

**Wetland Delineation Report for the
Newberg Parallel Pipeline River Crossing Project
in Yamhill and Marion Counties, Oregon**

Prepared for

City of Newberg
Public Works Department
414 E. First Street
Post Office Box 970
Newberg, Oregon 97132

Prepared by

MWH
111 SW 5th Avenue, Suite 1770
Portland, Oregon 97214

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1. INTRODUCTION

The City of Newberg's existing water supply pipeline, which connects the City's well field to the water treatment plant, currently crosses the Willamette River along a former ODOT highway bridge. Damage to the bridge or pipeline could result in a loss of water supply to the water treatment plant for days to weeks depending on the severity of damage. To reduce this risk, the City is installing a new water pipeline below the Willamette River using Horizontal Direction Drilling (HDD), a sub-surface trenchless technology construction method. The Parallel Pipeline River Crossing Project will provide a redundant pipeline crossing of the Willamette River (see Figure 1, Vicinity Map). Conventional open-cut trenching will be utilized to connect the endpoints of the directional drilled portion of the pipe to existing pipe networks on the south and north banks. Approximately 2,000 feet of 36-inch diameter pipe will connect to the wellfield network on the south bank and another 2,500 feet will provide connectivity to the water treatment plant on the north bank.

Using HDD, a 36-inch diameter HDPE pipe approximately 2000 feet in length will be installed between the well field in Marion County and the area downslope of the water treatment plant in Yamhill County. The north tie-in point is located on an upland slope above Hess Creek in Yamhill County at approximately 110 feet above mean sea level (MSL). An access road at the top of the hill will be extended downslope to the construction area. All ground disturbances will be in upland areas above the boundary of the Hess Creek wetland (see description of wetland in the following section). The tie-in point in the well field is on the south side of Willamette River, at elevation approximately 85 feet above MSL. This area would be accessed by an existing unpaved road. Construction activities will impact an area of up to 150 feet by 150 feet at the tie-in points, including the shaft, pipe layout, sediment pit, vehicle access, work area, and equipment layout area (see impact areas in Figure 2).

Construction activities will span an approximately four-week period. All impacts will be temporary, with the exception of two below grade valve vaults located on both the entry and exit sides in the center of each of the 150 feet by 150 feet impact areas. The vaults will be approximately 6 feet square and will extend 2 feet above the ground surface.

2. METHODS

The field investigation and wetland delineation was conducted on August 11, 2005 in accordance with 1987 U.S. Army Corps of Engineers Wetland Delineation Manual (United States Army Corps of Engineers, Environmental Laboratory 1987). The delineation followed the Routine On-site method, as described in the manual. At each sample point, vegetation was documented in a 5-foot radius plot for herbs and shrubs and a 30-foot radius plot for trees. Dominant plant species were identified using the 50/20 method. At each sample point, a pit was dug to approximately 16 inches. Soil texture and redoxomorphic features were evaluated at different soil horizons, and soil color was described using the Munsell Soil Color Charts (Munsell Color 1990). Hydrological features were described at each plot, including water marks, drainage patterns, and drift lines. Plot datasheets are attached in Appendix A.

The boundaries of the Hess Creek wetland were delineated using two transects (Figure 2). The first transect (YT1) consisted of four points beginning at the toe of the upland grassy slope (YT1-

1) and traversing through the emergent area of the wetland (YT1-2), though the scrub-shrub portion of the wetland (YT1-3), and terminating on the upland forested slope (YT1-4). A second transect (YT2) was installed northwest of the first transect where the upland/wetland boundary transitioned from grassy/emergent to forested/scrub-shrub. This upland forested (YT2-1)/wetland scrub-shrub (YT2-2) boundary was similar to the wetland upland boundary on the southwest end of transect YT1 (YT1-3 and YT1-4).

One sample point (MT1-1) was evaluated in the riparian area adjacent to the Willamette River in Marion County. This point, determined to be upland, was located on a shelf approximately 20 feet wide, 20 feet below the agricultural field, and approximately 20 feet above the surface of the Willamette River. Field surveys indicated that there are no adjacent wetlands along the Willamette River; therefore, the Ordinary High Water (OHW) mark delineates the boundary of waters of the state.

Sample points were mapped using a Trimble GEOXT GPS unit, with the exception of the Marion County point (MT-1). This point could not be mapped with the GPS unit because of inadequate satellite coverage under the tree canopy, and surveyors mapped the point at a later time. The location of this point on figures is approximate. Hess Creek wetland boundaries were determined and mapped using GPS by following vegetation/hydrology indicators that matched those in sample plots. GPS data was post-processed with sub-meter accuracy.

The OHW mark for the Willamette River was not mapped during field surveys; however, field observation indicated that this level occurs below the sample point on the riparian shelf adjacent to the City of Newberg well field. The highest water level within the calendar year preceding the survey occurred on December 12, 2004 and was approximately 5 feet below the sample point (as determined from the United States Geological Survey gage data for station 14197900, Willamette River at Newberg). Pipeline tie-in activities will be restricted to the agricultural field above the sample point and will not impact the riparian area or waters of the state.

