdictional where it intersected an old river channel.

2 LANDSCAPE SETTING AND LAND USE

The study area is within the Middle Marys River (Hydrologic Unit Code 170900030205) watershed (Oregon State University [OSU] 2020a), and within the Willamette Valley Prairie Terraces ecoregion (Thorson et al. 2003). The existing water treatment plant within the study area is west of 9th Street. Marys River flows east-southeast along the southernmost portion of the study area. The water treatment plant is surrounded by paved and gravel parking lots, driveways, and planter strips. Two small, approximately 2,000 square-foot, artificial ponds south of the water treatment plant are backwash ponds.

The study area is bounded on the west by an open grass field and riparian forest; on the north by a vacant field, a large gravel lot associated with an excavation company, the Philomath Food Bank building, and a commercial sawyer operation; on the east by Marys River Park; and on the south by Marys River Park and riparian areas. Surrounding land uses include commercial, recreational, and agricultural.

The study area is on a terrace that slopes gently south toward Marys River. Vegetation communities include wetland meadow, upland meadow, riparian forest, and landscaped areas. Wetland meadow was dominated by field meadow-foxtail (*Alopecurus pratensis*) and small or common camas (*Camassia quamash*). Upland meadow was dominated by field meadow-foxtail and large sweet vernal grass (*Anthoxanthum odoratum*). Riparian forest was dominated by black cottonwood (*Populus balsamifera* ssp. *trichocarpa*), Oregon white oak (*Quercus garryana*), Oregon ash (*Fraxinus latifolia*), and willows (*Salix* spp.). An old oxbow pond and a small forested pond are present along the eastern boundary of the study area.

3 SITE ALTERATIONS

The study area has been significantly altered from its natural condition. The Oregon Rapid Wetland Protocol Explorer interactive mapper (OSU 2020a) describes the pre-settlement vegetation class as being dominated by Roemer's fescue (*Festuca roemeri*). The study area is currently dominated by non-native lawn and pasture grasses, with narrow bands of intact riparian vegetation present.

Much of the study area west of 9th Street has been graded, paved, or graveled with grass field portions regularly mowed. The study area east of 9th Street is in a somewhat natural state in Marys River Park. A

roadside ditch runs parallel to the east side of the street and flows off-site to the south. Aerial photographs indicate that the park is typically mowed in the summer months (Appendix C).

4 PRECIPITATION DATA AND ANALYSIS

The WETS (short for wetlands climate analysis) station used to obtain historical precipitation data for the project site was the Corvallis State University, OR station (National Oceanic and Atmospheric Administration [NOAA] 2020). The WETS table shows that Corvallis receives an average of 42.71 inches of rainfall per year and lists the growing season start and end dates as February 27 to November 20.

Precipitation data and daily normals were obtained from the Corvallis State University weather station via the NOAA Regional Climate Centers Applied Climate Information System AgACIS website (NOAA 2020) and the Hyslop weather station located northeast of Corvallis (OSU 2020b). Precipitation prior to SWCA's April 9 and April 25, 2018, site visits is shown in Table 1 (monthly precipitation averages for the 3 months prior) and Table 2 (precipitation summary for the 2 weeks prior).

Table 1. 2018 Precipitation Data – Monthly Averages Based on the Climate Period 1971–2000

Month	Average (inches)	30% Chance Will Have (inches)		Observed Precipitation (inches)	Within Normal Range?
		Less Than	More Than		
March	4.44	3.46	5.35	4.55	Normal (102%)
February	5.11	3.91	6.80	2.09	Below Normal (41%)
January	6.40	3.95	7.82	6.41	Normal (100%)

Source: NOAA (2020).

Table 2. 2018 Precipitation Summary

Day of Site Visit	Observed Precipitation (inches)				WYTD Normal Value (Percent of Normal)	CYTD Normal Value (Percent of Normal)
	Day of	2 Weeks Prior	WYTD	CYTD		
April 9	0.00	2.62	33.56	15.44	34.61 (97%)	16.86 (92%)
April 25	0.00	2.34	36.08	17.96	36.14 (100%)	18.39 (98%)

Note: CYTD = calendar year to date; WYTD = water year to date.
Source: NOAA (2020).

Overall, the precipitation was within the normal range during 2018, though February was drier than normal (3.02 inches below the normal range). Rainfall for both the April 9 and April 25 site visits was normal for the water year to date. The day before the April 9 fieldwork received 1.81 inches of rainfall. No rain was observed during either site visit.

Precipitation prior to SWCA's December 10, 2020, site visit is shown in Table 3 (monthly precipitation averages for the 3 months prior) and Table 4 (precipitation summary for the 2 weeks prior).

Table 3. 2020 Precipitation Data – Monthly Averages Based on the Climate Period 1971–2000

Month	Average (inches)	30% Chance Will Have (inches)		Observed Precipitation (inches)	Within Normal Range?
		Less Than	More Than		
November	6.94	4.55	8.34	7.11	Normal (102%)
October	3.10	1.70	3.68	2.26	Normal (73%)
September	1.25	0.55	1.73	1.96	Above Normal (157%)

Source: NOAA (2020).

Table 4. 2020 Precipitation Summary

Day of Site Visit	Observed Precipitation (inches)				WYTD Normal Value (Percent of Normal)	CYTD Normal Value (Percent of Normal)
	Day of	2 Weeks Prior	WYTD	CYTD		
December 10	0.02	0.86	9.74	34.35	12.49 (78%)	37.45 (92%)

Note: CYTD = calendar year to date; WYTD = water year to date.
Source: NOAA (2020).

Precipitation was within the normal range; however, September (7.11 inches, 0.17 inch above average) and November (1.96 inches, 0.71 inch above normal) both received above average rainfall. Rainfall for the 2020 water year to date was 9.74 inches at the time of the December 10 site visit, which is 2.74 inches below normal. At the time of the survey, a total of 0.86 inch of rain was received in the 2 weeks prior, which is 2.95 inches below normal for the water year. Overall precipitation was normal at the time of the site visit. Precipitation data are included in Appendix D.

5 METHODS

The methodology used for determining the presence of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)* (U.S. Army Corps of Engineers [USACE] 2010), used by both USACE and DSL. Two days of fieldwork (April 9 and 25) were conducted in 2018 to document site conditions and delineate the wetland and waters boundaries of the new treatment plant site and proposed outfall to the Marys River location. Site visits were conducted by C. Mirth Walker, then Professional Wetland Scientist (PWS), and former SWCA employees Tom Dee (PWS) and Evan Dulin, Wetland Scientist. An additional site visit was conducted on December 10, 2020, by C. Mirth Walker, now Senior PWS, and Rachel Locke, Wetland Scientist, due to changes to the proposed site plan (a new outfall alignment and a more stable river bank section of the Marys River were delineated). Soils, vegetation, and hydrology were documented at 10 sample plot locations on standardized wetland determination data forms (Appendix E). Wetland boundaries and sample point locations were marked in the field with pin flags and streamers, which were removed after being professionally land surveyed.

Non-wetland waters were delineated according to *Regulatory Guidance Letter 05-05* (USACE 2005) and Oregon Administrative Rules (OARs) (DSL 2013). Ordinary High Water Line (OHWL) determinations were based on observations of scour, sediment deposition, debris wracks, and other readily observable indicators. The portions of the OHWL of the river, the old oxbow pond, and the forested pond which were located within the project area were marked in the field with red pin flags and streamers. The right bank

of the roadside ditch's OHWL was flagged in the field with red pin flags and streamers. The ditch was too steep to safely access the left bank.

Representative ground-level site photographs are included in Appendix F. A list of plants observed on-site along with their wetland indicator status is included in Appendix G.

The Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2021a) depicts three soil units (and water) within the study area (Figure 4). Conser silty clay loam is listed as hydric, and Coburg silty clay loam and Malabon silty clay loam are listed as non-hydric but may contain inclusions of Waldo and Riverwash hydric soils (NRCS 2021b) (Table 5).

Table 5. Soil Mapping

Map Unit Symbol	Map Unit Name	Hydric	Hydric Inclusion
50	Coburg silty clay loam, rarely flooded, 0%–3% slopes	No	Waldo, Riverwash
111	Malabon silty clay loam, rarely flooded, 0%–3% slopes	No	Waldo, Riverwash
159	Water	Yes	–
2205A	Conser silty clay loam, 0%–3% slopes	Yes	Awbrig, Courtney

Source: NRCS (2021a,b).

The Local Wetlands Inventory (LWI) map is shown in Figure 5.

6 DESCRIPTION OF ALL WETLANDS AND OTHER NON-WETLAND WATERS

6.1 Wetlands

Two wetlands were identified within the study area, totaling 0.61 acre (Figure 6). The wetlands are described below.

Wetland A (0.06 acre) Wetland A is classified as a palustrine forested (PFO) wetland using the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and classified as a Valley Slope (SV) wetland using the *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles* (Adamus 2001). Hydrology was identified by Surface Water (A1), High Water Table (A2), and Saturation (A3). Soils displayed the Redox Dark Surface (F6) hydric soil indicator. The vegetation was predominantly Sitka willow (*Salix sitchensis*) with lemon balm (*Melissa officinalis*) and willow dock (*Rumex salicifolius*) in the understory layer. Wetland A is in the approximate location of the non-jurisdictional wetland shown in the WD (Appendix B); it presents a different shape now. Wetland A is contained within the study area.

Wetland B (B1 0.409 acre and B2 0.144 acre; 0.55 acre total)
Wetland B is classified as a palustrine emergent (PEM) and PFO wetland (Cowardin et al. 1979) and classified as a SV wetland under HGM classificiation (Adamus 2001). The wetland is in the northeast corner of the study area within Marys River Park. Hydrology was identified by High Water Table (A2) and Saturation (A3). Soils displayed the Redox Dark Surface (F6) hydric soil indicator. Hydrophytic vegetation was dominated by field meadow-foxtail, red fescue (*Festuca rubra*), and small or common camas. Wetland B is dissected by a graveled walkway path, separating Wetlands B1 and B2. Wetland B

extends outside the study area to the north and east. The western wetland boundary is partially formed by the sidecast material from roadside ditch excavation. The southern wetland boundary was delineated by an increase in topography. Wetland B extends off-site to the north and east.

6.2 Non-wetland Waters

One river, one roadside ditch, one old oxbow pond, one small forested pond, and two backwash basins were identified within the study area. The features are described below and presented in Figure 6.

Marys River (0.03 acre)
Marys River is a riverine lower perennial (R3) river that crosses through the southwest corner of the project area. The stream bank is steep and approximately 5 feet tall. Vegetation was dominated by black cottonwood, Oregon ash, willow, red osier dogwood (*Cornus alba*), and Himalayan blackberry (*Rubus armeniacus*). The substrate could not be observed due to high, fast-flowing water but is assumed to consist of boulders, rock, gravel, sand, and fine sediment. Only a small portion of the river's OHWL was delineated within the study area.

Ditch 1 (0.11 acre)
Ditch 1 is a human-made roadside ditch that is about 6 feet wide. Ditch 1 is dominated by reed canary grass (*Phalaris arundinacea*) and broad-leaf cat-tail (*Typha latifolia*). The ditch enters the northern study area boundary, flows south along the east side of 9th Street for about 642 feet, exits the southern study area boundary, and reportedly flows into Marys River about 900 feet to the south of the study area.

Oxbow Pond (0.14 acre)
The Oxbow Pond is located in the southeast portion of the study area within Marys River Park. Only a small amount of its OHWL is within the study area. The pond appears to be an old river meander that was naturally cut off from the main stem of the Marys River. Riparian vegetation was dominated by Oregon ash, Oregon white oak, common snowberry (*Symphoricarpos albus*), and Nootka rose (*Rosa nutkana*). A footbridge crosses the pond. A culvert discharges into Oxbow Pond from the backwash ponds described below.

Ponds A and B (0.04 acre each; 0.08 acre total)
Ponds A and B are human-made backwash basin ponds that appear to have been created from upland. The backwash basins are associated with water treatment plant operations to allow sediments to settle. The backwash ponds are contained within the study area.

Pond C (0.01 acre)
Pond C is a small forested pond to the southwest of the Oxbow Pond. The forested pond is isolated from the Oxbow Pond and the roadside ditch by upland embankments around its perimeter. The eastern embankment includes a walking trail as part of Marys River Park. Hydrology is provided by surface runoff and direct precipitation. Riparian vegetation was dominated by an overstory of Oregon ash, Oregon white oak, Himalayan blackberry, and common snowberry. Pond C extends outside the study area to the south, but it is not connected to the roadside ditch or to Marys River.

