Wetland Delineation Report

NEXT Renewable Fuels Oregon, LLC

NEXT Renewable Fuels Oregon

2020

anderson perry & associates, inc.

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WETLAND DELINEATION REPORT

FOR

NEXT RENEWABLE FUELS OREGON

NEXT RENEWABLE FUELS OREGON, LLC

NOVEMBER 2020

By
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A. Site Description, Landscape Setting

NEXT Renewable Fuels Oregon, LLC, proposes to construct a renewable diesel facility at Port Westward, near Clatskanie, Columbia County, Oregon. This facility will produce diesel fuel by recycling various cooking oils and greases and other animal and vegetable fats. The facility will include storage facilities for the raw oil feedstocks and renewable diesel fuel, processing facilities, waste handling facilities, administrative buildings, and other structures required for facility operation. In addition, an access road will be constructed to the west to connect with Hermo Road, the existing gravel access road to the north will be improved, an electrical connection will be constructed to tie into the existing power lines to the north, a pipeline will be constructed to transport raw materials and renewable diesel to and from the existing terminalling provider, and a rail connector will be constructed to the east to tie into the existing rail line near Kallunki Road.

This Wetland Delineation Report was prepared to aid in the design process of the new renewable diesel facility, associated fuel pipelines, electrical transmission lines, rail line, and access roads.

The study area is located in the Lower Beaver Creek-Frontal Columbia River subwatershed (HUC-170800030207) in the Coastal Ranges ecoregion. This region is characterized by a modified marine climate with cool, rainy winters and mild summers. The topography in the study area is flat floodplain with an elevation of approximately 3 to 15 feet above sea level.

The legal description is Township 8 North, Range 4 West, Sections 16, 21, 22, and 23, Willamette Meridian. The study area includes portions of Tax Map 08041600 Lot 200; Tax Map 08042100 Lot 700; Tax Map 08042200 Lots 100, 200, 300, and 1100; and Tax Map 080423B0 Lots 700 and 800.

Appendix A contains Figures 1 through 6O that provide the Location and Vicinity Maps, a Tax Lot Map, a National Wetlands Inventory (NWI) Map, a Soils Map, an Aerial Photograph, and Wetland Delineation Maps to aid in review of the proposed project.

The features discussed in this Report consist of 116.87 acres of wetlands and numerous ditches within the 135-acre study area. This investigation was conducted by Sue Brady, Anderson Perry & Associates, Inc. (AP) biologist, on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019; November 14, 2019; and September 30, 2020. Wetland determination data forms from 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) were used to record information gathered from the sample plots and are included in Appendix B. Site photographs are included in Appendix C. Precipitation data and historic aerial photographs are included in Appendix D.

B. Site Alterations, Current and Past Land Use

The land within and adjoining the study area is agricultural land, predominantly pasture, mint fields, and hybrid poplar plantations. Portland General Electric's (PGE) Beaver Power Plant and Global Partners' storage and export facility are located north of the study area. Kallunki Road and a rail line are located to the east, Hermo Road is located to the west, and the Columbia River/Bradbury Slough is located to the north. The City of Clatskanie is approximately 4.5 miles southwest.

B.1 Soils

Soils within and adjacent to the study area have been influenced by the Columbia River and impacted by agriculture/grazing, construction and maintenance of roads, the railroad, and the construction and maintenance of the energy infrastructure at Port Westward.

B.2 Hydrology

The land in the study area is flat and in the Columbia River floodplain. The study area receives water from precipitation and groundwater. Surface and subsurface hydrology in the study area has been altered by agricultural practices, including ditching, as well as the construction of roads, railroads, and industrial facilities.

B.3 Vegetation

Most of the study area is covered by herbaceous vegetation, including mint fields and grasses/sedges associated with agricultural pastureland. There are some extensive areas of Himalayan blackberry thickets, as well as smaller patches of hybrid poplar saplings. A small area of riparian forest is located adjacent to the Columbia River. Disturbance within the study area is a result of past and current agricultural use on the property and construction and maintenance of roads. Lands outside the study area have been altered by past and current activities associated with agriculture, industrial development, and the construction and maintenance of roads and the railroad.

C. Precipitation Data and Analysis

C.1 Climate and Growing Season

The following information for the study area climate is summarized from the Soil Survey of Columbia County Area, Oregon (Natural Resources Conservation Service [NRCS], 1986) and available climate data. The NRCS National Water and Climate Center WETS tables for the Clatskanie weather station, approximately 4.5 miles southwest of the study area, were used (NRCS, 2020a).

The climate in the region is moderate, with mild summers and cool, rainy winters. Temperatures and precipitation are dependent on elevation. The average daily high temperature ranges from approximately 72° Fahrenheit (F) in the summer to approximately 48°F in the winter, with an average annual precipitation of 55.62 inches.

The growing season (28°F day, 70 percent interval) for this area is February 20 through November 30. Of the total annual precipitation, 12.63 inches or approximately 23 percent, usually falls from April through September, which includes the growing season for most crops.

C.2 Precipitation and Natural Resources Conservation Service WETS Table Summary

Monthly precipitation data for the Clatskanie weather station during the three months preceding each field investigation are presented on Tables C-1A through C-1E (National Oceanic and Atmospheric Administration [NOAA], 2020; NRCS, 2020a). Refer to Appendix D for current and historic precipitation data.

TABLE C-1A
SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION
BETWEEN JULY 1, 2018, AND OCTOBER 23, 2018

	July	August	September	October	Total Water Year*
Recorded Precipitation (inches)	0.01	0.45	2.52	0.88 (to date)	55.13 (to date)
Precipitation Average (inches)	0.84	0.96	2.22	4.08 (month)	59.70
Percent of Average	**1**	**47**	**114**	**22**	**92**
Monthly Normal (inches) **30 Percent Chance Less Than**	0.40	0.40	0.72	2.17	38.13
30 Percent Chance More Than	1.01	1.17	2.65	4.98	71.49

**Includes water years October 2017 through September 2018 plus October 2018*

TABLE C-1B
SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION
BETWEEN AUGUST 1, 2018, AND NOVEMBER 29, 2018

	August	September	October	November	Total Water Year*
Recorded Precipitation (inches)	0.45	2.52	4.41	5.03 (to date)	63.69 (to date)
Precipitation Average (inches)	0.96	2.22	4.08	8.84 (month)	68.54
Percent of Average	**47**	**114**	**108**	**57**	**93**
Monthly Normal (inches) **30 Percent Chance Less Than**	0.40	0.72	2.17	5.92	44.05
30 Percent Chance More Than	1.17	2.65	4.98	10.59	82.08

**Includes water years October 2017 through September 2018 plus October 2018 through November 2018*

TABLE C-1C
SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION
BETWEEN JANUARY 1, 2019, AND APRIL 12, 2019

	January	February	March	April	Total Water Year*
Recorded Precipitation (inches)	4.70	5.62	1.40	3.57 (to date)	33.30 (to date)
Precipitation Average (inches)	8.82	6.74	5.94	4.08 (month)	47.08
Percent of Average	**53**	**83**	**23**	**87**	**71**
Monthly Normal (inches) **30 Percent Chance Less Than**	5.13	4.56	4.36	2.85	31.34
30 Percent Chance More Than	10.00	8.06	6.98	4.85	56.29