3. SITE DESCRIPTION

The project is located in the Newberg 7.5 minute quadrangle, Section 29, Township 3S, Range 2W in Yamhill and Marion counties (see Figure 1).

3.1. Land Use

The Yamhill County tie-in point is currently owned by SP Newsprint Company. The tie-in point will be located on an upland slope supporting nonnative grasses and forbs. The pipeline will traverse beneath one rural residential property on the north side of the Willamette River, but no ground disturbing activities will occur in this area. The Marion County tie-in point is located in the well field owned by the City of Newberg. This area is currently under agricultural cultivation.

3.2. National Wetlands Inventory

The National Wetlands Inventory (NWI) wetland map for the Newberg quadrangle was consulted prior to the field survey (United States Department of Fish and Wildlife 1981). The NWI map (see Figure 3) does not identify any wetlands in the area of the well field in Marion

County. The Willamette River is mapped as Riverine, Lower Perennial, Open Water/Unknown Bottom, Intermittently Exposed/Permanent (R2OWZ), under the NWI Cowardin classification system (Cowardin et al. 1979). The tie-in point in Yamhill County above Hess Creek is not mapped as a wetland. Below the Yamhill county tie-in point, Hess Creek and the adjacent wetland are mapped as Palustrine, Emergent, Persistent/Open Water/Unknown Bottom, Saturated/Semipermanent/Seasonal (PEM1/OWY). Southwest of the tie-in point, the emergent Hess Creek wetland transitions into a wetland classified as Palustrine, Scrub-Shrub / Emergent, Persistent, Saturated/Semipermanent/Seasonal (PSS/EM1Y). To the west of Hess Creek and the Yamhill County tie-in point, several settling basins on the SP Newsprint Company property are mapped as Palustrine, Open Water/Unknown Bottom, Artificially Flooded, Intermittently Exposed/Permanent, Excavated (POWKZx).

3.3. Climate and Precipitation

Preliminary daily and monthly climate data were retrieved from the Aurora (Marion County) weather station (National Weather Service 2005). This is the closest National Weather Service (NWS) station to the site, approximately 15 miles away. Weather conditions were compared to the average climate data from the National Resources Conservation Services' Marion County WETS Station at the Salem Airport (National Resources Conservation Service 2005).

The high temperature on the day of the field survey, August 11, 2005, was 77 degrees Fahrenheit. No precipitation was recorded at the Aurora NWS weather station on the survey date or the two prior days. Trace levels of precipitation were recorded between August 1 and August 11, 2005. The total recorded precipitation at the Aurora NWS station for the month of July (preliminary data) was 0.55 inches. Average precipitation at the Salem airport for the month of July is 0.57 inches. The growing season at the Salem airport is estimated to have a 70 percent chance of 185 days, April 21 through October 23, exceeding 32 degrees Fahrenheit (National Resources Conservation Service 2005).

3.4. Description of Wetlands

Vegetation, soils, and hydrology of wetland and waters of the state in the vicinity of the project area are described below. Refer to wetland determination data forms in Appendix A and photos in Appendix B for more detailed information. The Yamhill County tie-in point will be located above Hess Creek and its adjacent wetland. The wetland adjacent to Hess Creek predominately supports emergent vegetation (reed canary grass) in the vicinity of the tie-in point with some scattered willows nearby. This wetland grades to a scrub-shrub dominated wetland southwest of the project area, terminating at Dog Ridge Road, south of an SP Newsprint Company settling pond. The Marion County tie-in point will be located in an upland cultivated agricultural field adjacent to the Willamette River. No wetlands were identified in the riparian area adjacent to the Willamette River, therefore the OHW mark delineates the boundary of jurisdictional waters.

3.4.1. Vegetation

Vegetation at the Yamhill County tie-in point (sample plot YT1-1) is a mix of nonnative grasses and weedy forbs including meadow fescue (*Festuca pratensis*, FACU+), colonial bentgrass (*Agrostis capillaris*, FAC), common velvetgrass (*Holcus lanatus*, FAC), English plantain (*Plantago lanceolata*, FAC), bull thistle (*Cirsium vulgare*, FACU), and spotted knapweed (*Centaurea maculosa*, NOL). Hess Creek wetland predominately supports reed canary grass

(*Phalaris arundinaceae*, FACW) in the area directly south of the tie-in point (YT1-2). Vegetation in Hess Creek wetland grades to scrub-shrub to the south and west (YT1-3 and YT2-2), supporting species including Oregon ash (*Fraxinus latifolia*, FACW), Piper willow (*Salix piperi*, FACW), tufted hairgrass (*Deschampsia caespitosa*, FACW), and reed canary grass (*Phalaris arundinaceae*, FACW). Upland slopes adjacent to Hess Creek wetland (YT1-4 and YT2-1) support similar species to those found in the wetland, with the addition of upland species, including Himalayan blackberry (*Rubus procerus*, FACU), bracken fern (*Pteridium aquilinum*, FACU), sword fern (*Polystichum munitum*, FACU), bigleaf maple (*Acer macrophyllum*, FACU), and elderberry (*Sambucus racemosa*, FACU).