6.3 Uplands

Uplands within the study area are weedy grassland and riparian forest. Developed areas have been graded, graveled, or paved, and are associated with the water treatment plant. Vegetation in uplands varied throughout the project area. Weedy grasslands included reed canary grass, common velvet grass (*Holcus lanatus*), tall fescue (*Schedonorus arundinaceus*), Queen Anne's-lace (*Daucus carota*), large sweet vernal grass, and hairy cat's-ear (*Hypochaeris radicata*). Upland forest included Oregon ash and big-leaf maple

(*Acer macrophyllum*) in the overstory; Himalayan blackberry, common snowberry, black hawthorn (*Crataegus douglasii*), and red osier dogwood in the understory; and fragrant fringecup (*Tellima grandiflora*), tall horsetail (*Equisetum telmateia*), English ivy (*Hedera helix*), California dewberry (*Rubus ursinus*), and reed canary grass in the herbaceous layer.

6.4 Deviation from LWI or NWI

The Philomath LWI (SRI/Shapiro/AGCO, Inc. 1996; Figure 5) depicts wetlands within the study area similar to the results of the current delineation. The LWI shows wetlands within the riparian corridor along Marys River; additional soil pits were used to investigate these areas in the delineation, but no wetlands were identified near the river. Additionally, the LWI identifies one contiguous wetland throughout the site. The results of the current delineation found Wetlands A and B, Ditch 1, Oxbow Pond, and Pond C to be adjacent but non-contiguous. They were identified as distinct features. LWI data forms are included in Appendix H.

The National Wetlands Inventory (NWI) identified a contiguous PFO through Ditch 1, Oxbow Pond, and Pond C; it maps a different alignment for Ditch 1. Wetlands A and B were not identified on the NWI.

7 MAPPING METHOD

The wetland and water boundaries and sample plot locations were professionally land surveyed by Westech Engineering. The 2020 delineation line work was also surveyed by SWCA with a Juniper Geode Global Navigation Satellite System (GNSS) receiver paired with a Samsung computer tablet using Collector for ArcGIS software. Horizontal map accuracy is within 1 foot.

8 ADDITIONAL INFORMATION

The project area is within the 100-year floodplain (Federal Emergency Management Agency 2020; Figure 7 and Appendix I). The FEMA National Flood Hazard Layer Firmette Map panel illustrates the base flood elevations within the study area between 269 feet above mean sea level (amsl) and 272 feet amsl. The new Water Treatment Plant reservoir is located within the north section of the project area, and is located within the 100-year floodplain but is located outside of the floodway.

Marys River is mapped as Essential Salmon Habitat according to DSL.

The determination of where Ditch 1 is jurisdictional and non-jurisdictional is important for this site because of the Oregon Department of Transportation (ODOT) Philomath Downtown Safety and Streetscape (US20 Philomath Couplet) Offsite Stormwater Project, which will treat stormwater generated primarily from ODOT ROWs with a small allowance for runoff generated on City ROW. ODOT and the design firm Murray Smith are working with the City as part of a separate design project with the intent of using a segment of Ditch 1 as a 200-foot long bioswale for water quality treatment.

9 RESULTS AND CONCLUSION

Two wetlands, one river, one ditch, two natural ponds, and two artificial ponds were delineated within the study area. Each feature is summarized in Table 6.

Table 6. Wetland and Waters Delineation Summary

Feature ID	Size (acreage)	Cowardin	HGM	Centroid Latitude	Centroid Longitude
Wetland A	0.06	PEM	Slope	44.337002	-123.374356
Wetland B	0.55	PEM/PSS	Slope	44.537919	-123.373527
Wetland Total	**0.61**				
Pond C	0.01	PFO	Depressional	44.536974	-123.373804
Oxbow Pond	0.14	PFO	N/A	44.537211	-123.373518
Ditch 1	0.11	N/A	N/A	44.537685	-123.373939
Marys River	0.03	R3	N/A	44.535492	-123.375648
Waters Total	**0.29**				

Wetland B, Oxbow Pond, Pond C, Marys River, and a segment of Ditch 1 are likely to be determined to be jurisdictional by the DSL. The backwash ponds are likely not jurisdictional. The jurisdictional concurrence for the DSL File No. WD1995-0326 found that Wetland A was not jurisdictional, and that only a segment of Ditch 1 was jurisdictional.

The USACE will make their own determination of jurisdiction when a Joint Permit Application or a request for an Approved Jurisdictional Determination is submitted.

10 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 DSL in accordance with Oregon Administrative Rules 141-090-0005 through 141-090-0055.

11 LIST OF PREPARERS

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Wetland Scientist

C. Mirth Walker, SPWS
Senior Wetland Scientist

12 LITERATURE CITED AND REVIEWED

Adamus, P.R. 2001. *Guidebook for Hydrogeomorphic (HGM)-based Assessment of Oregon Wetland and Riparian Sites: Statewide Classification and Profiles.* Salem: Oregon Department of State Lands.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. *Classification of Wetlands and Deepwater Habitats of the United States*. FWS/OBS-79/31. Washington, D.C.: U.S. Fish and Wildlife Service. Available at: http://www.fws.gov/wetlands/Documents/Classification-of-Wetlands-and-Deepwater-Habitats-of-the-United-States.pdf.

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*. Technical Report Y-87-1. Online edition. Vicksburg, Mississippi: U.S. Army Engineer Waterways Experiment Station. Available at: http://el.erdc.usace.army.mil/wetlands/pdfs/wlman87.pdf. Accessed December 15, 2020.

Federal Emergency Management Agency. 2020. Flood insurance rate maps. Available at: http://www.msc.fema.gov/. Accessed December 8, 2020.

Google Earth. 2020. Aerial photographs in the vicinity of 400 9th Street, Philomath, Oregon. Available at: http://earth.google.com. Accessed December 7, 2020.

National Oceanic and Atmospheric Administration (NOAA). 2020. AgACIS Regional Climate Center website. Available at: http://agacis.rcc-acis.org/. Accessed December 8, 2020.

Natural Resources Conservation Service (NRCS). 2021a. Web Soil Survey 3.3. Available at: https://websoilsurvey.sc.egov.usda.gov/App/HomePage.htm. Accessed January 25, 2021.

———.2021b. Benton County, Oregon Hydric Soils List. Available at: https://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcseprd1316620.html. Accessed January 25, 2021.

Oregon Department of State Lands (DSL). 2013. Administrative rules for wetland delineation report requirements and for jurisdictional determinations for the purposed of regulating fill and removal within waters of the state. (OAR 141-090) Available at: https://secure.sos.state.or.us/oard/viewSingleRule.action?ruleVrsnRsn=16488

———. 2021. Essential Salmon Habitat Mapper. Available at: https://geo.maps.arcgis.com/home/webmap/viewer.html?webmap=69405bb6d30846aa8e92ec24072cab58. Accessed January 25, 2020.

Oregon Map. 2018. Benton County Tax Lot maps 12 6 11D and 12 6 12C. Available at: http://www.ormap.net/. Accessed April 14, 2018.

Oregon State University (OSU). 2020a. Oregon Rapid Wetland Assessment Protocol Explorer interactive mapper. Available at: http://tools.oregonexplorer.info. Accessed December 11, 2020.

———. 2020b. Hyslop Weather Station Weather Data. Available at: https://agsci.oregonstate.edu/hyslop-weather-station. Accessed December 8, 2020.

SRI/Shapiro/AGCO, Inc. 1996. Local Wetlands Inventory for the City of Philomath. Prepared for Randy Kugler, City Manager, City of Philomath. Portland, Oregon: SRI/Shapiro/AGCO, Inc. Approved

by Oregon Department of State Lands in 1997. Available at: https://www.oregon.gov/dsl/WW/Pages/Inventories.aspx. Accessed December 7, 2020.

Thorson, T.D., S.A. Bryce, D.A. Lammers, A.J. Woods, J.M. Omernik, J. Kagan, D.E. Pater, and J.A. Comstock, 2003. Ecoregions of Oregon. Color poster with map, descriptive text, summary tables, and photographs, scale 1:1,500,000. Reston, Virginia: U.S. Geological Survey.

U.S. Army Corps of Engineers (USACE). 2005. *Regulatory Guidance Letter No. 05-05*, D.T. Riley. Available at: http://www.usace.army.mil/Portals/2/docs/civilworks/RGLS/rgl05-05.pdf. Accessed December 18, 2020.

_____. 2010. *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*. Edited by J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-10-3. Vicksburg, Mississippi: U.S. Army Corps of Engineers Engineer Research and Development Center.

———. 2018. National Wetland Plant List. Version 3.4. Hanover, New Hampshire: U.S. Army Corps of Engineers Engineer Research and Development Center, Cold Regions Research and Engineering Laboratory. Available at: http://wetland-plants.usace.army.mil/. Accessed December 18, 2020.

U.S. Department of Agriculture (USDA). 2020. WETS Climate Data Corvallis State University. Available at: http://agacis.rcc-acis.org/41053, instructions at: http://www.wcc.nrcs.usda.gov/climate/navigate_wets.html?state=or. Accessed December 18, 2020.

U.S. Fish and Wildlife Services (USFWS). 2020. National Wetlands Inventory. City of Philomath. Available at: https://fws.gov/wetlands/. Accessed December 7, 2020.

U.S. Geological Survey (USGS). 1997. City of Philomath, Oregon. 7.5-minute topographic quadrangle. 1:24,000. Reston, Virginia: U.S. Geological Survey.

X-Rite. 2000. Year 2000 revised washable edition, Munsell soil color charts. Grand Rapids, Michigan: X-Rite.

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APPENDIX A

Figures

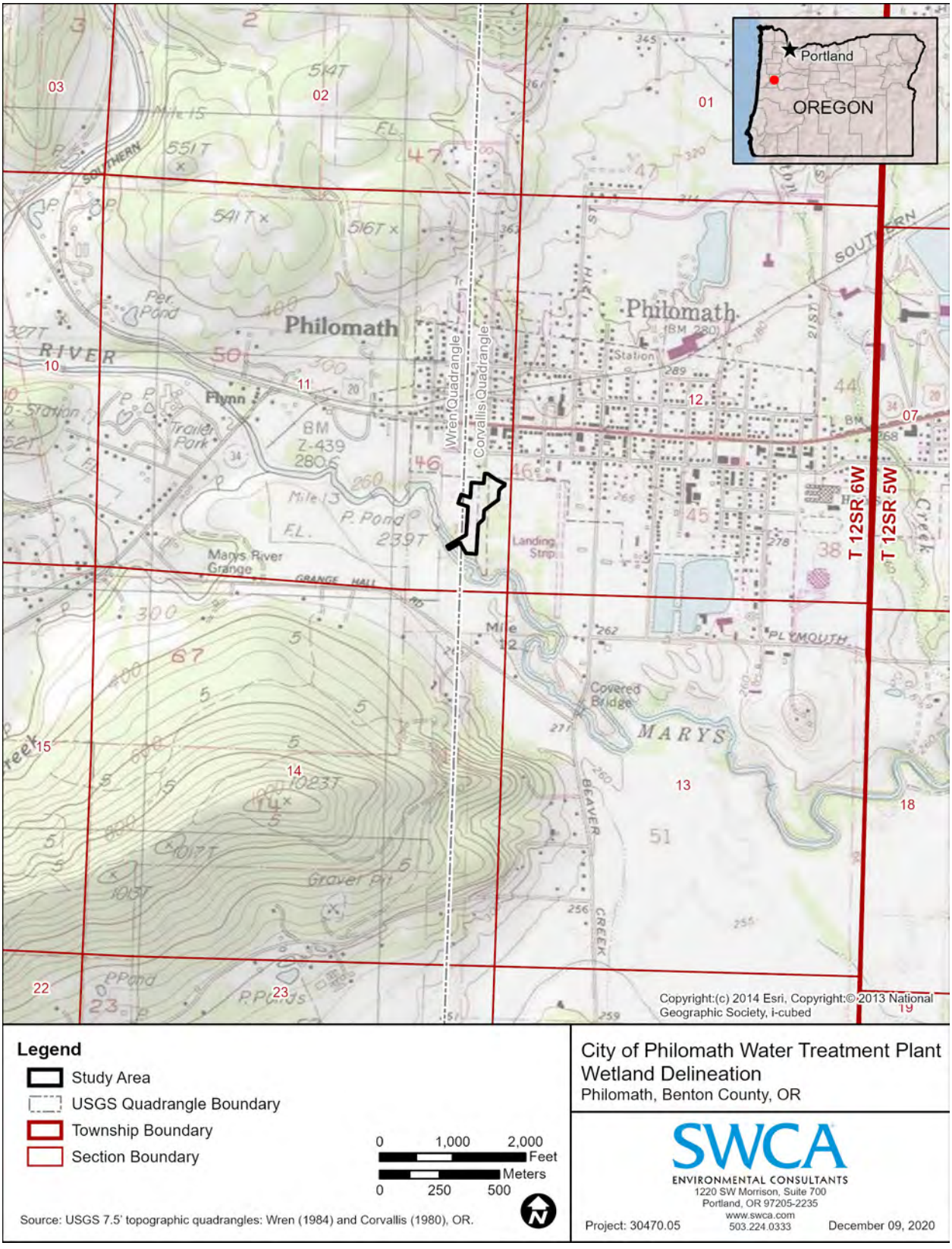


Figure 1. Site location map.