**Includes water year October 2018 through April 2019*

TABLE C-1D
SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION
BETWEEN AUGUST 1, 2019, AND NOVEMBER 14, 2019

	August	September	October	November	Total Water Year*
Recorded Precipitation (inches)	0.40	3.22	3.57	0.32 (to date)	45.71 (to date)
Precipitation Average (inches)	0.96	2.22	4.08	8.84 (month)	68.54
Percent of Average	**42**	**145**	**87**	**4**	**67**
Monthly Normal (inches) **30 Percent Chance Less Than**	0.40	0.72	2.17	5.92	44.05
30 Percent Chance More Than	1.17	2.65	4.98	10.59	82.08

**Includes water years October 2018 through September 2019 plus October 2019 through November 2019*

TABLE C-1E
SUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATION
BETWEEN AUGUST 1, 2020, AND SEPTEMBER 30, 2020

	July	August	September	Total Water Year*
Recorded Precipitation (inches)	0.58	0.29	4.75	55.81
Precipitation Average (inches)	0.84	0.96	2.22	55.62
Percent of Average	**68**	**30**	**214**	**100**
Monthly Normal (inches) **30 Percent Chance Less Than**	0.40	0.40	0.72	35.96
30 Percent Chance More Than	1.01	1.17	2.65	66.51

**Includes water year October 2019 through September 2020*

The water year is defined as October 1 through September 30 of the following year; however, when the field investigations occurred in October or November, the data from the previous water year plus the beginning of the current water year were used to provide a meaningful assessment of precipitation conditions. At the time of each field investigation except the one conducted in September 2020, this station reported precipitation for the water year to date below the average amount but within the normal range. In September 2020, the precipitation was slightly above the average for the water year to date, but within the normal range.

Daily precipitation data for the Clatskanie weather station for the two weeks immediately preceding each field investigation are presented on Tables C-2A through C-2E (NOAA, 2020; NRCS, 2020a). Refer to Appendix D for daily precipitation data. The shaded dates represent the days the field investigations were performed.

TABLE C-2A
SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN OCTOBER 10, 2018, AND OCTOBER 23, 2018

	October 2018														
Date	10	11	12	13	14	15	16	17	18	19	20	21	22	23	**Total**
Actual Precipitation (inches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	**0.00**
Average Precipitation (inches)	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	0.13	**1.82**
Daily Normal (inches)															
30 Percent Chance Less Than	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	**0.98**
30 Percent Chance More Than	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	**2.24**
Summary: The total precipitation during this period was below both the average and normal amounts.															

TABLE C-2B
SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN NOVEMBER 16, 2018, AND NOVEMBER 29, 2018

	November 2018														
Date	16	17	18	19	20	21	22	23	24	25	26	27	28	29	**Total**
Actual Precipitation (inches)	0.02	0.02	0.01	0.00	0.00	0.02	0.29	0.93	0.29	0.02	0.08	1.05	0.55	0.05	**3.33**
Average Precipitation (inches)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	**4.06**
Daily Normal (inches)															
30 Percent Chance Less Than	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	**2.80**
30 Percent Chance More Than	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	**4.90**
Summary: The total precipitation during this period was below the average amount but within the normal range.															

TABLE C-2C
SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN MARCH 30, 2019, AND APRIL 12, 2019

	March 2019		April 2019												Total
Date	30	31	1	2	3	4	5	6	7	8	9	10	11	12	
Actual Precipitation (inches)	0.00	0.00	0.00	0.05	0.51	0.03	0.19	0.42	0.70	0.02	0.43	0.08	0.79	0.35	**3.57**
Average Precipitation (inches)	0.19	0.19	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	0.14	**2.06**
Daily Normal (inches)															
30 Percent Chance Less Than	0.14	0.14	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	**1.36**
30 Percent Chance More Than	0.23	0.23	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	0.16	**2.38**

Summary: The total precipitation during this period was above both the average and normal amounts.

TABLE C-2D
SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN NOVEMBER 1, 2019, AND NOVEMBER 14, 2019

	November 2019														
Date	1	2	3	4	5	6	7	8	9	10	11	12	13	14	**Total**
Actual Precipitation (inches)	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.06	0.09	0.00	0.10	0.07	0.00	**0.32**
Average Precipitation (inches)	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	0.29	**4.06**
Daily Normal (inches)															
30 Percent Chance Less Than	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	0.20	**2.80**
30 Percent Chance More Than	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	0.35	**4.90**

Summary: The total precipitation during this period was below both the average and normal amounts.

TABLE C-2E
SUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEEN SEPTEMBER 17, 2020, AND SEPTEMBER 30, 2020

Date	September 2020														Total
	17	18	19	20	21	22	23	24	25	26	27	28	29	30	
Actual Precipitation (inches)	0.00	0.55	1.30	0.22	0.00	0.00	0.16	1.60	0.32	0.09	0.19	0.11	0.04	0.06	**4.64**
Average Precipitation (inches)	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	**0.98**
Daily Normal (inches)															
30 Percent Chance Less Than	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	**0.28**
30 Percent Chance More Than	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	**1.26**
Summary: The total precipitation during this period was above both the average and normal amounts.															

D. Investigation Methods

Two methods of investigation were used to analyze the wetlands within the study area: a pre-field review of existing information and an on-site wetland investigation.

D.1 Pre-Field Review

A review of existing literature, maps, and other materials was conducted to identify wetlands or site characteristics indicative of wetlands within the study area. Known wetland and waterway locations were identified from the U.S. Fish and Wildlife Service (USFWS) NWI Map (USFWS, 2020) (see Figure 3 in Appendix A). These sources can only indicate the likelihood of the presence of wetlands. Actual wetland determinations must be based on data obtained from the field investigation. Soil descriptions were taken from the NRCS website (NRCS, 2020b).

D.1.1 Soils

Six soils are mapped within the study area, as described on Table D-1 and as shown on Figure 4 in Appendix A.

TABLE D-1
SOILS FOUND WITHIN THE STUDY AREA

Map Unit	Soil Name	Hydric Rating	Drainage Class	Parent Material	Location
15	Crims silt loam, protected	99	Very poorly drained	Partially decomposed herbaceous plant material over silty alluvium	Floodplains
29	Locoda silt loam, protected	97	Very poorly drained	Silty alluvium derived from mixed sources	Floodplains

Map Unit	Soil Name	Hydric Rating	Drainage Class	Parent Material	Location
60	Udipsamments, nearly level	100	Well drained	Sandy dredge spoils	Floodplains
61	Udipsamments, nearly level, protected	97	Well drained	Sandy dredge spoils	Floodplains
66	Wauna silt loam, protected	98	poorly drained	Silty alluvium derived from mixed sources	Floodplains
68	Wauna-Locoda silt loams, protected	94	Poorly drained	Silty alluvium derived from mixed sources	Floodplains

D.1.2 Hydrology

The NWI Map identifies extensive wetlands within the study area; smaller palustrine emergent (PEM) wetlands in the main part of the study area and eastern end, a large PEM wetland covering the majority of the western access road and pipeline routes, and a patch of PEM/Palustrine Forested (PFO) wetland adjacent to the Columbia River (see Figure 3 in Appendix A).