The well field tie-in point in Marion County is located in an irrigated field planted in beans, adjacent to a fallow grass seed field. The agricultural fields are separated from the Willamette River by a riparian corridor of black cottonwood (*Populus balsamifera*, FAC), Oregon ash (*Fraxinus latifolia*, FACW), beaked hazel (*Corylus cornuta*, FACU), common snowberry (*Symphoricarpos albus*, FACU), oceanspray (*Holodiscus discolor*, NOL), clustered wild rose (*Rosa pisocarpa*, FACU), and reed canary grass (*Phalaris arundinaceae*, FACW).

3.4.2. Soils

Soils at the tie-in point on the slope above the Hess Creek wetland (YT1-1) are mapped as hydric Wapato silty clay loam bordering non-hydric Amity silt loam. Soils in this plot appear to contain fill material, as evidenced by the extent of compaction, lack of distinct soil horizons, and even distribution of few mottles throughout the entire sample depth. Soils in and adjacent to Hess Creek are mapped as hydric Wapato silty clay loam. Sample points in the wetland (YT1-2, YT1-3, YT2-2) generally matched the soil survey description of this Wapato silty clay loam in color and texture, although some variations in matrix color were observed (United States Department of Agriculture, Soil Conservation Service 1974). Soils in wetland plots exhibited significant redoxomorphic features. Soils in upland plots adjacent to Hess Creek (YT1-4 and YT2-1) were similar to those in wetland plots in matrix color and texture, but they lacked, or contained significantly fewer, redoxomorphic features. These upland plots were mapped as hydric Wapato silty clay loam, but were very near the border of Terrace escarpment map units (see Figure 4).

Soils at the tie-in point in the vicinity of the well field are mapped as non-hydric Cloquato silt loam (United States Department of Agriculture, Soil Conservation Service 1972). Soils at this sample point (MT1-1) matched the soil survey description in color, but were very sandy. Soils at this plot were very dry, loose, and well drained, and did not support significant amounts of organic materials or other hydric indicators.

3.4.3. Hydrology

Hess Creek is a 5.6-mile long tributary of Spring Brook. The project area is located approximately 1.2 miles above the confluence of Hess Creek and Spring Brook. Spring Brook flows into the Willamette River approximately 1.3 miles below its confluence with Hess Creek at Willamette River Mile 53. Hess Creek flows from north to south above the Yamhill County tie-in point. Hess Creek is routed under Wynooski Road through box culverts beginning west of the Water Treatment Plant and terminating approximately 1300 feet downslope in a small pond approximately 100 feet east of the tie-in point. Hess Creek continues to flow to the east from this point in a defined channel. The abandoned pre-culverted channel of Hess Creek continues in a

southwesterly direction from the pond for approximately 135 feet before turning to the northwest. The current and abandoned channels of Hess Creek occupy areas of flat, low topography supporting emergent vegetation (reed canary grass). The abandoned channel becomes less defined as it continues to the northwest toward Dog Ridge Road where the wetland grades to scrub-shrub. The Hess Creek wetland occupies this low, flat valley, which runs northwest to southeast. Wetland characteristics diminish as the topography rises on the slopes to the northeast and southwest.

The tie-in point in the well field is located in a level agricultural field, with well-drained soils and no evidence of ponding. The riparian area between the Willamette River and the agricultural field occupies a steep sided slope, interrupted about midway down between the field and the Willamette River OHW by a narrow (approximately 25 feet wide) terrace of sandy, well-drained soils.

4. RESULTS AND CONCLUSIONS

This report describes wetlands found in the vicinity of the Newberg parallel pipeline river crossing project. The Yamhill County pipeline tie-in point will be located above Hess Creek and its adjacent wetland. The wetland adjacent to Hess Creek predominately supports emergent vegetation (reed canary grass) in the vicinity of the tie-in point. This wetland grades to a scrub-shrub dominated wetland southwest of the project area, terminating immediately to the south of Dog Ridge Road, which traverses the southern boundary of an SP Newsprint settling pond. All ground disturbing activities associated with the tie-in point will be confined to an upland slope adjacent to the wetland and will be a minimum of 25 feet away from the wetland boundary.

The tie-in point for the pipeline in the Newberg well field in Marion County occurs in a cultivated agricultural field adjacent to the Willamette River. All activities will be confined to the agricultural fields and will not enter the riparian buffer of the Willamette River. No wetlands were identified adjacent to the Willamette River, therefore the OHW mark delineates the boundary of jurisdictional waters.

All activities associated with the Newberg Parallel Pipeline River Crossing Project will avoid impacts to wetlands and other jurisdictional waters of the state.