Figure 2. Tax lot map with aerial photograph.

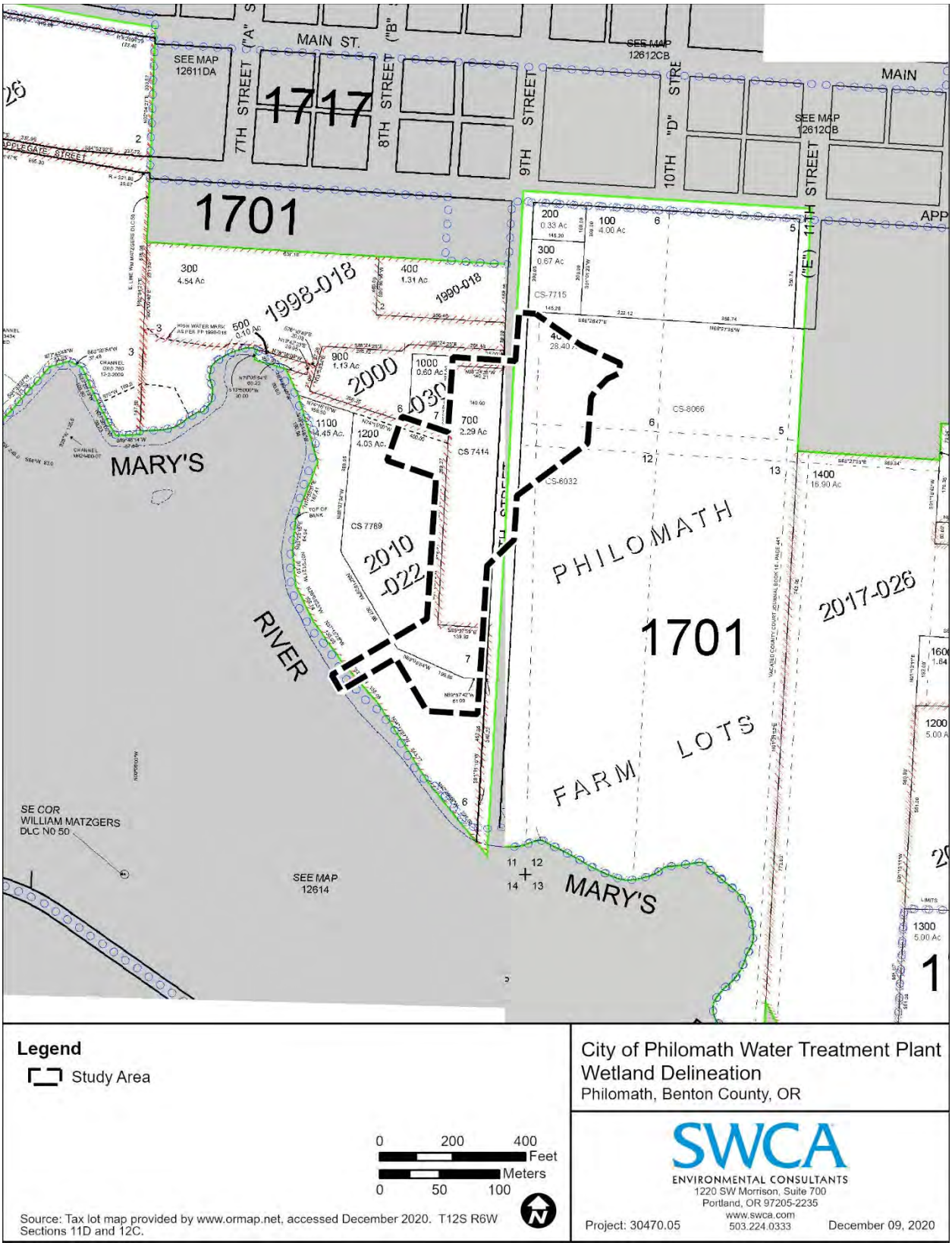


Figure 3. Tax lot map from ORmap with paper base.

Figure 4. Soils map.

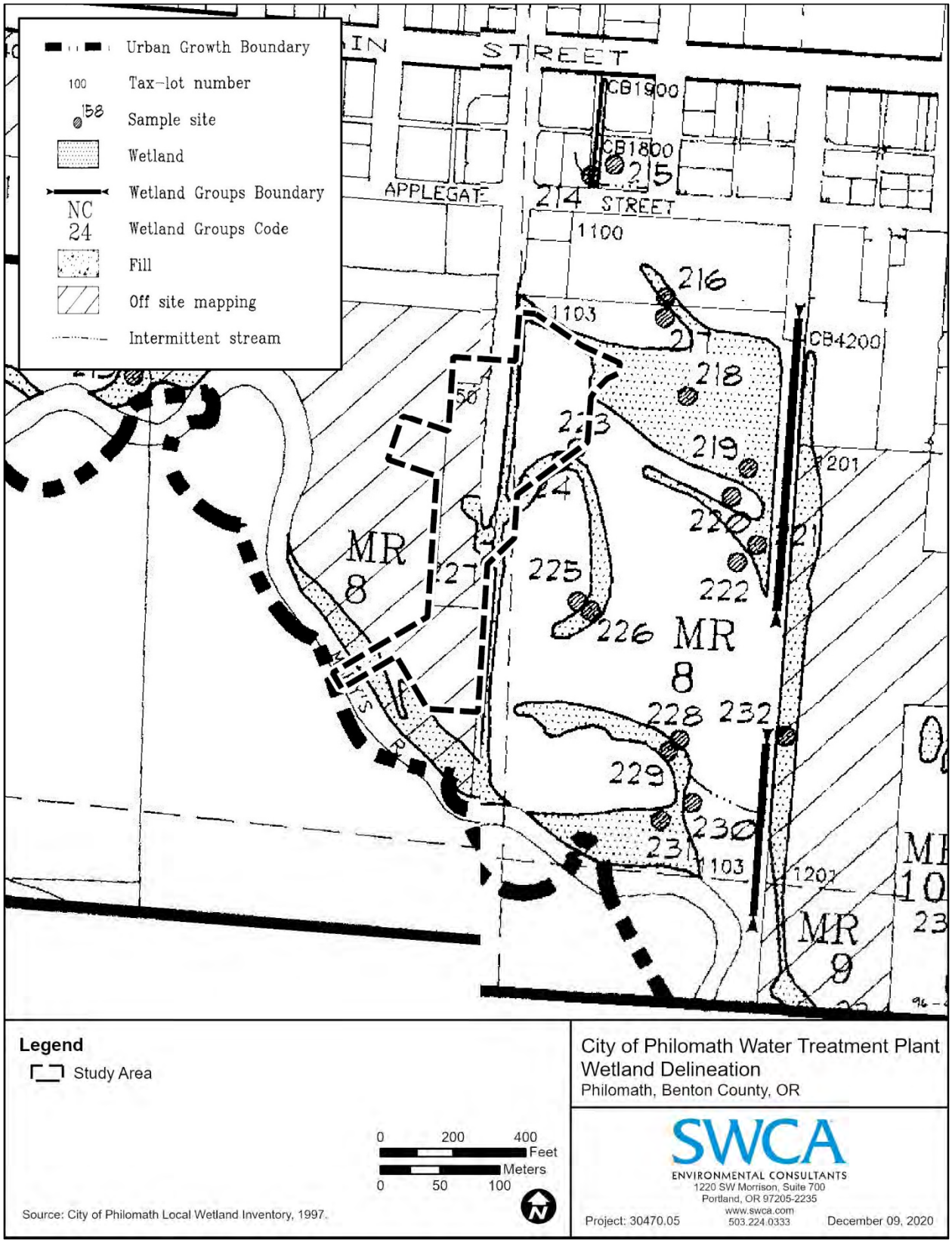
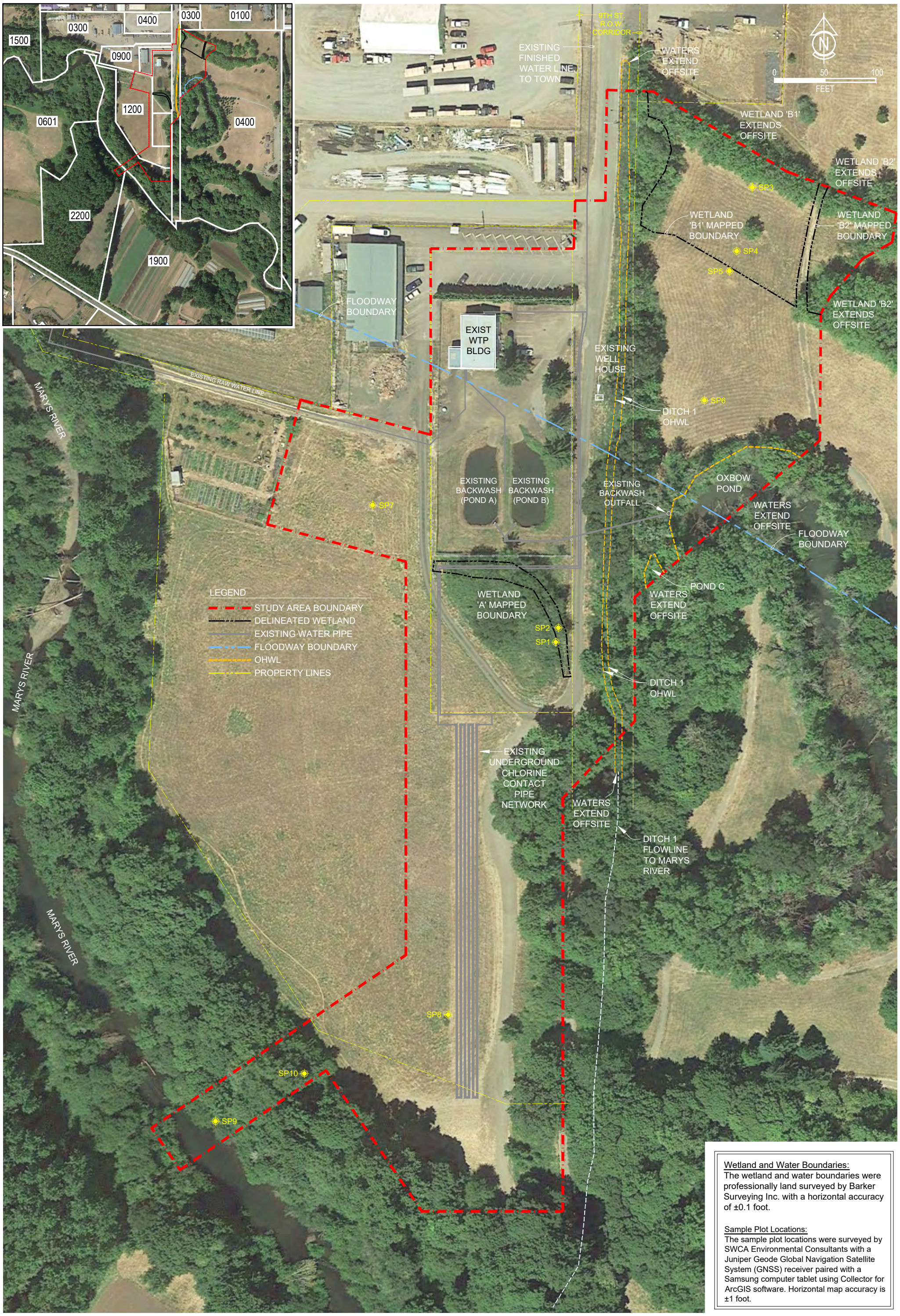


Figure 5. Local Wetlands Inventory map.



Wetland and Water Boundaries:
The wetland and water boundaries were professionally land surveyed by Barker Surveying Inc. with a horizontal accuracy of ±0.1 foot.

Sample Plot Locations:
The sample plot locations were surveyed by SWCA Environmental Consultants with a Juniper Geode Global Navigation Satellite System (GNSS) receiver paired with a Samsung computer tablet using Collector for ArcGIS software. Horizontal map accuracy is ±1 foot.

PHILOMATH WATER TREATMENT PLANT
EXISTING CONDITIONS

NOTICE: REPORTS ARE CONSIDERED DRAFT DOCUMENTS UNTIL REVIEW IS COMPLETED BY DSL. WETLAND MAPS MAY CHANGE AS A RESULT OF DSL REVIEW.

FIGURE 6

Figure 7. FEMA National Flood Hazard Layer map.