D.1.3 Vegetation

The study area is within the Coastal Ranges ecoregion, specifically the regional vegetation zone of western hemlock forest (*Tsuga heterophylla*). Native vegetation of this zone typically consists of conifers (*Pseudotsuga menziesii, Tsuga heterophylla, Thuja plicata*) with an understory of various shrubs and forbs. Hardwood species are less common, but riparian sites are more likely to support stands of hardwoods (e.g., *Acer macrophyllum, Populus trichocarpus, Fraxinus latifolia, Alnus rubra*) (Franklin and Dyrness, 1988).

D.2 On-Site Wetland Investigation

An on-site wetland investigation was conducted by Sue Brady, AP biologist on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019; November 14, 2019; and September 30, 2020. Procedures outlined in the USACE *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)* (USACE, 2010) were used to determine the presence and extent of wetlands within the study area. The methodology outlined in the manuals is based on three essential characteristics of wetlands: (1) hydrophytic vegetation, (2) hydric soils, and (3) wetland hydrology. Generally, field indicators of all three characteristics must be present to make a positive wetland determination, except in specific situations as outlined in Chapter 5: Difficult Situations in the Regional Supplement.

A total of 68 paired (upland/wetland) and unpaired sample plots were established to determine plant species composition, analyze soil pits, and evaluate hydrology in areas that appeared to be wetlands or were shown as wetlands on the NWI Map. Sample plot locations were chosen based on NWI mapping, aerial photography, a visual survey of the study area, and local variations in topography and vegetation along the apparent wetland boundaries.

Wetland determination data forms from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*were used to record information gathered from the sample plots and are included in Appendix B. Site photographs are included in Appendix C.

D.2.1 Soils

To determine the presence or absence of hydric soils, soil samples were collected at each representative sample plot. Soils were inspected to a minimum depth of 24 inches or the depth needed to confirm the presence of hydric soil and hydrology indicators. Soils were analyzed for soil matrix color, soil texture, redoximorphic features, and the presence of mottles or gleying. Soil hue value and chroma were determined using the Munsell Soil Color Charts (Munsell Color, 2009). Observations about hydric soil indicators from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*were noted for each sample plot. The indicators found at the sample plots were Depleted Matrix and Redox Dark Surface. No problematic soils were encountered at the sample plots.

D.2.2 Hydrology

Observations of wetland hydrology indicators from the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0)*were noted for each sample plot. The primary indicators found at the sample plots were Surface Water, High Water Table, Saturation, Hydrogen Sulfide Odor, and Oxidized Rhizospheres along Living Roots. No secondary indicators were necessary for any of the sample plots, and no difficult hydrologic situations were encountered.

D.2.3 Vegetation

Dominant plant species at each sample plot were identified, when possible, and percent cover was visually estimated. Sample plots had an approximately 4-square meter area for the herb and vine strata and an approximately 25-square meter area for the sapling/shrub and tree strata. If a plant was not immediately identifiable in the field, a representative sample was collected and identified in the lab using a dissecting microscope, when necessary. Plants were keyed to species using Hitchcock and Cronquist (1973), Barkworth et al. (2007), and Wilson et al. (2014). Scientific and common names used in this Report are from the U.S. Department of Agriculture (USDA) The PLANTS Database (USDA, 2020). Wetland plant indicator status was taken from the USACE National Wetland Plant List, (Lichvar et al., 2016). The hydrophytic vegetation indicator used at the sample plots was the Dominance Test. No problematic situations that precluded evaluating the area were encountered regarding hydrophytic vegetation.

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

Four wetland areas, totaling approximately 116.87 acres within the study area, and numerous unnamed ditches totaling 10,510 linear feet, were identified based on field observations (see Figures 6A through 6O in Appendix A).

E.1 Wetlands

The identified wetland areas appear to have formed naturally and are supported by precipitation, surface runoff, and groundwater. The wetlands have been modified by human activities since they occur in areas that have been subjected to disturbance from agricultural activities (including ditching) and livestock grazing.

The delineated wetlands are summarized on Table E-1, including the Hydrogeomorphic (HGM) and Cowardin classifications, the USACE jurisdictional category, sample plots associated with each wetland, and acreage within the study area. Descriptions of the vegetation, soils, and hydrology for each wetland are presented below. The wetlands documented by this Report are graphically depicted on the wetland delineation maps for the study area, as shown on Figures 6A through 6O in Appendix A. Wetland determination data forms documenting the delineation are included in Appendix B, while representative photographs documenting site conditions at the time of the investigation are presented in Appendix C.

TABLE E-1
WETLANDS DELINEATED WITHIN THE STUDY AREA

Wetland	HGM Class[1]	Cowardin Class[2]	USACE Category and Basis	Sample Plot No.	Acres in Study Area
1	Flats	PEM/PSS	Cat. 7 - Adjacent to Columbia River	1 through 24, 28 through 39	114.41
2	Flats	PEM	Cat. 7 - Adjacent to Columbia River	40	0.17
3	Flats	PEM	Cat. 7 - Adjacent to Columbia River	25, 26, 41, 42	1.98
4	Flats	PEM/PFO	Cat. 7 - Adjacent to Columbia River	27	0.31
				Total	**116.87**

[1]Adamus, 2001
[2]Cowardin et al., 1979
PSS = Palustrine scrub-shrub

E.1.1 Wetland 1

Wetland 1 is the most extensive wetland in the study area, covering the eastern and southern parts of the study area. It primarily consists of pasture and mint fields. Three areas of upland are present within the pasture that forms the main part of the study area and Wetland 1, which appear to be fill material. These areas are slightly raised above the elevation of the surrounding wetland, with flat surfaces, and may possibly have been used as storage platforms for hay or other materials. This wetland appears to be supported by precipitation, irrigation water, surface runoff, and groundwater. The wetland delineated in the field is more extensive than shown on the NWI map. Based on site observations, this wetland is classified as PEM and PSS. The wetland is not entirely contained within the study area, as it extends out of the study area to the north, east, and west.

Hydric Soil

The hydric soil indicators recorded were Depleted Matrix (F3) and Redox Dark Surface (F6). No problematic soils were observed.

Hydrology

The primary hydrology indicators recorded in this wetland were Surface Water (A1), High Water Table (A2), Saturation (A3), and Oxidized Rhizospheres along Living Roots (C3). No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

Hydrophytic Vegetation

Vegetation observed in this wetland included sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. There are extensive Himalayan blackberry thickets in some areas, and a stand of poplar saplings in the northwest corner of the main part of the study area. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

E.1.2 Wetland 2

Wetland 2 is located in the central portion of the new pipeline corridor, north of Hermo Road. It appears to be supported by precipitation, irrigation water, surface runoff, and groundwater. This area is depicted as wetland on the NWI map. Based on site observations, this wetland is classified as PEM. The wetland is not entirely contained within the study area, as it extends to the east and north.

Hydric Soil

The hydric soil indicator recorded was Hydrogen Sulfide (A4). No problematic soils were observed.