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

5. REFERENCES

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FIGURES

Figure 1. Vicinty Map

Figure 2. Wetland Boundaries and Project Impact Areas

Figure 3. National Wetlands Inventory Map

Figure 4. National Resource Conservation Service Soil Maps

APPENDIX A

WETLAND DETERMINATION DATA FORMS

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: MARION Date: _____ File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING/CITY OF NEWBERG Det. by: C. JONES
 Plant Community: COTTONWOOD/REED CANARY GRASS Plot # MTI-1
 Plot location: WILLAMETTE RIVER RIPARIAN AREA
 Recent Weather: CLEAR, WARM, DRY
 Do normal environ. conditions exist? Y ☒ N Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
<u>Tree Stratum</u>			<u>Herb Stratum</u>		
Total Cover: <u>40%</u>			Total Cover: <u>85%</u>		
*1. <u>POPULUS BALSAMIFERA</u>	<u>FAC</u>	<u>30</u>	*1. <u>PHALARIS ARUNDINACEA</u>	<u>FACW</u>	<u>85</u>
*2. <u>CORYLUS CORNUTA</u>	<u>FACU</u>	<u>10</u>	2. _____		
3. <u>FRAXINUS LATIFOLIA</u>	<u>FACW</u>	<u>3</u>	3. _____		
4. _____			4. _____		
<u>Sapling/Shrub Stratum</u>			5. _____		
Total Cover: <u>5%</u>			6. _____		
*1. <u>SYMPHYRICARPOS ALBA</u>	<u>FACU</u>	<u>5</u>	7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 50%
 Other Notable Species: _____

Criteria Met? YES _____ NO X

SOILS

Map Unit Name: CLOQUATO SILT LOAM Drainage Class: WELL DRAINED
 Taxonomy: CUMULIC USTIC HAPOLOXGROU On Hydric Soils List? Y ☒ N ☒

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-16"</u>		<u>10YR3/3</u>	<u>—</u>	<u>—</u>	<u>LOAMY SAND</u>	<u>NO PEDS, VERY LOOSE</u>

SOIL WAS VERY DRY, NO STREAKING, LIMITED ORGANIC MATERIAL

Hydric Soil Indicators:

- | | |
|---|---|
| ☐ Histosol | ☐ Concretions/Nodules (w/in 3"; > 2mm) |
| ☐ Histic Epipedon | ☐ High organic content in surface (in Sandy Soils) |
| ☐ Sulfidic Odor | ☐ Organic streaking (in Sandy Soils) |
| ☐ Reducing Conditions (tests positive) | ☐ Organic pan (in Sandy Soils) |
| ☐ Gleyed | ☐ Listed on Hydric Soils List (and soil profile matches) |
| ☐ Redox. features (w/in 10") | ☐ Other: _____ |

Criteria Met? YES _____ NO X * abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data X Recorded Data Available: X Aerial Photos _____ Stream gauge _____ Other _____
 No Recorded Data Available

Field Data
 Depth of inundation: NONE Depth to Saturation: >16" Depth to free water: >16"

Primary Hydrology Indicators:

- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns

Secondary Hydrology Indicators (2 or more required):

- ☐ Oxidized Root Channels (upper 12")
- ☐ Water-stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other: _____

Criteria Met? YES _____ NO X

DETERMINATION

WETLAND? YES _____ NO X Comments: _____

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING/CITY OF NEWBERG Det. by: C. JONES
 Plant Community: MEADOW FESCUE/PLANTAIN Plot # YTI-1
 Plot location: TBE OF SLOPE, SOUTHWEST OF INTERSECTION OF DOG RIDGE RD. & WYNDOSKI ST., N. OF HESS CREEK
 Recent Weather: CLEAR, WARM, DRY
 Do normal environ. conditions exist? Y ☐ N ☒ Explain: SLOPE APPEARS TO CONTAIN FILL MATERIAL
 Has Veg. ☐ Soil ☒ Hydrology ☐ been significantly disturbed?

Explain: FILL

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: <u>0%</u>			Total Cover: <u>100%</u>		
1. _____			1. <u>FESTUCA PRATENSIS</u>	<u>FAC+</u>	<u>55</u>
2. _____			2. <u>AGROSTIS CAPILLARIS</u>	<u>FAC</u>	<u>20</u>
3. _____			3. <u>PLANTAGO LANCEOLATA</u>	<u>FAC</u>	<u>15</u>
4. _____			4. <u>HOLCUS LAMINATUS</u>	<u>FAC</u>	<u>5</u>
Sapling/Shrub Stratum			5. <u>CIRSIIUM ARVENSE</u>	<u>FAC+</u>	<u>5</u>
Total Cover: <u>0%</u>			6. _____		
1. _____			7. _____		
2. _____			8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 50%

Other Notable Species: _____

Criteria Met? YES ☐ NO ☒

Map Unit Name: WAPATO SILT/AMITY SILT LOAM SOILS POORLY DRAINED/SOMWHAT POORLY DRAINED
 Taxonomy: ELUVIANTIC ENDOPOLIS/ARGILAQUICRY On Hydric Soils List? Y ☒ (WAPATO) N ☐
ARCHABOLLS

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
-------	---------	--------------	----------------------	------------------	---------	-----------

0-16" 10YR3/3 FEW, PROMINENT SYR 5/8 SILT SUBANGULAR BLOCKY

THIS AREA IS MAPPED AS WAPATO SILT BUT IS VERY NEAR THE BOUNDARY OF AMITY SIL.
 SOIL APPEARS TO BE FILL - DENSER THAN ADJACENT SOILS, MOTTLING ARE FEW AND APPEAR EVENLY
 DISTRIBUTED THROUGH LAYER. SOIL IS VERY DENSE, DRY, VERY LITTLE ORGANIC MATTER.