APPENDIX B

Oregon Department of State Lands WD1995-0326 Concurrence Letter

Oregon

DIVISION OF
STATE LANDS

STATE LAND BOARD
JOHN A. KITZHABER
Governor
PHIL KEISLING
Secretary of State
JIM HILL
State Treasurer

775 Summer Street NE
Salem, OR 97310-1337
(503) 378-3805
FAX (503) 378-4844
TTY (503) 378-4615

August 29, 1995

Phil Scoles
Scoles Associates
P.O. Box 3558
Portland, OR 97208

Re: Wetland Delineation for Philomath Water Plant

Dear Phil:

I have reviewed your wetland delineation report for the above site at the end of South Ninth Street (adjacent to Mary's River) and concur with your conclusions and the wetland boundaries mapped in Figure 5 of your report. As you indicate in your report and on the map, the southern portion of the site adjacent to the Mary's River was not evaluated; therefore, there may be unmapped wetlands in that area.

The artificially created 0.07 acre shrub depression near the existing plant is exempt from jurisdiction under the state Removal-Fill Law. The smaller forested depression to the south is subject to jurisdiction. The jurisdictional status of the "drainage ditch" is uncertain because the upper portion appears to be artificial but the lower portion appears to intersect an old river channel that abuts the east edge of the parcel.

Because no alteration is planned that would affect any of the mapped wetlands, no state Removal-Fill Permit is required for the proposed expansion. If, in the future, alteration is planned within the forested riparian area adjacent to the Mary's River or the lower portion of the ditch, those areas should be specifically investigated and delineated.

Thank you for your report; please phone if you have any questions.

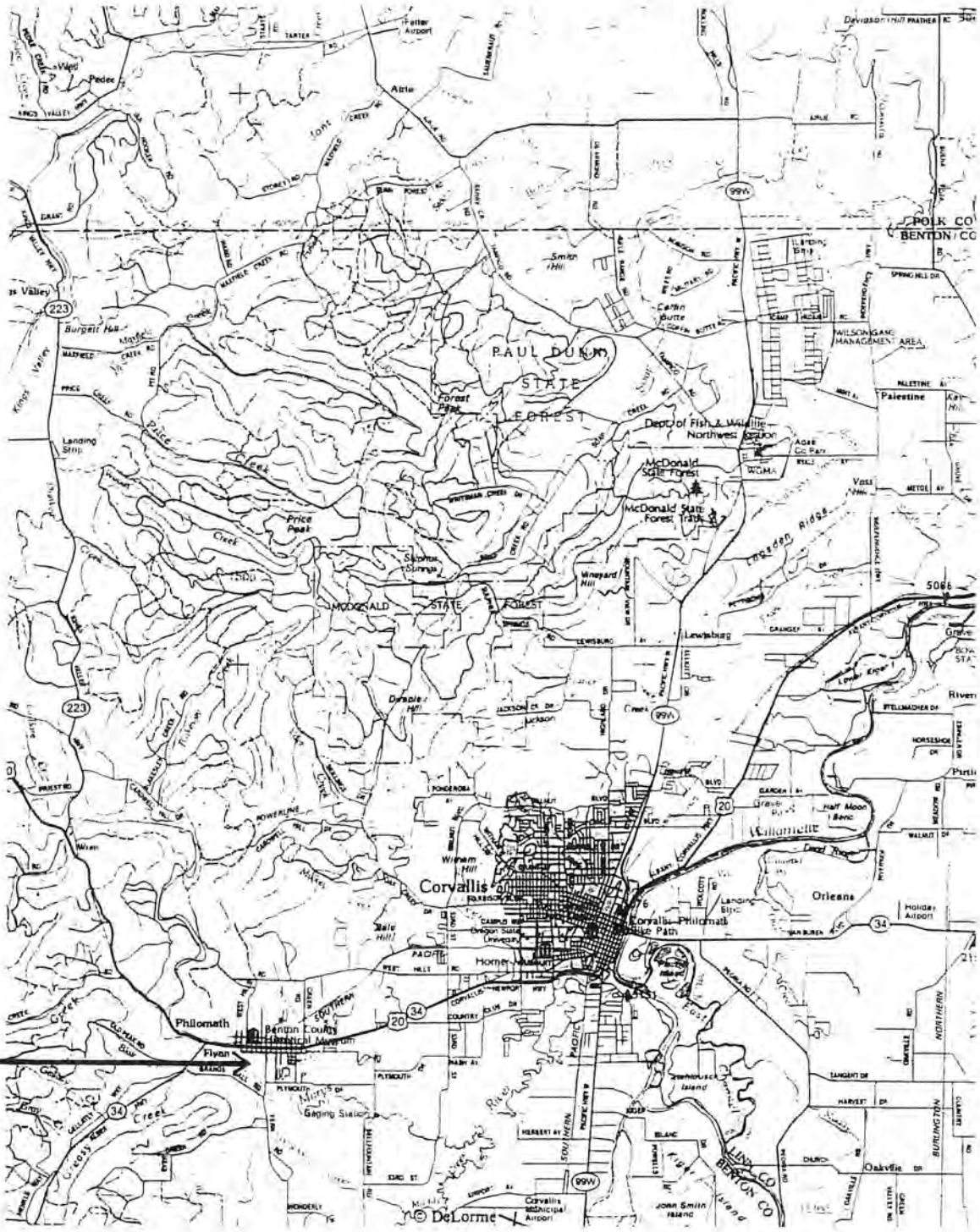
Sincerely,

Janet C. Morlan

Janet C. Morlan
Wetlands Program

JCM/jcm
jan:1154

c: Rich Gebhart, Corps of Engineers
Patricia Farrel, SRI/SHAPIRO
Nancy Leibowitz, DSL



Source: DeLorme Mapping, Oregon Atlas & Gazetteer, 1991.

SCOLES ASSOC., INC.
Soil, Water & Wetland Scientists

WETLAND DELINEATION FOR THE WATER TREATMENT PLANT "CT" IMPROVEMENTS
Philomath, Benton County, Oreg.

VICINITY

June 1995

Scale:

0 2.4 miles 4.8 miles

FIGURE 1

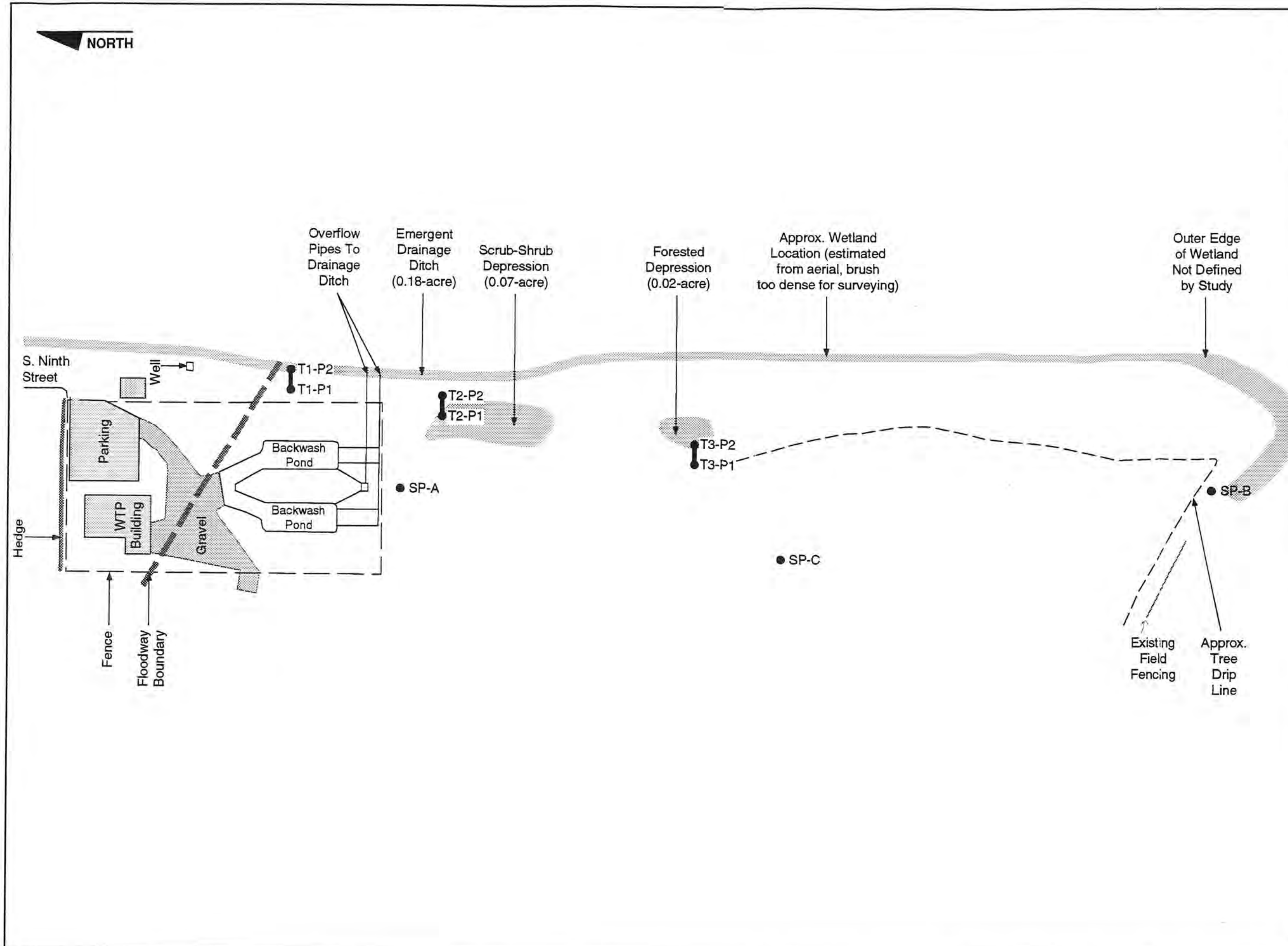


FIGURE 5

WETLAND BOUNDARY AND SAMPLING POINTS

Scale: 0 — 70 ft. — 140 ft.

WETLAND DELINEATION FOR THE WATER TREATMENT PLANT "CT" IMPROVEMENTS
Philomath, Benton County, Oreg.

June 1995

SCOLES ASSOC., INC.
Soil, Water & Wetland Scientists

APPENDIX C

Aerial Photographs

Philomath Water Treatment Plant

Aerial Photograph Dated August 12, 2020

44.536786, -123.374411

2205A

50

111

159

111

2205A

N

300 ft

Philomath Water Treatment Plant

Aerial Photograph Dated July 3, 2017

Philomath Water Treatment Plant

Aerial Photograph Dated July 23, 2016

Philomath Water Treatment Plant

Aerial Photograph Dated July 14, 2014

2205A

50

111

159

111

2205A

N

300 ft

Philomath Water Treatment Plant

Aerial Photograph Dated July 9, 2012

SSURGO | or003 | 0.18 seconds | 0.75 cache ratio | BBOX:(-123.3781, 44.5345) (-123.3685, 44.5388) | 90 acres

Philomath Water Treatment Plant

Aerial Photograph Dated July 8, 2010

2205A

50

111

159

111

2205A

Google Earth

N

300 ft

APPENDIX D

Precipitation Data

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)
WETS Station : CORVALLIS STATE UNIV, OR1862
Measured Rainfall: Corvallis State University, OR, 2019-2020 Water Year

Prior Month Most Recent First		WETS Rainfall Percentile 30th (inches)	WETS Rainfall Percentile 70th (inches)	Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns
1st	November	4.55	8.34	7.11	Normal	2	3	6
2nd	October	1.70	3.68	2.26	Normal	2	2	4
3rd	September	0.55	1.73	1.96	Wet	3	1	3
				11.33				
					Normals			
	Jan-20	3.95	7.82	9.39	*6.40*			
	Feb-20	3.91	6.80	1.77	*5.11*			
	Mar-20	3.46	5.35	3.34	*4.44*			
	Apr-20	2.09	3.53	2.12	*2.91*			
	May-20	1.56	2.75	3.16	*2.31*			
	Jun-20	0.93	1.76	1.92	*1.52*			
	Jul-20	0.17	0.68	0.82	*0.49*			
	Aug-20	0.19	0.70	0.13	*0.53*			
	Sep-20	0.55	1.73	1.96	*1.25*			
	Oct-20	1.70	3.68	2.26	*3.10*			
	Nov-20	4.55	8.34	7.11	*6.94*			
	Dec-19	5.03	8.88		*7.71*			
	Totals:	28.09	52.02	33.98	*42.71*		**Sum**	**13**

Rainfall of prior period was: **drier** than normal (sum is 6-9), **normal** (sum is 10-14), **wetter** than normal (sum is 15-18) — **Normal**

Climate Period 1981-2010

Oct. 1	Jan. 1
Departure from Normal* -2.75	**Departure from Normal* -3.10**
WYTD*	CYTD*
9.74	34.35
Normal	*Normal*
12.49	*37.45*
*As of Date:	12/10/2020

WETS Table and Measured Rainfall source: http://agacis.rcc-acis.org/
Benton County FIPS: 41003
Normals are calculated based on climate period 1981-2010.
November 2020 observed rainfa https://agsci.oregonstate.edu/hyslop-weather-station

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)
WETS Station : CORVALLIS STATE UNIV, OR1862
Measured Rainfall: Corvallis State University, OR, 2017-2018 Water Year