Hydrology

The primary hydrology indicators recorded in this wetland were High-Water Table (A2), Saturation (A3), and Hydrogen Sulfide Odor (C1). No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

Hydrophytic Vegetation

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, and smaller amounts of grasses and forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

E.1.3 Wetland 3

Wetland 3 is also located along the pipeline corridor, in a depression between the access road and the PGE facility. The wetland appears to be supported by precipitation, irrigation water, surface

runoff, and groundwater. This area is not depicted as wetlands on the NWI Map. Based on site observations, this wetland is classified as PEM. The wetland is not entirely contained within the study area, as it extends to the east.

Hydric Soil

The hydric soil indicators recorded were Depleted Matrix (F3) and Redox Dark Surface (F6). No problematic soils were observed.

Hydrology

The primary hydrology indicators recorded in this wetland were High Water Table (A2) and Saturation (A3). Surface water was also observed in the wetland, although not at any of the sample plots. No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

Hydrophytic Vegetation

Vegetation observed in this wetland included reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

E.1.4 Wetland 4

Wetland 4 is located along the pipeline corridor adjacent to the Columbia River. The wetland appears to be supported by precipitation, surface runoff, and groundwater. This area is depicted as wetlands on the NWI Map. Based on site observations, this wetland is classified as PEM/PFO. The wetland is not entirely contained within the study area, as it extends to the north.

Hydric Soil

The hydric soil indicator recorded was Redox Dark Surface (F6). No problematic soils were observed.

Hydrology

The primary hydrology indicator recorded in this wetland was Oxidized Rhizospheres along Living Roots (C3). Surface water and saturation were also observed in the wetland, although not at the sample plots. No problematic hydrologic situations were encountered, and no secondary hydrology indicators were required.

Hydrophytic Vegetation

Vegetation observed in this wetland included alder, cottonwood, willow, reed canarygrass, Himalayan blackberry, sedges, rushes, various native and introduced grasses, and smaller amounts

of forbs. The hydrophytic vegetation indicator used was the Dominance Test. No problematic hydrophytic vegetation situations were encountered.

The wetland boundary was determined using local topographical features and vegetation patterns, coupled with observations of hydric soils and hydrology from the sample soil pits.

E.2 Other Waters of the State/U.S.

Numerous non-wetland waters were observed in the study area, all unnamed irrigation ditches that drain the agricultural fields in the area.

As these ditches are all part of the same interconnected drainage network, they were not individually named; however, the location of each is shown on Figures 6A through 6O in Appendix A. These ditches all drain south to the Columbia River via McLean Slough, Beaver Slough, and the Clatskanie River. A total of approximately 10,510 linear feet (1.99 miles) of ditches is contained within the study area.

F. Deviation from Local Wetland Inventory or National Wetlands Inventory

A local wetlands inventory has not been prepared for the Port Westward area. The NWI Map identifies extensive wetlands within the study area; smaller PEM wetlands in the main part of the study area and eastern end, a large PEM wetland covering the majority of the western access road and pipeline routes, and a patch of PEM/PFO wetland adjacent to the Columbia River (see Figure 3 in Appendix A).

Four wetlands were found during the field investigation. Three of these, Wetlands 1, 2, and 4, were found in areas shown as wetlands on the NWI Map, although the site visit determined that Wetland 1 is much larger than shown on the published mapping. Wetland 3 was found in an area not shown as wetland on the NWI map. Wetland determination data forms are provided in Appendix B.

G. Mapping Method

The best professional judgment of the investigator was used to determine the wetland boundaries based on vegetation, soil, and hydrologic and topographic indicators observed in the field. Pin flags were used to mark the wetland boundaries, and sample plot locations, which were surveyed at the time of the site visit using a Trimble GeoXT 6000 handheld global positioning system unit. This survey was accurate to submeter standards. The study area boundaries were created using ArcGIS and field-verified during the site visits.

H. Additional Information

Protected species lists were obtained from the USFWS and National Marine Fisheries Service. According to these lists, Endangered Species Act-listed species that may occur in or near the study area include those listed in Table H-1 below.

TABLE H-1
ENDANGERED SPECIES ACT-LISTED SPECIES POTENTIALLY PRESENT IN OR NEAR THE STUDY AREA

Species	ESU/DPS	Federal Status[1]	Habitat within Study Area
Steelhead *(Oncorhynchus mykiss)*	Upper Columbia River DPS	T	No
	Middle Columbia River DPS	T	
	Lower Columbia River DPS	T	
	Upper Willamette River DPS	T	
	Snake River Basin DPS	T	
Chinook salmon *(Oncorhynchus tshawytscha)*	Upper Columbia River spring-run ESU	E	No
	Lower Columbia River ESU	T	
	Snake River fall-run ESU	T	
	Snake River spring/summer-run ESU	T	
	Upper Willamette River ESU	T	
Chum salmon *(Oncorhynchus keta)*	Columbia River ESU	T	No
Coho salmon *(Oncorhynchus kisutch)*	Lower Columbia River ESU	T	No
Sockeye salmon *(Oncorhynchus nerka)*	Snake River ESU	E	No
Bull trout *(Salvelinus confluentus)*	Columbia River DPS	T	No
Green sturgeon *(Acipenser medirostris)*	Southern DPS	T	No
Eulachon *(Thaleichthys pacificus)*	Southern DPS	T	No
Columbian white-tailed deer (*Odocoileus leucurus*)	N/A	T	Yes
Marbled murrelet (*Brachyramphus marmoratus*)	N/A	T	No
Northern spotted owl (*Strix occidentalis caurina*)	N/A	T	No
Streaked horned lark (*Eremophila alpestris strigata*)	N/A	T	Possibly
Yellow-billed cuckoo (*Coccyzus americanus*)	N/A	T	No
Bradshaw's desert-parsley (*Lomatium bradshawii*)	N/A	E (Proposed for delisting)	Possibly
Kincaid's lupine (*Lupinus sulphureus ssp. kincaidii*)	N/A	T	No
Nelson's checker-mallow (*Sidalcea nelsoniana*)	N/A	T	Possibly
Willamette daisy (*Erigeron decumbens*)	N/A	E	Possibly

[1] T = Threatened, E = Endangered
DPS = distinct population segment
ESU = evolutionarily significant unit
N/A = Not Applicable

Of these species, the majority are unlikely to be present in the study area. Numerous listed fish species and designated critical habitat are present in the adjacent Columbia River and tributaries, which are also listed as Essential Fish Habitat and Essential Salmonid habitat; however, the river is outside the study area. The wetlands within the study area are not likely to be accessible to food or game fish species during normal water flows but may be accessible during periods of flooding when the rivers and drainage ditches overtop their banks and extend onto the floodplain.

Columbian white-tailed deer are present at Port Westward and have been observed within the study area. The remaining bird and plant species on Table H-1 have not been observed in the study area, but habitat may exist for streaked horned lark, Bradshaw's desert-parsley, Nelson's checker-mallow, and Willamette daisy.

I. Results and Conclusions

Site investigations were conducted on October 22 and 23, 2018; November 27, 28, and 29, 2018; April 12, 2019; November 14, 2019; and September 30, 2020. Based on these investigations, the presence of four wetland areas totaling approximately 116.87 acres within the study area was confirmed. These results are based on the presence of the three required indicators for wetlands as described in the 1987 USACE *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).* Numerous ditches totaling approximately 10,510 linear feet are also found within the study area, all part of an interconnected drainage network that serves the agricultural fields in the area.