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Reducing Conditions (tests positive)
☐ Gleyed
☐ Redox. features (w/in 10")
☐ Concretions/Nodes (w/in 3"; > 2mm)
☐ High organic content in surface (in Sandy Soils)
☐ Organic streaking (in Sandy Soils)
☐ Organic pan (in Sandy Soils)
☐ Listed on Hydric Soils List (and soil profile matches)
☐ Other: _____

Criteria Met? YES ☐ NO ☒ * abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data ☒ Recorded Data Available: ☒ Aerial Photos ☐ Stream gauge ☐ Other ☐
 No Recorded Data Available

Field Data
 Depth of inundation: NONE Depth to Saturation: >16" Depth to free water: >16"

Primary Hydrology Indicators:
☐ Inundated
☐ Saturated in upper 12 inches
☐ Water Marks
☐ Drift Lines
☐ Sediment Deposits
☐ Drainage Patterns
 Secondary Hydrology Indicators (2 or more required):
☐ Oxidized Root Channels (upper 12")
☐ Water-stained Leaves
☐ Local Soil Survey Data
☐ FAC-Neutral Test
☐ Other: _____

Criteria Met? YES ☐ NO ☒

DETERMINATION

WETLAND? YES ☐ NO ☒ Comments: THE PLOT IS NEAR THE BOTTOM OF A CONVEX
SLOPE SUPPORTING UPLAND VEGETATION. HISTORIC AERIAL PHOTOS SHOW THIS POINT
TO BE JUST ABOVE INUNDATION LEVEL OF HESS CREEK DURING 1996 FLOOD.

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING PROJECT (CITY OF NEWBERG) Det. by: C. JONES
 Plant Community: REED CANARY GRASS Plot # YTI-2
 Plot location: SOUTHEAST OF INTERSECTION OF DOG LEG RD + WYNOOSKI ST., JUST N. OF HESS CREEK
 Recent Weather: CLEAR, DRY, WARM
 Do normal environ. conditions exist? Y X N _____ Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: <u>57%</u>			Total Cover: <u>100%</u>		
* 1. <u>FRAXINUS LATIFOLIA</u>	<u>FACW</u>	<u>5</u>	* 1. <u>PHALARIS ARUNDINACEA</u>	<u>FACW</u>	<u>100</u>
2. _____			2. _____		
3. _____			3. _____		
4. _____			4. _____		
Sapling/Shrub Stratum					
Total Cover: _____			5. _____		
1. _____			6. _____		
2. _____			7. _____		
3. _____			8. _____		
4. _____			9. _____		
5. _____			10. _____		

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 100%
 Other Notable Species: _____

Criteria Met? YES X NO _____

Map Unit Name: WAPATO SILT CLAY LOAM SOILS
 Taxonomy: FLUVIQUENT ENDORAQUALS Drainage Class: POORLY DRAINED
 On Hydric Soils List? Y X N _____

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-6"</u>		<u>10YR3/3</u>	<u>DISTINCT COMMON, PROMINENT 10YR4/6</u> <u>+ COMMON, PROMINENT 10YR5/8</u> <u>+ BLACK MASSES</u>	<u>—</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>
<u>6-16"</u>		<u>10YR3/3</u>	<u>COMMON, PROMINENT 5YR4/6</u>	<u>MATRIX 5YR5/2</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>

APPROXIMATELY 4" OF LITTER/THATCH ABOVE SOIL.

Hydric Soil Indicators:
 _____ Histosol
 _____ Histic Epipedon
 _____ Sulfidic Odor
 _____ Reducing Conditions (tests positive)
 _____ Gleyed
X Redox. features (w/in 10")
 _____ Concretions/Modules (w/in 3"; > 2mm)
 _____ High organic content in surface (in Sandy Soils)
 _____ Organic streaking (in Sandy Soils)
 _____ Organic pan (in Sandy Soils)
X Listed on Hydric Soils List (and soil profile matches)
 _____ Other: _____

Criteria Met? YES X NO _____ * abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data X Recorded Data Available: _____
 No Recorded Data Available: _____
 Field Data _____
X Aerial Photos _____ Stream gauge _____ Other _____

Depth of inundation: NONE Depth to Saturation: >16" Depth to free water: >16"