Prior Month Most Recent First		WETS Rainfall Percentile 30th ---inches---	70th ---inches---	Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns
1st	March	3.46	5.35	4.55	Normal	2	3	6
2nd	February	3.91	6.80	2.09	Dry	1	2	2
3rd	January	3.95	7.82	6.41	Normal	2	1	2
				13.05				
					Normals			
	Jan-18	3.95	7.82	6.41	*6.40*			
	Feb-18	3.91	6.80	2.09	*5.11*			
	Mar-18	3.46	5.35	4.55	*4.44*			
	Apr-18	2.09	3.53		*2.91*			
	May-17	1.56	2.75		*2.31*			
	Jun-17	0.93	1.76		*1.52*			
	Jul-17	0.17	0.68		*0.49*			
	Aug-17	0.19	0.70		*0.53*			
	Sep-17	0.55	1.73		*1.25*			
	Oct-17	1.70	3.68	5.66	*3.10*			
	Nov-17	4.55	8.34	8.91	*6.94*			
	Dec-17	5.03	8.88	3.55	*7.71*			
	Totals:	28.09	52.02	31.17	*42.71*		**Sum**	**10**

Rainfall of prior period was: **drier** than normal (sum is 6-9), **normal** (sum is 10-14), **wetter** than normal (sum is 15-18) — **Normal**

Climate Period 1981-2010

Oct. 1	Jan. 1
Departure from Normal* -0.06	**Departure from Normal* -0.43**
WYTD*	CYTD*
36.08	17.96
Normal	*Normal*
36.14	*18.39*
*As of Date:	4/25/2018

WETS Table and Measured Rainfall source: http://agacis.rcc-acis.org/
Benton County FIPS: 41003
Normals are calculated based on climate period 1981-2010.
April 2018 observed rainfall: https://agsci.oregonstate.edu/hyslop-weather-station

Assessing Rainfall for the Preceding 3-Month Period (Antecedent Rainfall)
WETS Station : CORVALLIS STATE UNIV, OR1862
Measured Rainfall: Corvallis State University, OR, 2017-2018 Water Year

Prior Month Most Recent First		WETS Rainfall Percentile 30th ---inches---	70th ---inches---	Measured Rainfall inches	Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply previous 2 columns
1st	March	3.46	5.35	4.55	Normal	2	3	6
2nd	February	3.91	6.80	2.09	Dry	1	2	2
3rd	January	3.95	7.82	6.41	Normal	2	1	2
				13.05				
					Normals			
	Jan-18	3.95	7.82	6.41	*6.40*			
	Feb-18	3.91	6.80	2.09	*5.11*			
	Mar-18	3.46	5.35	4.55	*4.44*			
	Apr-18	2.09	3.53		*2.91*			
	May-17	1.56	2.75		*2.31*			
	Jun-17	0.93	1.76		*1.52*			
	Jul-17	0.17	0.68		*0.49*			
	Aug-17	0.19	0.70		*0.53*			
	Sep-17	0.55	1.73		*1.25*			
	Oct-17	1.70	3.68	5.66	*3.10*			
	Nov-17	4.55	8.34	8.91	*6.94*			
	Dec-17	5.03	8.88	3.55	*7.71*			
	Totals:	28.09	52.02	31.17	*42.71*		**Sum**	**10**

Rainfall of prior period was: **drier** than normal (sum is 6-9), **normal** (sum is 10-14), **wetter** than normal (sum is 15-18) — **Normal**

Climate Period 1981-2010

Oct. 1	Jan. 1
Departure from Normal* -1.05	**Departure from Normal* -1.42**
WYTD*	CYTD*
33.56	15.44
Normal	*Normal*
34.61	*16.86*
*As of Date:	4/9/2018

WETS Table and Measured Rainfall source: http://agacis.rcc-acis.org/
Benton County FIPS: 41003
Normals are calculated based on climate period 1981-2010.
April 2018 observed rainfall: https://agsci.oregonstate.edu/hyslop-weather-station

WETS Table

WETS Station: CORVALLIS STATE UNIVERSITY, OR								
Requested years: 1971 - 2000								
Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	46.2	33.6	39.9	6.46	3.95	7.82	13	1.1
Feb	50.3	35.3	42.8	5.71	3.91	6.80	12	2.1
Mar	55.6	37.6	46.6	4.59	3.46	5.35	12	0.1
Apr	60.2	39.9	50.0	2.98	2.09	3.53	9	0.0
May	66.6	44.0	55.3	2.30	1.56	2.75	6	0.0
Jun	72.9	48.5	60.7	1.46	0.93	1.76	4	0.0
Jul	80.6	51.8	66.2	0.57	0.17	0.68	2	0.0
Aug	81.7	51.5	66.6	0.73	0.19	0.70	2	0.0
Sep	76.4	48.2	62.3	1.47	0.55	1.73	4	0.0
Oct	64.8	41.8	53.3	3.02	1.70	3.68	7	0.0
Nov	52.3	38.0	45.2	6.94	4.55	8.34	14	0.2
Dec	45.7	33.8	39.8	7.43	5.03	8.88	13	1.3
Annual:					38.08	48.18		
Average	62.8	42.0	52.4	-	-	-	-	-
Total	-	-	-	43.65			97	4.8

GROWING SEASON DATES

Years with missing data:	24 deg = 0	28 deg = 0	32 deg = 0
Years with no occurrence:	24 deg = 10	28 deg = 0	32 deg = 0
Data years used:	24 deg = 30	28 deg = 30	32 deg = 30
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	1/17 to 1/2: 350 days	2/27 to 11/22: 268 days	4/20 to 10/27: 190 days
70 percent *	No occurrence	2/16 to 12/3: 290 days	4/13 to 11/3: 204 days

* Percent chance of the growing season occurring between the Beginning and Ending dates.

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1893	M2.37	5.40	M4.55	M4.48	M3.41	M0.60	T	0.09	M3.24	M5.67	M8.28	M3.92	42.01
1894	M12.38	M5.29	M8.62	2.81	1.90	2.94	0.10	0.05	1.20	4.45	2.10	5.26	47.10
1895	11.65	1.55	4.45	3.06	4.36	0.28		T	M2.15	T	4.64	11.21	43.35
1896	8.35	M3.34	3.13	6.98	5.71	0.98	0.00	1.16	0.41	3.30	M16.69	M7.81	57.86
1897	M2.84	6.98		1.73	1.09	2.09	0.09	0.38	1.57	2.38	11.66	7.09	37.90
1898	3.82	5.48	2.34	2.44	2.26		0.23	0.12	3.15	1.59	8.63	M3.62	33.68
1899	6.26	5.61	5.16	3.64	2.26	0.42	0.07	2.76	1.04	3.97	10.93	7.57	49.69
1900	4.74	4.01	4.66	1.72	3.16	2.03	0.26	0.20	2.51	5.88	3.46	5.99	38.62

APPENDIX E

Wetland Determination Data Forms

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP1**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes **X**	No		
Wetland Hydrology Present?	Yes	No **X**		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Salix sitchensis*	65%	Yes	FACW
2.			
3.			
4.			
5.			
	65% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	100%	Yes	FACW
2. *Dipsacus fullonum*	10%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	110% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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	0	x 1 =	0
FACW species	165	x 2 =	330
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	175 (A)		360 (B)

Prevalence Index = B/A = 2.06

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks:

Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP1**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	99	7.5YR 4/6	1	C	M	SiC	
5-8	10YR 3/2	98	7.5YR 4/6	2	C	M	C	
8-17	10YR 3/2	95	10yr 4/4	5	C	M	SiC	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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 X **No** ___

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches):	-	
Water Table Present?	Yes ___	No X	Depth (inches):	-	**Wetland Hydrology Present?**
Saturation Present? (includes capillary fringe)	Yes ___	No X	Depth (inches):	-	**Yes** ___ **No** X

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

Remarks: Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP2**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): ditch | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes X** **No**
Hydric Soil Present?	Yes **X**	No		
Wetland Hydrology Present?	Yes **X**	No		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Salix sitchensis*	90%	Yes	FACW
2. *Rubus armeniacus*	5%	No	FAC
3.			
4.			
5.			
	95% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Melissa officinalis*	5%	Yes	FACU
2. *Rumex salicifolius*	5%	Yes	FACW
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	10% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 90%

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 0	x 1 =	0
FACW species 95	x 2 =	190
FAC species 5	x 3 =	15
FACU species 5	x 4 =	20
UPL species 0	x 5 =	0
Column Totals: 105 (A)		225 (B)

Prevalence Index = B/A = 2.14

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks: Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP2**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 2/2	100					mucky SiL	
5-9	2.5Y 3/2	95	10YR 3/4	5	C	M	SiC	
9-14	10YR 3/3	95	5YR 4/6	5	C	PL	C	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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** X **No** ___

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	X	No	Depth (inches):	1
Water Table Present?	Yes	X	No	Depth (inches):	surface
Saturation Present? (includes capillary fringe)	Yes	X	No	Depth (inches):	surface

Wetland Hydrology Present? **Yes** X **No** ___

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

Remarks:

Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP3**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes X** **No**
Hydric Soil Present?	Yes **X**	No		
Wetland Hydrology Present?	Yes **X**	No		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Festuca rubra*	50%	Yes	FAC
2. *Camassia quamash*	20%	Yes	FACW
3. *Poa species*	15%	No	FAC ?
4. *Hypochaeris radicata*	5%	No	FACU
5. *Geranium dissectum*	5%	No	NOL
6. *Taraxacum officinale*	5%	No	FACU
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	65	x 3 =	195
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:

Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP3**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					SiCL	
7-16	10YR 3/2	95	7.5YR 3/4	5	C	M	SiCL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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 X **No** ___

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? Yes X **No** ___

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

Remarks:

Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP4**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes X** **No**
Hydric Soil Present?	Yes **X**	No		
Wetland Hydrology Present?	Yes **X**	No		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Camassia quamash*	25%	Yes	FACW
2. *Festuca rubra*	20%	Yes	FAC
3. *Alopecurus pratensis*	15%	Yes	FAC
4. *Anthoxanthum odoratum*	15%	Yes	FACU
5. *Hypochaeris radicata*	15%	Yes	FACU
6. *Daucus carota*	10%	No	FACU
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	25	x 2 =	50
FAC species	35	x 3 =	105
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	100 (A)		315 (B)

Prevalence Index = B/A = 3.15

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

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

Remarks:

Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP4**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100					SiCL	
8-16	2.5Y 3/1	88	10YR 3/3	10	C	M	SiCL	
			5YR 3/4	2	C	M		

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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 X **No** ___

Remarks: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): ___
Water Table Present?	Yes	X	No	___	Depth (inches): 15
Saturation Present? (includes capillary fringe)	Yes	X	No	___	Depth (inches): 11

Wetland Hydrology Present? Yes X **No** ___

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

Remarks:

Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP5**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): convex | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes	No **X**		
Wetland Hydrology Present?	Yes	No **X**		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Anthoxanthum odoratum*	40%	Yes	FACU
2. *Camassia quamash*	20%	Yes	FACW
3. *Poa species*	20%	Yes	FAC ?
4. *Hypochaeris radicata*	10%	No	FACU
5. *Daucus carota*	10%	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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 0	x 1 =	0
FACW species 20	x 2 =	40
FAC species 20	x 3 =	60
FACU species 60	x 4 =	240
UPL species 0	x 5 =	0
Column Totals: 100 (A)		340 (B)

Prevalence Index = B/A = 3.40

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP5**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100					SiCL	
11-16	10YR 3/1	100					SiCL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes ___	No X	Depth (inches): ___		
Water Table Present?	Yes ___	No X	Depth (inches): ___	**Wetland Hydrology Present?**	
Saturation Present? (includes capillary fringe)	Yes X	No ___	Depth (inches): 15	**Yes** ___	**No** X

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

Remarks:

Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 4/9/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP6**

Investigator(s): Tom Dee, Evan Dulin | Section, Township, Range: 12C, 12S, 6W

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 0

Subregion (LRR): A, Northwest Forests and Coast | Lat: | Long: | Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes | NWI classification: Partly PFO

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	No	**Is the Sampled Area within a Wetland?**	Yes / No
Hydric Soil Present?	Yes	No		
Wetland Hydrology Present?	Yes	No		
				Yes / **No X**

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Poa species*	40%	Yes	FAC ?
2. *Anthoxanthum odoratum*	20%	Yes	FACU
3. *Camassia quamash*	15%	No	FACW
4. *Hypochaeris radicata*	15%	No	FACU
5. *Fragaria chiloensis*	10%	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	40	x 3 =	120
FACU species	45	x 4 =	180
UPL species	0	x 5 =	0
Column Totals:	100 (A)		330 (B)

Prevalence Index = B/A = 3.30

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes / **No X**

Remarks: Entered by: KL QC by: cmw

SOIL

Sampling Point: **SP6**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100					SiCL	
7-16	10YR 3/1	99	5YR 3/4	1	C	M	SiCL	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Water Table Present? Yes ___ No X Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No X Depth (inches): ___

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Entered by: KL QC by: cmw

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

Project/Site: Philomath Water Treatment Plant City/County: Philomath / Benton Sampling Date: 4/25/2018

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department State: OR Sampling Point: **SP7**

Investigator(s): Tom Dee, C. Mirth Walker Section, Township, Range: 11D, 12S, 6W

Landform (hillslope, terrace, etc.): terrace Local relief (concave, convex, none): concave Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coast Lat: Long: Datum:

Soil Map Unit Name: 50 Coburg silty clay loam, rarely flooded, 0-3% slopes NWI classification: None

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ,Soil , or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ,Soil , or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	**Yes** **No X**
Hydric Soil Present?	Yes	No **X**		
Wetland Hydrology Present?	Yes	No **X**		

Precipitation prior to fieldwork: 2.63 inches 2 weeks prior in Corvallis (0.93 inches above normal). (day prior received 1.81 inches!!)