The wetlands and waterways may be considered Waters of the State/U.S., and any fill or removal activities could require permits from the USACE and/or the Oregon Department of State Lands (DSL).

J. Disclaimer Statement

The wetland delineation was conducted in accordance with the routine methodology provided in the 1987 USACE *Wetlands Delineation Manual* and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).*

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

Appendices Table of Contents

Appendix A Figures

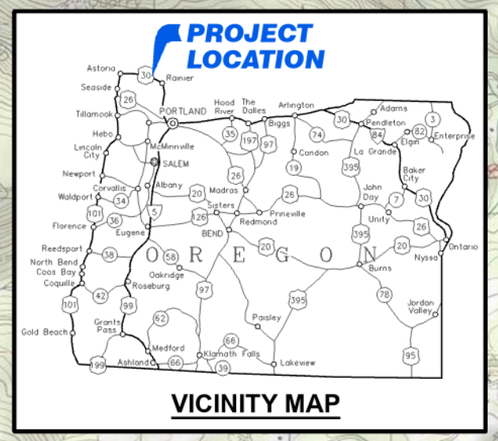
Appendix B Wetland Determination Data Forms

Appendix C Site Photographs

Appendix D Additional Information

Appendix E Literature Citations and References

APPENDIX A
Figures



VICINITY MAP

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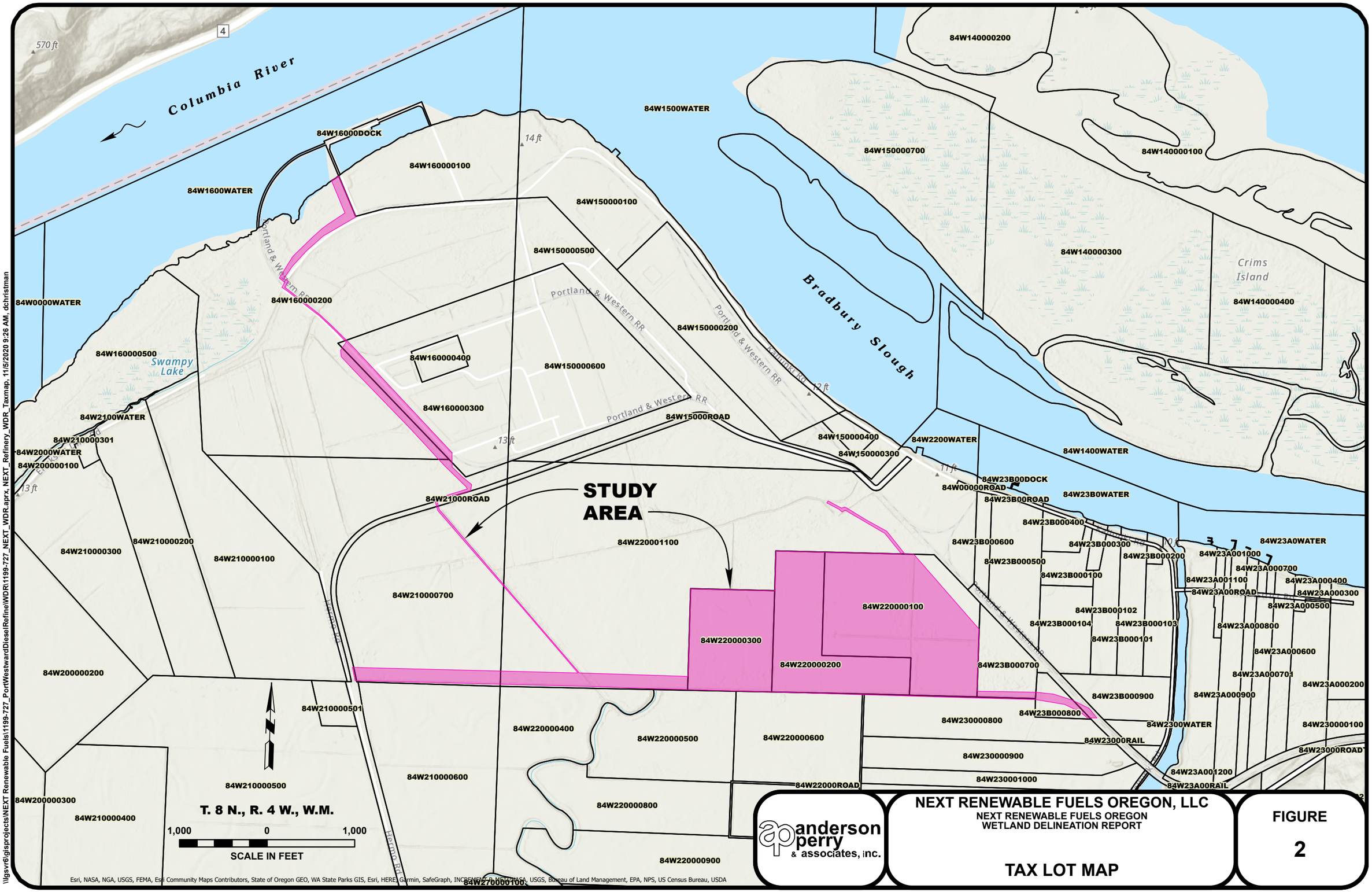
LOCATION AND VICINITY MAPS

FIGURE 1



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WETLAND DELINEATION REPORT

TAX LOT MAP

FIGURE 2

Columbia River

R1UBV

R1USQ

PSS1R

PEM1C

R1USQ

Bradbury Slough

PSSC

PEM1A

PSS1R

PEM1C

STUDY AREA

PEM1C

PEM1A

PEM1C

PEM1Ch

LEGEND

- STUDY AREA
- FRESHWATER EMERGENT WETLAND
- FRESHWATER FORESTED/SHRUB WETLAND
- FRESHWATER POND
- RIVERINE

USDA FSA, GeoEye, Maxar

T. 8 N., R. 4 W., W.M.

1,000 0 1,000

SCALE IN FEET

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WETLAND DELINEATION REPORT

NATIONAL WETLANDS INVENTORY MAP

FIGURE

3

\\lgsvr6\gis\projects\NEXT Renewable Fuels\1199-727_PortWestward\Diesel\Refine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_NatWetInv, 11/5/2020 9:29 AM, dchristman

Columbia River

Bradbury Slough

STUDY AREA

SOILS LEGEND

29 LOCODA SILT LOAM. PROTECTED
60 UDIPSAMMENTS, NEARLY LEVEL
61 UDIPSAMMENTS, NEARLY LEVEL, PROTECTED
66 WAUNA SILT LOAM, PROTECTED
68 WAUNA-LOCODA SILT LOAMS, PROTECTED