Primary Hydrology Indicators:
 _____ Inundated
 _____ Saturated in upper 12 inches
 _____ Water Marks
X Drift Lines
X Sediment Deposits
X Drainage Patterns
 Secondary Hydrology Indicators (2 or more required):
X Oxidized Root Channels (upper 12")
 _____ Water-stained Leaves
 _____ Local Soil Survey Data
 _____ FAC-Neutral Test
 _____ Other: _____

Criteria Met? YES X NO _____

DETERMINATION

WETLAND? YES X NO _____ Comments: _____

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPING RIVER CROSSING PROJECT (CHIEF NUMBER) Det. by: C. JONES
 Plant Community: OREGON ASH / REED CANARY GRASS Plot # YT1-3
 Plot location: SOUTHEAST OF INTERSECTION OF DOB RIDGE RD + WYNOSKI ST, S. OF HESS CREEK
 Recent Weather: CLEAR, DRY, WARM
 Do normal environ. conditions exist? Y X N _____ Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			Status	% Cover	Dominant Species			Status	% Cover
Tree Stratum					Herb Stratum				
Total Cover: 50%					Total Cover: 100%				
*1.	FRAXINUS LATIFOLIA	FACW		40	*1.	PHALARIS ARUNDINACEA	FACW		99
*2.	SALIX PIPERI	FACN		20	2.	CAREX SP.			1
3.					3.				
4.					4.				
Sapling/Shrub Stratum									
Total Cover: 50%									
*1.	FRAXINUS LATIFOLIA	FACW		20					
*2.	RUBUS PROCEUS	FACW		20					
*3.	SALIX PIPERI	FACW		10					
4.									
5.									

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 83%

Other Notable Species: _____

Criteria Met? YES X NO _____

Map Unit Name: WAPATO SIL Drainage Class: POORLY DRAINED
 Taxonomy: FLUVIOQUENTIC ENDORHALLS On Hydric Soils List? Y X N _____

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-4</u>		<u>7.5YR3/2</u>	<u>—</u>	<u>—</u>	<u>SI CL</u>	<u>SUBANGULAR BLOCKY</u>
<u>4-16</u>		<u>10YR 3/2</u>	<u>MANY, PROMINENT</u>	<u>7.5YR5/8 —</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>
			<u>+ BLACK MASKES</u>			

Hydric Soil Indicators:
 _____ Histosol
 _____ Histic Epipedon
 _____ Sulfidic Odor
 _____ Reducing Conditions (tests positive)
 _____ Gleyed
X Redox. features (w/in 10")
 _____ Concretions/Nodules (w/in 3"; > 2mm)
 _____ High organic content in surface (in Sandy Soils)
 _____ Organic streaking (in Sandy Soils)
 _____ Organic pan (in Sandy Soils)
X Listed on Hydric Soils List (and soil profile matches)
 Other: _____

Criteria Met? YES X NO _____ * abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data X Recorded Data Available: X Aerial Photos _____ Stream gauge _____ Other _____
 _____ No Recorded Data Available

Field Data
 Depth of inundation: NONE Depth to Saturation: 716" Depth to free water: >16"

Primary Hydrology Indicators:
 _____ Inundated
 _____ Saturated in upper 12 inches
 _____ Water Marks
 _____ Drift Lines
 _____ Sediment Deposits
X Drainage Patterns
Secondary Hydrology Indicators (2 or more required):
 _____ Oxidized Root Channels (upper 12")
 _____ Water-stained Leaves
 _____ Local Soil Survey Data
 _____ FAC-Neutral Test
 Other: _____

Criteria Met? YES X NO _____

DETERMINATION

WETLAND? YES X NO _____ Comments: _____

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING PROJECT CITY OF NEWBERG Det. by: C. JONES
 Plant Community: OREGON ASH/HIMALAYAN BLUEBERRY IRRED CANARY GRASS Plot # YTI-4
 Plot location: SOUTHEAST OF INTERSECTION OF DOG RIDGE RD + WYNOSKI ST, S. OF HESS CREEK, AT BOTTOM OF SLOPE
 Recent Weather: CLEAR, WARM, DRY
 Do normal environ. conditions exist? Y X N _____ Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: <u>20%</u>			Total Cover: <u>100%</u>		
1. <u>FRAXINUS LATIFOLIA</u>	<u>FACW</u>	<u>20</u>	1. <u>PHALARIS ARUNDINACEA</u>	<u>FACW</u>	<u>100</u>
2. _____			2. _____		
3. _____			3. _____		
4. _____			4. _____		
Sapling/Shrub Stratum					
Total Cover: <u>50%</u>			5. _____		
1. <u>RUGUS PROCEENS</u>	<u>FACU</u>	<u>30</u>	6. _____		
2. <u>PTERIDIUM AQUILINUM</u>	<u>FACU</u>	<u>10</u>	7. _____		
3. <u>POLYSTICHUM MUNITUM</u>	<u>FACU</u>	<u>5</u>	8. _____		
4. <u>SALIX PIRERI</u>	<u>FACW</u>	<u>5</u>	9. _____		
5. _____			10. _____		