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schedonorus arundinaceus*	50%	Yes	FAC
2. *Holcus lanatus*	20%	Yes	FAC
3. *Dactylis glomerata*	10%	No	FACU
4. *Trifolium pratense*	10%	No	FACU
5. *Daucus carota*	5%	No	FACU
6. *Hypericum perforatum*	5%	No	FACU
7. *Taraxacum officinale*	5%	No	FACU
8. *Leucanthemum vulgare*	5%	No	FACU
9. *Allium species*	5%	No	OBL to NOL
10.			
11.			
	115% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	70	x 3 =	210
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	110 (A)		370 (B)

Prevalence Index = B/A = 3.36

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? **Yes X No**

Remarks: Entered by: cmw QC by:

SOIL

Sampling Point: **SP7**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	7.5YR 3/3	100					SiL	
4-14	10YR 3/2	95	7.5YR 3/3	5	C	M	gr SIL	faint

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

Surface Water Present?	Yes	___	No	X	Depth (inches): -
Water Table Present?	Yes	___	No	X	Depth (inches): -
Saturation Present? (includes capillary fringe)	Yes	___	No	X	Depth (inches): -

Wetland Hydrology Present?

Yes ___ **No** X

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

Remarks:

Entered by: cmw QC by: _____

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 12/10/2020

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP8**

Investigator(s): C. Mirth Walker and Rachel Locke | Section, Township, Range: 12S, 6W, 11D

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): flat/hummocky | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coasts | Lat: 44.535779 | Long: -123.374599 | Datum: NAD 1983

Soil Map Unit Name: 111 Malabon Silty Clay Loam | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes X	No
Hydric Soil Present?	Yes	No X
Wetland Hydrology Present?	Yes	No X

Is the Sampled Area within a Wetland? Yes | No X

Precipitation prior to fieldwork: 0.86 inch received 2 weeks prior to survey (Corvallis).

Remarks:
Grass field west of road.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Phalaris arundinacea*	30%	Yes	FACW
2. *Poa species*	30%	Yes	FAC ?
3. *Agrostis species*	20%	Yes	FAC ?
4. *Holcus lanatus*	5%	No	FAC
5. *Allium species*	5%	No	FAC ?
6. *Trifolium pratense*	5%	No	FACU
7. *Dactylis glomerata*	5%	No	FACU
8. *Geranium molle*	5%	No	NOL
9.			
10.			
11.			
	105% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0%

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	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	60	x 3 =	180
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	105 (A)		305 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes X No

Remarks:

Entered by: ral QC by: cmw

SOIL

Sampling Point: **SP8**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-19	10YR 3/3	100					clay loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Probed below 13 inches - same, no indicators of hydrology.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

Entered by: ral QC by: cmw

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 12/10/2020

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP9**

Investigator(s): C. Mirth Walker and Rachel Locke | Section, Township, Range: 12S, 6W, 11D

Landform (hillslope, terrace, etc.): overflow scour channel | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coasts | Lat: 44.535509 | Long: -123.375492 | Datum: NAD 1983

Soil Map Unit Name: 111 Malabon Silty Clay Loam | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes **X**	No	**Is the Sampled Area within a Wetland?**	Yes ____ No **X**
Hydric Soil Present?	Yes	No **X**		
Wetland Hydrology Present?	Yes	No **X**		

Precipitation prior to fieldwork: 0.86 inch received 2 weeks prior to survey (Corvallis).

Remarks:
North of Marys River.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Fraxinus latifolia*	50%	Yes	FACW
2.			
3.			
4.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Cornus alba (C. sericea, C. stolonifera)*	15%	Yes	FACW
2.			
3.			
4.			
5.			
	15% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Ranunculus repens*	20%	Yes	FAC
2. *Mentha arvensis*	20%	Yes	FACW
3. *Carex leptopoda*	10%	No	FAC
4. *Phalaris arundinacea*	10%	No	FACW
5. *Rumex obtusifolius*	5%	No	FAC
6. *Bromus carinatus*	5%	No	NOL
7.			
8.			
9.			
10.			
11.			
	70% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 30%

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)

Total Number of Dominant Species Across All Strata: 4 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 100% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	95	x 2 =	190
FAC species	35	x 3 =	105
FACU species	0	x 4 =	0
UPL species	5	x 5 =	25
Column Totals:	135 (A)		320 (B)

Prevalence Index = B/A = 2.37

Hydrophytic Vegetation Indicators:

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

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes **X** No ____

Remarks: Entered by: ral QC by: cmw

Tree and shrub rooted on banks not in channel. One *Iris pseudacorus* (OBL) upslope toward river.

SOIL

Sampling Point: **SP9**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 3/3	100					Silt Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Roots to 11 inches bgs. Charcoal bits at 10 inches bgs.

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** _____ **No** **X**

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

Remarks: Entered by: ral QC by: cmw
Scour channel from Mary's River. Classified as wetland in LWI.

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

Project/Site: Philomath Water Treatment Plant | City/County: Philomath / Benton | Sampling Date: 12/10/2020

Applicant/Owner: Westech Engineering / City of Philomath Public Works Department | State: OR | Sampling Point: **SP10**

Investigator(s): C. Mirth Walker and Rachel Locke | Section, Township, Range: 12S, 6W, 11D

Landform (hillslope, terrace, etc.): terrace | Local relief (concave, convex, none): concave | Slope (%): 1

Subregion (LRR): A, Northwest Forests and Coasts | Lat: 44.535631 | Long: -123.375150 | Datum: NAD 1983

Soil Map Unit Name: 111 Malabon Silty Clay Loam | NWI classification:

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No ____ (If no, explain in Remarks)

Are Vegetation ____, Soil ____, or Hydrology ____ significantly disturbed? Are "Normal Circumstances" present? Yes X No ____

Are Vegetation ____, Soil ____, or Hydrology ____ naturally problematic? (If needed, explain any answers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes ____	No **X**
Hydric Soil Present?	Yes ____	No **X**
Wetland Hydrology Present?	Yes ____	No **X**

Is the Sampled Area within a Wetland? Yes ____ No **X**

Precipitation prior to fieldwork: 0.86 inch received 2 weeks prior to survey (Corvallis).

Remarks:
Edge of forest.

VEGETATION

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30' r)			
1. *Fraxinus latifolia*	30%	Yes	FACW
2. *Acer macrophyllum*	20%	Yes	FACU
3.			
4.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Acer macrophyllum*	20%	Yes	FACU
2.			
3.			
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Tellima grandiflora*	60%	Yes	FACU
2. *Carex leptopoda*	10%	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	70% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1. *Rubus ursinus*	20%	Yes	FACU
2.			
	20% = Total Cover		

% Bare Ground in Herb Stratum 30%

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 20% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 30	x 2 =	60
FAC species 10	x 3 =	30
FACU species 120	x 4 =	480
UPL species 0	x 5 =	0
Column Totals: 160 (A)		570 (B)

Prevalence Index = B/A = 3.56

Hydrophytic Vegetation Indicators:

- ____ 1 - Rapid Test for Hydrophytic Vegetation
- ____ 2 - Dominance Test is >50%
- ____ 3 - Prevalence Index is ≤3.0[1]
- ____ 4 - Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ____ 5 - Wetland Non-Vascular Plants[1]
- ____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present.

Hydrophytic Vegetation Present? Yes ____ No **X**

Remarks:
Leaf litter.

Entered by: ral QC by: cmw

SOIL

Sampling Point: **SP10**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100					Clay Loam	
10-22	10YR 3/3	100					Loam	

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

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

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

Indicators for Problematic Hydric Soils[3]:

- ___ 2 cm Muck (A10)
- ___ Red Parent Material (TF2)
- ___ Very Shallow Dark Surface (TF12)
- ___ Other (Explain in Remarks)

[3]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: S = sand; Si = silt; C = clay; L = loam or loamy; co = coarse; f = fine; vf = very fine; + = heavy (more clay); - = light (less clay)
Probed 12 inches below bottom of the pit (10 inches).

HYDROLOGY

Wetland Hydrology Indicators:

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

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

Secondary Indicators (2 or more required)

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

Field Observations:

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

Wetland Hydrology Present? **Yes** _____ **No** X

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

Remarks:

Entered by: ral QC by: cmw

APPENDIX F

Ground-level Site Photographs

SSURGO | or003 | 0.17 seconds | 0.71 cache ratio | BBOX:(-123.3772, 44.535) (-123.3695, 44.5385) | 57 acres

Philomath Water Treatment Plant

Photopoint Location Map - Triangle and direction of view.

PP6-W
PP-7-W
PP8-NW
PP1-N
PP5-N
PP9-SE
PP13-SE
PP10-SW
PP15-NE
PP11-W
PP12-E
PP14-SW
PP2-S
PP4-W
P3-NE
PP16-NW
PP18-S
PP17-SW
PP20-S
PP19-SE
2205A
159
111
50
11
Google Earth
300 ft
N

Photopoint 1. Ditch 1, view north, as it exits the study area boundary. Photo taken by Tom Dee April 9, 2018.

Photopoint 2. Ditch 1, view south as it exits the study area boundary. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 3. SP 1. View northeast from upland into Wetland A. Photo taken by Tom Dee April 9, 2018.

Photopoint 4. SP 2. Wetland A. View west. Photo taken by Tom Dee April 9, 2018.

Photopoint 5. Wetland B view north along foot path. Photo taken by Tom Dee April 25, 2018.

Photopoint 6. View west of SP 3 in Wetland B. Photo taken by Tom Dee April 9, 2018.

Photopoint 7. Wetland B close-up. Photo taken by Tom Dee April 9, 2018.

Photopoint 8. Wetland B boundary between SP4 and SP5, view northwest. Photo taken by Tom Dee April 9, 2018.

Photopoint 9. SP6 in upland, view southeast. Photo taken by Tom Dee April 9, 2018.

Photopoint 10. Oxbow Pond, view southwest. Photo taken by Tom Dee April 9, 2018.

Photopoint 11. Pipe leading from Backwash Ponds A and B into Oxbow. View west. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 12. Pipe leading from Backwash Ponds A and B into Oxbow. View east. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 13. Backwash Ponds A and B, view southeast. Photo taken by C. Mirth Walker April 25, 2018.

Photopoint 14. Pond C, view southwest. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 15. SP7, view northeast. Photo taken by Tom Dee April 25, 2018.

Photopoint 16. SP8, view northwest. Photo taken by Rachel Locke December 10, 2020.

Photopoint 17. SP9, view southwest. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 18. SP10 and Rachel Locke, view south. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 19. Marys River with red flagging indicated OHWL. View southeast. Photo taken by C. Mirth Walker December 10, 2020.

Photopoint 20. Marys River with red flagging indicated OHWL. View south. Photo taken by C. Mirth Walker December 10, 2020.