T. 8 N., R. 4 W., W.M.

1,000 0 1,000
SCALE IN FEET

USDA FSA, GeoEye, Maxar

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SOILS MAP

FIGURE 4

Columbia River

Port Westward

Bradbury Slough

ERICKSON DIKE ROAD

HERMO ROAD

RAILROAD

John Slough

STUDY AREA

To Quincy

T. 8 N., R. 4 W., W.M.

1,000 0 1,000

SCALE IN FEET

USDA FSA, GeoEye, Maxar

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WETLAND DELINEATION REPORT

AERIAL PHOTOGRAPH

FIGURE

5

T. 8 N., R. 4 W., W.M.

1,000 0 1,000

SCALE IN FEET

LEGEND

- SHEET EXTENT
- STUDY AREA
- TAXLOT BOUNDARY

6A

6B

6C

6D

6E

6F

6G

6H

6I

6J

6K

6L

6M

6N

6O

84W1500WATER

84W140000200

84W140000100

84W150000700

84W160000100

84W1600WATER

84W150000100

84W150000500

84W140000300

84W140000400

84W0000WATER

84W160000200

84W150000200

84W160000500

84W150000600

84W160000300

84W140000300

84W1400WATER

84W23B0WATER

84W210000700

84W220001100

84W210000300

84W210000200

84W210000100

84W220000100

84W200000200

84W220000300

84W220000200

84W220000400

84W220000500

84W220000600

84W230000800

84W230000900

84W210000500

84W210000600

84W220000800

84W220000900

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION SHEET INDEX

FIGURE

6

\\lgsvr6\gisprojects\NEXT Renewable Fuels\11199-727_PortWestwardDieselRefineWDR\11199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_DelinIndex, 11/5/2020 10:28 AM, dchristman

84W1600WATER

84W16000DOCK

Columbia River

84W1600WATER

84W1600WATER

84W160000100

ACCESS ROAD

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

84W160000200

WETLAND 4
0.31 AC.

Wetland
Continues

MATCHLINE 6B

27

27a

29

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- RAILROAD
- EXISTING PIPELINE
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION MAP

FIGURE
6A

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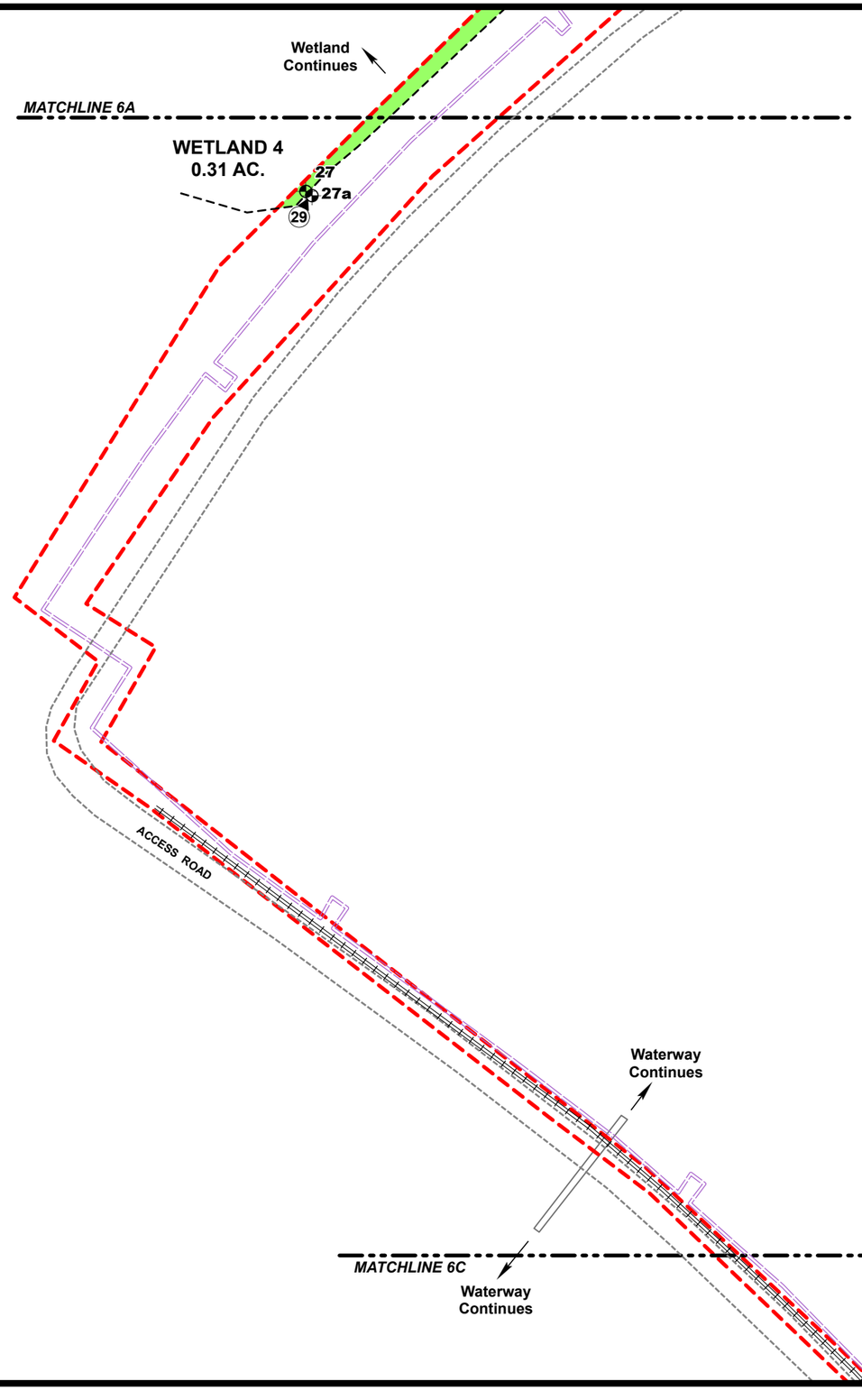

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- RAILROAD
- EXISTING PIPELINE
- CULVERT
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION MAP