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 50%

Other Notable Species: _____

Criteria Met? YES _____ NO X

Map Unit Name: WAPATO SICL SOILS _____ Drainage Class: POORLY DRAINED
 Taxonomy: FLUVIOQUENTIC ENDORRHOLLS On Hydric Soils List? Y X N _____

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-6</u>		<u>10YR3/3</u>	<u>—</u>	<u>—</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>
<u>6-16</u>		<u>10YR3/3</u>	<u>COMMON, PROMINENT 7.5YR5/9</u>	<u>—</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>

THIS AREA IS MAPPED AS WAPATO SICL BUT IS VERY NEAR THE TERRACE ESCARPMENT

MAP UNIT

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Reducing Conditions (tests positive)
- ☐ Gleyed
- ☐ Redox. features (w/in 10")

- ☐ Concretions/Nodules (w/in 3"; > 2mm)
- ☐ High organic content in surface (in Sandy Soils)
- ☐ Organic streaking (in Sandy Soils)
- ☐ Organic pan (in Sandy Soils)
- ☐ Listed on Hydric Soils List (and soil profile matches)
- ☐ Other: _____

Criteria Met? YES _____ NO X
 Recorded Data X Recorded Data Available:
 _____ No Recorded Data Available

* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data X Recorded Data Available:
 _____ No Recorded Data Available
 Field Data _____
 Depth of inundation: NONE Depth to Saturation: >16" Depth to free water: >16"

Primary Hydrology Indicators:

- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☐ Drift Lines
- ☐ Sediment Deposits
- ☐ Drainage Patterns

Secondary Hydrology Indicators (2 or more required):

- ☐ Oxidized Root Channels (upper 12")
- ☐ Water-stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- ☐ Other: _____

Criteria Met? YES _____ NO X

DETERMINATION

WETLAND? YES _____ NO X Comments: _____

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING PROJECT CITY OF NEWBERG Det. by: C. JONES
 Plant Community: OREGON ASH/HIMALAYAN BLACKBERRY TUFTED HAZELGRASS Plot # YTS-1
 Plot location: SOUTHWEST INTERSECTION OF DOGRIDGE RD + WYNOSKI ST., N. OF HESS CREEK
 Recent Weather: CLEAR, WARM, DRY
 Do normal environ. conditions exist? Y X N _____ Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: <u>75%</u>			Total Cover: <u>80%</u>		
*1. <u>FRAXINUS LATIFOLIA</u>	<u>FACW</u>	<u>65</u>	*1. <u>DESCHAMPSIA CESPIDIOSA</u>	<u>FACW</u>	<u>60</u>
*2. <u>ACER MACROPHYLLUM</u>	<u>FACU</u>	<u>20</u>	2. <u>ESTUCA PRATENSIS</u>	<u>FACU+</u>	<u>10</u>
3. _____			3. <u>TELLIMA GRANDIFLORA</u>	<u>NOL</u>	<u>10</u>
4. _____			4. _____		
Sapling/Shrub Stratum					
Total Cover: <u>60%</u>			5. _____		
*1. <u>RUBUS PROPERIS</u>	<u>FACU</u>	<u>40</u>	6. _____		
2. <u>POLYSTICHUM MUNITUM</u>	<u>FACU</u>	<u>10</u>	7. _____		
3. <u>SAMOLUS RACEMOSA</u>	<u>FACU</u>	<u>5</u>	8. _____		
4. <u>RUBUS URSINUS</u>	<u>FACU</u>	<u>5</u>	9. _____		
5. _____			10. _____		

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 50%
 Other Notable Species: _____

Criteria Met? YES _____ NO X

Map Unit Name: WAPATO SICL SOILS _____ Drainage Class: POORLY DRAINED
 Taxonomy: ELUVIATED/IC EUDIAQUOLLS On Hydric Soils List? Y X N _____

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-14</u>		<u>10YR 3/2</u>	<u>—</u>	<u>—</u>	<u>SIC</u>	<u>SUBANGULAR BLOCKY</u>

VERY COMPACT, DRY SOIL; DIFFICULT TO DIG. THIS AREA IS MAPPED AS WAPATO SICL, BUT IS NEAR THE TERRACE ESCARPMENT MAP UNIT.

Hydric Soil Indicators:	Concretions/Nodules (w/in 3"; > 2mm)
☐ Histosol	☐ High organic content in surface (in Sandy Soils)
☐ Histic Epipedon	☐ Organic streaking (in Sandy Soils)
☐ Sulfidic Odor	☐ Organic pan (in Sandy Soils)
☐ Reducing Conditions (tests positive)	☐ Listed on Hydric Soils List (and soil profile matches)
☐ Gleyed	Other: _____
☐ Redox. features (w/in 10")	

Criteria Met? YES _____ NO X * abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data _____ Recorded Data Available: _____ Aerial Photos _____ Stream gauge _____ Other _____
 No Recorded Data Available _____
 Field Data _____
 Depth of inundation: NONE Depth to Saturation: >14" Depth to free water: >14"