APPENDIX G

Vegetation List

Philomath Water Treatment Plant
Vegetation List
April 9 and 25, 2018, and December 10, 2020

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
big-leaf maple	*Acer macrophyllum*	FACU	native
colonial bent grass	*Agrostis capillaris*	FAC	non-native
bent grass	*Agrostis species*	FAC ?	-
spreading bent grass	*Agrostis stolonifera*	FAC	non-native
wild onion or wild garlic	*Allium species*	OBL to NOL	-
field meadow-foxtail	*Alopecurus pratensis*	FAC	non-native
large sweet vernal grass	*Anthoxanthum odoratum*	FACU	non-native
bride's-feathers, goatsbeard	*Aruncus dioicus*	FACU	native
English daisy	*Bellis perennis*	NOL	non-native
California brome	*Bromus carinatus*	NOL	native
small camas	*Camassia quamash*	FACW	native
little western bittercress	*Cardamine oligosperma*	FAC	native
taper-fruit short-scale sedge	*Carex leptopoda*	FAC	native
Canada thistle	*Cirsium arvense*	FAC	invasive, noxious
poison-hemlock	*Conium maculatum*	FAC	noxious
red osier dogwood	*Cornus alba (C. sericea, C. stolonife*	FACW	native
beaked hazelnut	*Corylus cornuta*	FACU	native
black hawthorn	*Crataegus douglasii*	FAC	native
English hawthorn	*Crataegus monogyna*	FAC	non-native
orchard grass	*Dactylis glomerata*	FACU	non-native
Queen Anne's-lace	*Daucus carota*	FACU	non-native
Columbian larkspur	*Delphinium trolliifolium*	NOL	native
Fuller's teasel	*Dipsacus fullonum*	FAC	invasive
fringed willowherb	*Epilobium ciliatum*	FACW	native
giant horsetail	*Equisetum telmateia*	FACW	native, noxious
red fescue	*Festuca rubra*	FAC	native
beach strawberry	*Fragaria chiloensis*	FACU	native
cascara false buckthorn	*Frangula (Rhamnus) purshiana*	FAC	native
Oregon ash	*Fraxinus latifolia*	FACW	native
Oregon ash	*Fraxinus latifolia*	FACW	native
sticky-willy	*Galium aparine*	FACU	native
cutleaf geranium	*Geranium dissectum*	NOL	non-native
dovefoot geranium	*Geranium molle*	NOL	non-native
lesser herbrobert	*Geranium robertianum*	FACU	noxious
English ivy	*Hedera helix*	FACU	invasive, noxious
American cow-parsnip	*Heracleum maximum*	FAC	native
common velvet grass	*Holcus lanatus*	FAC	non-native
common St. John's-wort	*Hypericum perforatum*	FACU	noxious
hairy cat's-ear	*Hypochaeris radicata*	FACU	non-native

Common Name	Scientific Name	Wetland Indicator Status	Native and Invasive, Noxious
stinking willie	*Jacobaea vulgaris*	FACU	noxious
lamp rush	*Juncus effusus*	FACW	native
red dead-nettle	*Lamium purpureum*	NOL	non-native
ox-eye daisy	*Leucanthemum vulgare*	FACU	non-native
feathery false Solomon's-seal	*Maianthemum racemosum*	FAC	native
Oregon bigroot	*Marah oreganus*	NOL	native
lemonbalm	*Melissa officinalis*	FACU	non-native
American wild mint	*Mentha arvensis*	FACW	native
oso-berry	*Oemleria cerasiformis*	FACU	native
reed canary grass	*Phalaris arundinacea*	FACW	invasive
Pacific ninebark	*Physocarpus capitatus*	FACW	native
English plantain	*Plantago lanceolata*	FACU	non-native
annual blue grass	*Poa annua*	FAC	non-native
bluegrass	*Poa species*	FAC ?	-
licorice fern	*Polypodium glycyrrhiza*	NOL	native
western or pineland sword fern	*Polystichum munitum*	FACU	native
balsam poplar, black cottonwood	*Populus balsamifera ssp. trichocarp*	FAC	native
drops-of-gold	*Prosartes hookeri*	NOL	native
sweet cherry	*Prunus avium*	FACU	non-native
Douglas-fir	*Pseudotsuga menziesii*	FACU	native
western buttercup	*Ranunculus occidentalis*	FACW	native
creeping buttercup	*Ranunculus repens*	FAC	non-native
woodland buttercup	*Ranunculus uncinatus*	FAC	native
Nootka rose	*Rosa nutkana*	FAC	native
Himalayan blackberry	*Rubus armeniacus*	FAC	invasive, noxious
western thimbleberry	*Rubus parviflorus*	FACU	native
California dewberry or trailing blackberry	*Rubus ursinus*	FACU	native
bitter dock	*Rumex obtusifolius*	FAC	non-native
willow dock	*Rumex salicifolius*	FACW	native
Pacific willow	*Salix lasiandra*	FACW	non-native
Scouler's willow	*Salix scouleriana*	FAC	non-native
Sitka willow	*Salix sitchensis*	FACW	native
red elderberry	*Sambucus racemosa*	FACU	native
Pacific blacksnakeroot	*Sanicula crassicaulis*	NOL	native
tall fescue	*Schedonorus arundinaceus*	FAC	non-native
common chickweed	*Stellaria media*	FACU	non-native
common snowberry	*Symphoricarpos albus*	FACU	native
common dandelion	*Taraxacum officinale*	FACU	non-native
fragrant fringecup	*Tellima grandiflora*	FACU	native
western meadow-rue	*Thalictrum occidentale*	FACU	native
Pacific poison-oak	*Toxicodendron diversilobum*	FAC	non-native
red clover	*Trifolium pratense*	FACU	non-native
western trillium	*Trillium ovatum*	FACU	native
pioneer violet	*Viola glabella*	FACW	native

Wetland Indicator Status and taxonomy for the Western Mountains, Valleys, and Coast Region per the National Wetland Plant List 2018 v3.4. Accessed May 18, 2020. http://wetland-plants.usace.army.mil/nwpl_static/v34/home/home.html

Native per Hitchcock & Cronquist 2018 and http://plants.usda.gov/
Invasive per Clean Water Services 2019: http://cleanwaterservices.org/permits-development/design-construction-standar
Noxious per ODA 2020:
https://www.oregon.gov/ODA/programs/Weeds/OregonNoxiousWeeds/Pages/AboutOregonWeeds.aspx

WETLAND INDICATOR STATUS (WIS)	
OBL	Obligate Wetland Plant – Almost always occurs in wetlands (hydrophyte), rarely in uplands
FACW	Facultative Wetland Plant - Usually occur in wetlands (hydrophyte), but may occur found in non-wetlands
FAC	Facultative Plant – Occurs in wetlands (hydrophyte) and uplands (nonhydrophyte)
FACU	Facultative Upland Plant - Usually occur in non-wetlands (non-hydrophyte), but may occur in wetlands
UPL	Upland Plant - Almost always occurs in uplands (non-hydrophyte), almost never occurs in wetlands. UPL plants have a WIS in other regions
NOL	Not Listed - Plants that are not on the National Wetland Plant List are assumed to be UPL and have no WIS in any region

APPENDIX H

Local Wetlands Inventory Data

Local Wetlands Inventory for the City of Philomath

APPROVED WETLANDS INVENTORY
Oregon Division of State Lands
Meets Local Wetland Inventory standards
Date 1/13/97 Approved by J. Morlan

Prepared for

Randy Kugler, City Manager
City of Philomath
980 Applegate
P.O. Box 400
Philomath, Oregon 97370

Prepared by

Dan Cary
Julie Fukuda
Fred Small
SRI/SHAPIRO/AGCO, Inc.
1650 N.W. Front Avenue, Suite 302
Portland, Oregon 97209
SRI/SHAPIRO/AGCO Project #7955019

December 20, 1996

Table 3. USFWS Wetland Classification*

Wetland Code	USFWS Wetland Classification				Total Acreage
	PEM	PFO	PSS	POW	
MR-1	0.38	0.50			0.88
MR-2		0.76			0.76
MR-3	2.82	4.55			7.37
MR-4	0.90	1.33		0.40	2.63
MR-5	1.00		2.84		3.84
MR-6	2.82		0.60		3.42
MR-7		5.21			5.21
MR-8	4.00	5.55	0.50		10.05
MR-9	0.20	1.90			2.10
MR-10	0.73				0.73
MR-11	1.50				1.50
MR-12	3.00	2.80	1.40		7.20
MR-13	1.24	1.44		0.82	3.50
Sub-Total	18.59	24.04	5.34	1.22	49.19
NC-1	1.00	3.90		0.10	5.00
NC-2	1.30		0.08		1.38
NC-3	0.53		0.40	4.50	5.43
NC-4	12.71	6.40	7.00		26.11
NC-5	6.00	8.70			14.70
NC-6	1.00	1.14	1.00		3.14
NC-7	1.12		0.80		1.92
NC-8	32.10		7.00		39.10
NC-9	3.60		2.00		5.60
NC-10	1.14		0.50		1.64
NC-11	4.02				4.02
NC-12	1.62		0.64		2.26
NC-13	0.45		0.31		0.76
NC-14	50.62	6.80	35.95	1.27	94.64
NC-15	3.41	4.00			7.41
NC-16	1.90		0.30		2.20
NC-17	0.50		1.28		1.78
NC-18	0.30	0.81	0.20		1.31
NC-19	3.00	1.50	5.05		9.55
NC-20	0.12	1.00	1.00		2.12
NC-21	9.00	8.00	9.07		26.07
NC-22	1.14		1.00		2.14
NC-23	0.61	2.60			3.21
NC-24	0.10		4.30		4.40
NC-25	11.84				11.84
NC-26	3.10				3.10
NC-27	70.00	20.00	38.09		128.09
Sub-Total	222.23	64.85	115.97	5.87	408.92
Total Acres:	**240.82**	**88.89**	**121.31**	**7.09**	**458.11**

* Wetland type according to wetland designations and the classification system developed by the USFWS and included in "Classification of Wetlands and Deepwater Habitats of the United States" (Cowardin et al, 1979)

Several wetlands fit the criteria for protection as a result of the assessment. A number of wetlands within the study area have had confirmed sightings of federal or state listed threatened endangered or sensitive species. Wetland areas MR-7, MR-8, MR-9 along the Marys River have had confirmed sightings of northwestern pond turtle (*Clemmys marmorata marmorata*; Federal status - Species of Concern, State status - Sensitive-Critical; source - personal communication with Dr. Doug Cottam, Oregon Department of Fish and Wildlife). A pond previously used as a mill pond (NC-14a) on the Willamette Industries mill site has had confirmed sightings of northwestern pond turtles (source - Oregon Natural Heritage Database [ONHDB]).

A swale in the west end of NC-27 contains sightings of Nelson's checker-mallow (*Sidalcea nelsoniana*; Federal and state status - Listed Threatened; source - ONHDB). Nelson's checker-mallow was sighted at the southern end of NC-5 in the Newton Creek area. Nelson's checker-mallow was sighted from 1985 every year in a weedy lot adjacent to Highway 20 at the southern end of NC-15. After a mowing in 1994 no plants have been sighted, therefore, presence is unknown at this time.

Kincaid's lupine (*Lupinus sulphureus* ssp. *kincaidii*; Federal status - Species of Concern, State status - Listed Threatened; source - ONHDB) has been sighted and collected in open upland fields in many areas in association with NC-27 including a small knoll in the northwest corner. Fender's blue Butterfly (*Icaricia icarioides fenderi*; Federal status - Species of Concern, no state status) has also been sighted in the area of the small knoll in the northwest corner of NC-27.

Several wetlands are located within two city parks. These protected wetlands are: the southern half of NC-20; the northern tip of NC-21; most of MR-8, and the western edge of MR-9.

The eastern portion of NC-4 and the eastern portion of NC-27 each contain a wetland vegetation community dominated by tufted hairgrass (*Deschampsia cespitosa*). This wetland vegetation community type is considered imperiled because of its rarity in Oregon.

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-212 Date: 05/15/96
County: BENTON State: OR Township: 12S Range: 6W Section: 11
Investigator: JF/DC Sample Site: 212

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 7.5YR 3/2 0-18"
Mottles: NO
Hydric Soil Criteria met: NO
Comment: SILT LOAM

Hydrology

Inundated: NO Depth: " Saturated Soils: NO Depth to Water Table: >18
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: NO
Comment:

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*ACER MACROPHYLLUM*	FACU	100%	40%
Sapling/Shrub	*CORNUS STOLONIFERA*	FACW	30%	
Sapling/Shrub	*OEMLERIA CERASIFORMIS*	FACU	40%	
Sapling/Shrub	*SYMPHORICARPOS ALBUS*	FACU	30%	20%
Herb	*CAREX DEWEYANA*	*FACU	10%	
Herb	*GALIUM APARINE*	FACU	20%	
Herb	*HERACLEUM LANATUM*	FAC+	40%	
Herb	*TELLIMA GRANDIFLORA*	UPL	15%	
Herb	*THALICTRUM OCCIDENTALE*	*FACU	15%	30%
Woody Vine	*RUBUS DISCOLOR*	FACU	100%	10%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 29%
Hydrophytic Vegetation Criteria met: NO

Comment:

Determination: **Non-Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-213 Date: 05/15/96
County: BENTON State: OR Township: 12S Range: 6W Section: 11
Investigator: JF/DC Sample Site: 213

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 5Y 3/1 0-18+"
Mottles: YES Mottle Color: 10YR 3/2
Hydric Soil Criteria met: YES
Comment: ORGANIC SILT

Hydrology

Inundated: NO Depth: " Saturated Soils: YES Depth to Water Table: 5
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: YES
Comment: SOIL SATURATED TO SURFACE

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*ALNUS RUBRA*	FAC	70%	
Tree	*SALIX SCOULERIANA*	FAC	30%	50%
Sapling/Shrub	*CORNUS STOLONIFERA*	FACW	30%	
Sapling/Shrub	*FRAXINUS LATIFOLIA*	FACW	30%	
Sapling/Shrub	*SALIX LASIANDRA*	FACW+	40%	30%
Herb	*PHALARIS ARUNDINACEA*	FACW	20%	
Herb	*SOLANUM DULCAMARA*	FAC+	80%	20%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 100%
Hydrophytic Vegetation Criteria met: YES