FIGURE

6B

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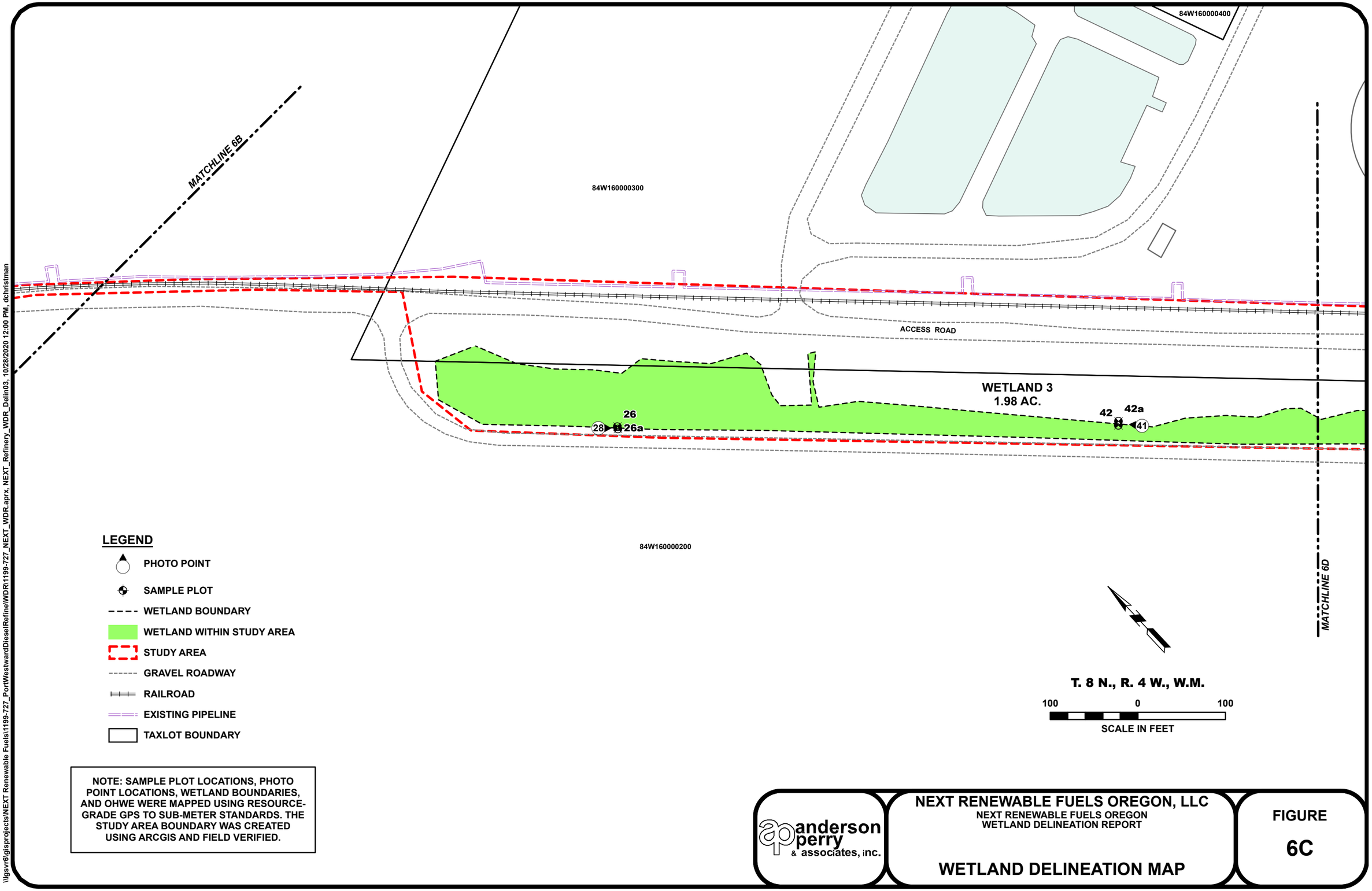

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- RAILROAD
- EXISTING PIPELINE
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE 6C

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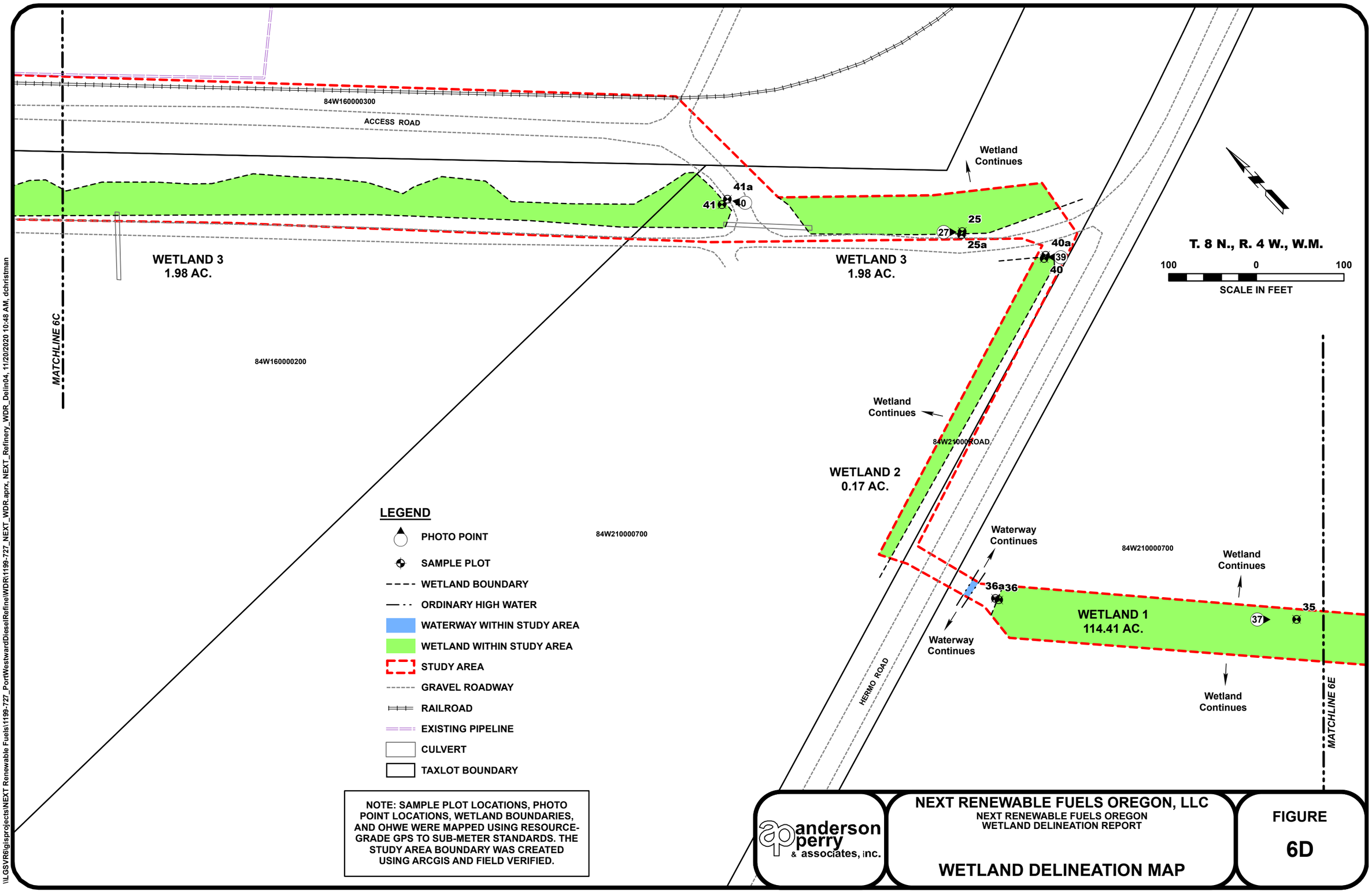