Primary Hydrology Indicators:	Secondary Hydrology Indicators (2 or more required):
☐ Inundated	☐ Oxidized Root Channels (upper 12")
☐ Saturated in upper 12 inches	☐ Water-stained Leaves
☐ Water Marks	☐ Local Soil Survey Data
☐ Drift Lines	☐ FAC-Neutral Test
☐ Sediment Deposits	Other: _____
☐ Drainage Patterns	

Criteria Met? YES _____ NO X

DETERMINATION

WETLAND? YES _____ NO X Comments: _____

DIVISION OF STATE LANDS - WETLAND DETERMINATION DATA FORM

County: YAMHILL Date: 8/11/05 File # _____
 Project/Contact: PARALLEL PIPELINE RIVER CROSSING PROJECT CITY OF NEWBERG Det. by: C. JONES
 Plant Community: OREGON ASH LEAFED CANARY GRASS / HUMALUS/BLACKBERRY Plot # Y12-2
 Plot location: SOUTHEAST OF INTERSECTION OF DOO RIDGE RD + WYNDOSKI ST, N. OF HESS CREEK
 Recent Weather: CLEAR, WARM, DRY
 Do normal environ. conditions exist? ☒ YES ☐ NO Explain: _____
 Has Veg. _____ Soil _____ Hydrology _____ been significantly disturbed? NO

Explain: _____

Dominant Species			VEGETATION		
Dominant Species	Status	% Cover	Dominant Species	Status	% Cover
Tree Stratum			Herb Stratum		
Total Cover: <u>60%</u>			Total Cover: <u>75%</u>		
1. <u>FRAXINUS LATIFOLIA</u>	<u>FACW</u>	<u>60</u>	1. <u>DESCAMUSIA CESPITOSA</u>	<u>FACW</u>	<u>40</u>
2. _____			2. <u>PESTICA ARTEMIS</u>	<u>FACW</u>	<u>30</u>
3. _____			3. <u>TELLIMA GRANDIFLORA</u>	<u>NOI</u>	<u>5</u>
4. _____			4. <u>DACTYLIS GLABRATA</u>	<u>FACW</u>	<u>5</u>
Sapling/Shrub Stratum			5. <u>SOLANUM DULCAMPARA</u>	<u>FAC+</u>	<u>5</u>
Total Cover: <u>40%</u>			6. _____		
1. <u>RUBUS PROCEPERAS</u>	<u>FACW</u>	<u>25</u>	7. _____		
2. <u>URTICA DIOICA</u>	<u>FAC+</u>	<u>15</u>	8. _____		
3. _____			9. _____		
4. _____			10. _____		
5. _____					

Percent of Dominant Species that are OBL, FACW, FAC (not FAC-): 60%

Other Notable Species: _____

Criteria Met? YES ☒ NO ☐

Map Unit Name: WAPATO SICL SOILS
 Taxonomy: FLUVAQUENTIC ENDORAQUILLS Drainage Class: POORLY DRAINED
 On Hydric Soils List? Y ☒ N ☐

Depth	Horizon	Matrix Color	Redox Concentrations	Redox Depletions	Texture	Structure
<u>0-16</u>	<u>10YR 3/2</u>	<u>MANY, PROMINENT 7.5 YR 5/8</u>	<u>—</u>	<u>—</u>	<u>SICL</u>	<u>SUBANGULAR BLOCKY</u>
		<u>+ FEW, PROMINENT 2.5 YR 6/8</u>				
		<u>+ BLACK MASSES</u>				

Hydric Soil Indicators:

- ☐ Histosol
- ☐ Histic Epipedon
- ☐ Sulfidic Odor
- ☐ Reducing Conditions (tests positive)
- ☐ Gleyed
- ☒ Redox. features (w/in 10")

- ☐ Concretions/Nodules (w/in 3"; > 2mm)
- ☐ High organic content in surface (in Sandy Soils)
- ☐ Organic streaking (in Sandy Soils)
- ☐ Organic pan (in Sandy Soils)
- ☒ Listed on Hydric Soils List (and soil profile matches)
- Other: _____

Criteria Met? YES ☒ NO ☐

* abund./size/contrast/color/location (matrix or pores/peds)

HYDROLOGY

Recorded Data

☒ Recorded Data Available:
☐ No Recorded Data Available

☒ Aerial Photos ☐ Stream gauge ☐ Other

Field Data

Depth of inundation: NONE Depth to Saturation: 716" Depth to free water: 716"

Primary Hydrology Indicators:

- ☐ Inundated
- ☐ Saturated in upper 12 inches
- ☐ Water Marks
- ☒ Drift Lines
- ☒ Sediment Deposits
- ☒ Drainage Patterns

Secondary Hydrology Indicators (2 or more required):

- ☐ Oxidized Root Channels (upper 12")
- ☐ Water-stained Leaves
- ☐ Local Soil Survey Data
- ☐ FAC-Neutral Test
- Other: _____

Criteria Met? YES ☒ NO ☐

DETERMINATION

WETLAND? YES ☒ NO ☐ Comments: _____