Comment:

Determination: **Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-223 Date: 07/19/95
County: BENTON State: OR Township: 12S Range: 6W Section: 12
Investigator: JF/FS Sample Site: 223

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 10YR 3/2 0-18"
Mottles: NO
Hydric Soil Criteria met: NO
Comment: SILT LOAM

Hydrology

Inundated: NO Depth: " Saturated Soils: NO Depth to Water Table: >18
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: NO
Comment:

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*ACER MACROPHYLLUM*	FACU	70%	
Tree	*FRAXINUS LATIFOLIA*	FACW	30%	40%
Sapling/Shrub	*OEMLERIA CERASIFORMIS*	FACU	5%	
Sapling/Shrub	*SYMPHORICARPOS ALBUS*	FACU	95%	30%
Herb	*CAMASSIA QUAMASH*	*FACW	10%	
Herb	*ELYMUS GLAUCUS*	FACU	20%	
Herb	*HEDERA HELIX*	UPL	10%	
Herb	*POLYSTICHUM MUNITUM*	FACU	5%	
Herb	*TELLIMA GRANDIFLORA*	UPL	20%	
Herb	*THALICTRUM OCCIDENTALE*	*FACU	20%	20%
Woody Vine	*RUBUS DISCOLOR*	FACU	100%	10%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 14%
Hydrophytic Vegetation Criteria met: NO

Comment:

Determination: **Non-Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-224 Date: 07/19/95
County: BENTON State: OR Township: 12S Range: 6W Section: 12
Investigator: JF/FS Sample Site: 224

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 5Y 2.5/1 0-16"
Mottles: YES Mottle Color: 7.5YR 3/4
Hydric Soil Criteria met: YES

Comment: CLAY; H2S ODOR

Hydrology

Inundated: NO Depth: " Saturated Soils: YES Depth to Water Table: 6
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: YES
Comment: SOIL SATURATED AT 2"

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*FRAXINUS LATIFOLIA*	FACW	100%	90%
Herb	*SOLANUM DULCAMARA*	FAC+	100%	10%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 100%
Hydrophytic Vegetation Criteria met: YES

Comment:

Determination: **Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-225 Date: 07/19/95
County: BENTON State: OR Township: 12S Range: 6W Section: 12
Investigator: JF/FS Sample Site: 225

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 10YR 2.5/2
Mottles: YES Mottle Color: 10YR 3/3
Hydric Soil Criteria met: YES

Comment: 0-18", SILTY CLAY LOAM

Hydrology

Inundated: NO Depth: " Saturated Soils: NO Depth to Water Table: >18
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: NO
Comment:

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*FRAXINUS LATIFOLIA*	FACW	100%	40%
Sapling/Shrub	*ACER MACROPHYLLUM*	FACU	5%	
Sapling/Shrub	*CRATAEGUS DOUGLASII*	FAC	5%	
Sapling/Shrub	*SYMPHORICARPOS ALBUS*	FACU	90%	20%
Herb	*CAREX DEWEYANA*	*FACU	10%	
Herb	*ELYMUS GLAUCUS*	FACU	75%	
Herb	*GALIUM APARINE*	FACU	5%	
Herb	*GEUM MACROPHYLLUM*	*FACW-	5%	20%
Woody Vine	*RUBUS DISCOLOR*	FACU	40%	
Woody Vine	*RUBUS URSINUS*	FACU	60%	20%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 20%
Hydrophytic Vegetation Criteria met: NO

Comment:

Determination: **Non-Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-226 Date: 07/20/95
County: BENTON State: OR Township: 12S Range: 6W Section: 13
Investigator: JF/DC Sample Site: 226

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 10YR 3/1 7+"
Mottles: YES Mottle Color: 7.5YR 3/4
Hydric Soil Criteria met: YES
Comment: SILTY CLAY LOAM; 0-7" 10YR 3/1 W/5YR 3/3 MOTTS.

Hydrology

Inundated: YES Depth: 12" Saturated Soils: YES Depth to Water Table: 0
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: YES
Comment: SOIL SATURATED TO SURFACE; SILT LINE ON TREE TRUNKS 4.5' HIGH

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*FRAXINUS LATIFOLIA*	FACW	100%	60%
Herb	*PHALARIS ARUNDINACEA*	FACW	35%	
Herb	*SOLANUM DULCAMARA*	FAC+	35%	
Herb	*STACHYS COOLEYAE*	FACW	30%	40%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 100%
Hydrophytic Vegetation Criteria met: YES

Comment:

Determination: **Wetland**

Comment:

WETLAND DELINEATION DATA FORM

SRI/SHAPIRO

Routine Onsite Method

Applicant: OREGON DIVISION OF STATE LANDS Project #: 95019-227 Date: 05/16/96
County: BENTON State: OR Township: 12S Range: 6W Section: 12
Investigator: JF/DC Sample Site: 227

Soils

Mapped Series and Phase: COBURG SILTY CLAY LOAM
On Hydric Soils List: NO
Drainage Class: MODERATELY DRAINED Matrix Color: 7.5YR 3/1 4-12"
Mottles: YES Mottle Color: 10YR 3/2
Hydric Soil Criteria met: YES
Comment: SANDY S/C/L; 0-4" ORGANIC S/L; 12-18+" 10YR 3/2 W/7.5YR 3/1 MOTT.

Hydrology

Inundated: NO Depth: " Saturated Soils: YES Depth to Water Table: 10
Active Oxidized Rhizospheres Present: NO Wetland Hydrology Criteria met: YES
Comment: SOIL SATURATED TO SURF.; FLOOD WATER MARKS, DEBRIS UP TO 5' HIGH

Vegetation

Type	Dominant Species	FWS Status	Stratum	Overall
Tree	*FRAXINUS LATIFOLIA*	FACW	100%	70%
Sapling/Shrub	*FRAXINUS LATIFOLIA*	FACW	60%	
Sapling/Shrub	*SYMPHORICARPOS ALBUS*	FACU	40%	25%
Herb	*PHALARIS ARUNDINACEA*	FACW	10%	
Herb	*SOLANUM DULCAMARA*	FAC+	90%	5%

Percentage of dominant (>= 20%) species that are FAC, FACW or OBL: 75%
Hydrophytic Vegetation Criteria met: YES

Comment:

Determination: **Wetland**

Comment:

PHILOMATH LOCAL WETLANDS INVENTORY

– Wetland Summary Sheet –

Date(s) of Field Verification:	7/19 and 7/20/95 5/15 and 5/16/96	**Wetland Mapping Code:**	MR–8
Investigator(s):	FS, JF, DC	**Size (acres):**	10.05
Data Sheet Numbers:	214 through 231		
Location			
Legal:	T12S, R6W, S12, S13, S14	**Tax Lot(s):**	1100, 1103, 501, 500,
Other:	Mary's River Park, south of Applegate Street, and water treatment plant west of park		CB1900, CB1800
Hydrologic Basin:	Mary's River		
Soils			
Mapped Series:	*Conser silty clay loam, Coburg silty clay loam, Malabon silty clay loam*		
Hydrology			
Hydrologic Source:	groundwater, surface water, precipitation, river floodwater		
Wetland Classification(s):	PFO, PSS, PEM		

Dominant Vegetation

Trees	Shrubs	Vines	Herbs
Fraxinus latifolia	*Crataegus douglasii*	*Rubus ursinus*	*Agrostis alba*
	Cornus stolonifera		*Alopecurus geniculatus*
	Fraxinus latifolia		*Eryngium petiolatum*
	Rosa pisocarpa		*Phalaris arundinacea*
			Scirpus microcarpus
			Solanum dulcamara
			Stachys cooleyae
			Ranunculus repens
			Veronica americana
			Juncus tenuis

Comments

Two kinds of wetland: old fluvial features north of active Mary's River channel including old oxbows, and gently sloping headwaters south of Applegate Street toward roadside ditches at western and eastern boundaries of park. There appears to have been some fill placed in the northern end of the park, near the new City Hall building. On the western side of the wetland outside the park grounds, there is a scrub/shrub pond south of the water treatment plant delineated by Scoles Assoc., Inc. There is a 300'long, 25'wide new gravel road along the northern boundary of the pond. Mature forested area dominated by ash, and field is being invaded by young ash saplings. Field appears to have been ditched for historic agricultural use. Quiet city park, but some signs of human disturbance: trash and old wood debris. Zoned light industrial and public (park). Good access by way of trails. Potential for educational uses. Western pond turtle (Clemmys marmorata marmorata) sighted in this area (ODFW).

Wetland Classification Codes:

PFO = palustrine forested
PSS = palustrine scrub–shrub
PEM = palustrine emergent
POW = palustrine open water

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Date:	7/19, 20/95, 5/15, 16/96	**Investigator(s):**	FS, DC, JF
Project Name:	Philomath Local Wetlands Inventory		
Wetland Location:	Mary's River Park, south of Applegate Street		
Wetland Code:	MR-8		
Wetland Type(s):	PFO, PSS, PEM		
Approximate Area (acres):	10.05		

Wildlife Habitat		Fish Habitat		Water Quality		Hydrologic Control		Sensitivity to Impact		Enhancement Potential	
Q	A	Q	A	Q	A	Q	A	Q	A	Q	A
Q-1	A	Q-1	B	Q-1	A	Q-1	A	Q-1	B	Q-1	A
Q-2	C	Q-2	A	Q-2	A	Q-2	A	Q-2	B	Q-2	A
Q-3	B	Q-3	B	Q-3	B	Q-3	A	Q-3	A	Q-3	A
Q-4	C	Q-4	C	Q-4	A	Q-4	C	Q-4	C	Q-4	A
Q-5	A	Q-5	A	Q-5	C	Q-5	C	Q-5	A	Q-5	B
Q-6	A	Q-6	A	Q-6	A	Q-6	B	Q-6	B	Q-6	B
Q-7	C					Q-7	A				
Q-8	A										
Q-9A											
Q-9B	B										

Education		Recreation		Aesthetic Quality	
Q	A	Q	A	Q	A
Q-1	A	Q-1	A	Q-1	B
Q-2	B	Q-2	A	Q-2	B
Q-3	B	Q-3	A	Q-3	A
Q-4	A	Q-4	B	Q-4	B
Q-5	A	Q-5	A	Q-5	A
Q-6	A	Q-6	B	Q-6	A

RESULTS:

Wildlife Habitat	Wetland provides habitat for some wildlife species
Fish Habitat	Wetland's fish habitat function is intact
Water Quality	Wetland's water-quality function is impacted or degraded
Hydrologic Control	Wetland's hydrologic control function is intact
Sensitivity to Impact	Wetland is potentially sensitive to future impacts
Enhancement Potential	Wetland has high enhancement potential
Education	Wetland has potential for educational use
Recreation	Wetland provides recreational opportunities
Aesthetic Quality	Wetland is considered to be moderately pleasing

OREGON FRESHWATER WETLAND ASSESSMENT METHODOLOGY

Function & Condition Summary Sheet for the Oregon Method

Wetland Code:	MR-8

Function	Evaluation Descriptor	Rationale
Wildlife Habitat	Provides habitat for some wildlife species	Connected to Mary's River, good buffer, agricultural uses, emergent vegetation dominant
Fish Habitat	Function is intact	Shaded river, natural channel, some instream structure, but severe water quality condition
Water Quality	Function is impacted or degraded	Perennial stream, moderate vegetation cover, open space (park), river in severe water quality condition
Hydrologic Control	Function is intact	Within 100-year floodplain, flooding, unrestricted outflow, some PFO, developed land uses upslope
Sensitivity to Impact	Potentially sensitive to secondary effects	Severe water quality condition, emergent vegetation dominant, developed land uses upslope and upstream
Enhancement Potential	High enhancement potential	Habitat for some wildlife species, unrestricted outflow, large size, some areas of good buffer
Education	Has potential for educational use	Public access, steep banks, habitat for some wildlife, trails, viewing areas, boat access (Mary's River)
Recreation	Provides recreational opportunities	Public access, trails, boat access (Mary's River), fishing allowed (public land), no hunting
Aesthetic Quality	Considered to be moderately pleasing	No visual detractors, quiet, no odors, open space

APPENDIX I

National Flood Hazard Layer Firmette Map

National Flood Hazard Layer FIRMette

FEMA

123°22'47"W 44°32'28"N

123°22'9"W 44°32'3"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) *Zone A, V, A99*
- With BFE or Depth *Zone AE, AO, AH, VE, AR*
- Regulatory Floodway

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

OTHER FEATURES
- 20.2 / 17.5 Cross Sections with 1% Annual Chance Water Surface Elevation
- Coastal Transect
- Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 2/3/2021 at 2:44 PM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.