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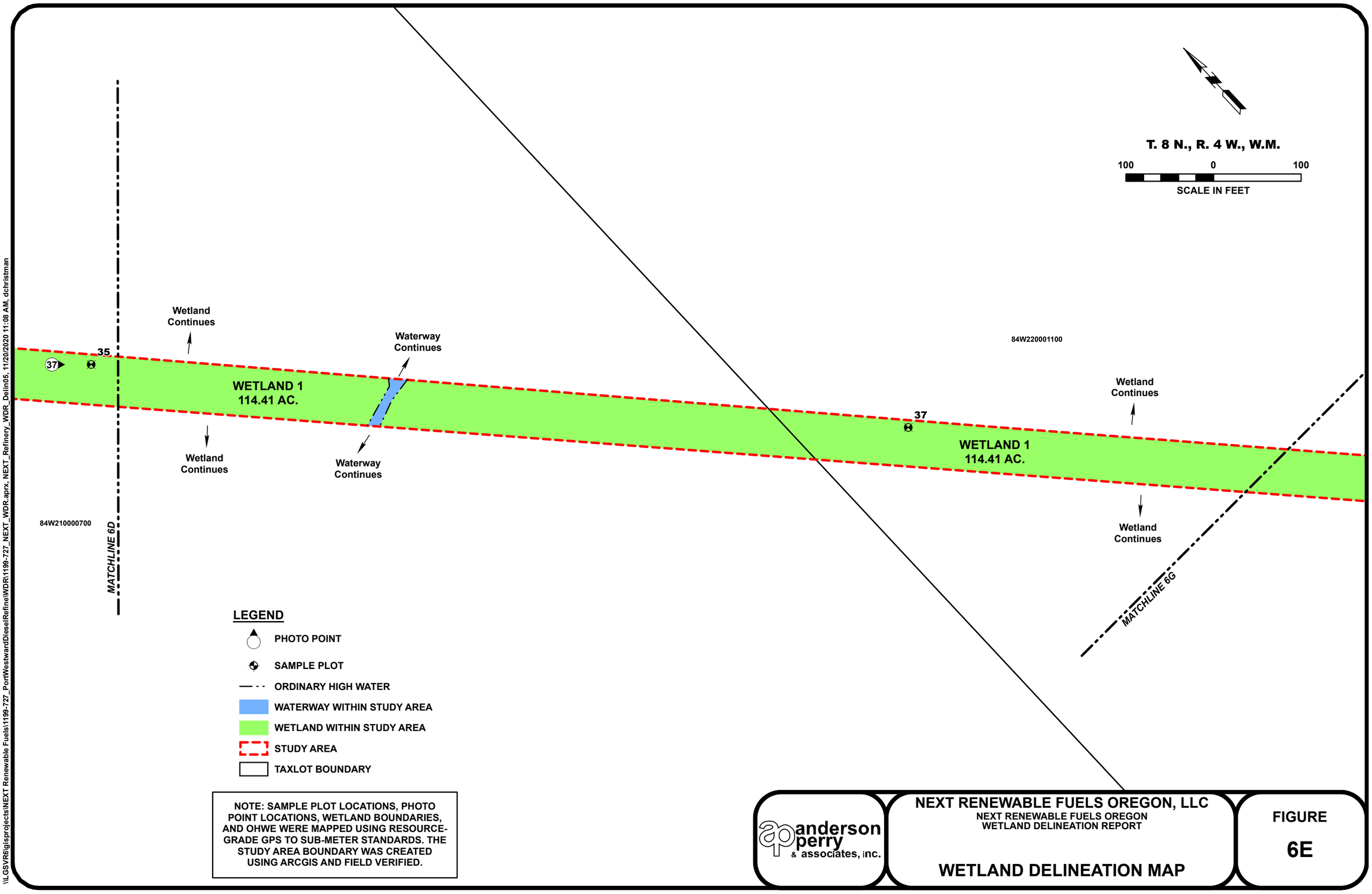

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6E

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LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- TAXLOT BOUNDARY

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

84W210000700

84W210000700

HERMO ROAD

Wetland Continues

Wetland Continues

84W210000100

39a39

28

30

WETLAND 1
114.41 AC.

84W21000ROAD

84W210000501

84W210000600

MATCHLINE 6G

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6F

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LEGEND

- PHOTO POINT
- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

MATCHLINE 6E

MATCHLINE 6F

MATCHLINE 6H

Wetland Continues

Wetland Continues

38

84W210000700

84W220001100

84W210000600

Wetland Continues

Waterway Continues

Wetland Continues

WETLAND 1
114.41 AC.

WETLAND 1
114.41 AC.

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6G

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LEGEND

- PHOTO POINT
- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

MATCHLINE 6L

MATCHLINE 6G

MATCHLINE 6I

Wetland Continues

Wetland Continues

Wetland Continues

84W220001100

84W220000300

84W220000400

84W220000500

WETLAND 1
114.41 AC.

18
20
29
31
30
32

\\LGSVR6\gis\projects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin08, 11/20/2020 11:19 AM, dchristman

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE

6H

MATCHLINE 6L

MATCHLINE 6M

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

11
12a 12

11
11a

10

17 17a

12

9
10a 10

84W220000300

84W220000100

17

84W220000200

WETLAND 1
114.41 AC.

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

MATCHLINE 6H

MATCHLINE 6J

19

84W220000600

84W220000500

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6I

I:\LGSVR6\gis\projects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin09, 11/20/2020 11:20 AM, dchristman

MATCHLINE 6M

MATCHLINE 6N

3a

3

3

14

14

15

15

Wetland Continues

84W220000100

WETLAND 1
114.41 AC.

T. 8 N., R. 4 W., W.M.

13

13

100 0 100

SCALE IN FEET

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

84W220000200

16

16

MATCHLINE 6I

MATCHLINE 6K

Wetland Continues

84W23B000700

18

84W230000800

84W220000600

84W22000ROAD

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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NEXT RENEWABLE FUELS OREGON, LLC
NEXT RENEWABLE FUELS OREGON
WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6J

\\LGSVR6\gisprojects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin10, 11/20/2020 11:21 AM, dchristman

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

84W220000100

84W23B000700

84W23B000500

84W23B000104

84W23B000102

84W23B000900

84W23000RAIL

84W23B000800

84W230000800

Wetland Continues

Waterway Continues

WETLAND 1
114.41 AC.

WETLAND 1
114.41 AC.

MATCHLINE 6J

33

34

34a

35

36

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- RAILROAD
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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NEXT RENEWABLE FUELS OREGON
WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE

6K

\\LGSVR6\gisprojects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin11, 11/20/2020 11:22 AM, dchristman

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

84W220001100

Wetland Continues

Wetland Continues

20

22

MATCHLINE 6M

84W220000200

Wetland Continues

19

21

WETLAND 1
114.41 AC.

84W220000300

WETLAND 1
114.41 AC.

MATCHLINE 6H

MATCHLINE 6I

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6L

\\LGSVR6\gisprojects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin12, 11/20/2020 11:23 AM, dchristman

Wetland Continues

84W220001100

Wetland Continues

MATCHLINE 6O

Wetland Continues

Wetland Continues

MATCHLINE 6L

MATCHLINE 6N

20

22

24

22a

22

23

21

21a

WETLAND 1
114.41 AC.

WETLAND 1
114.41 AC.

9

9a

8

84W220000200

6

6a

7

6

7a

8a

8

7

1

1

1a

84W220000100

5

5a

5

4

4a

4

2

2

2a

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

MATCHLINE 6I

MATCHLINE 6J

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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NEXT RENEWABLE FUELS OREGON
WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE

6M

\\LGSVR6\gisprojects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin13, 11/20/2020 11:24 AM, dchristman

Wetland Continues

MATCHLINE 6M

84W220001100

84W23B000600

84W23B000500

Wetland Continues

84W220000100

WETLAND 1
114.41 AC.

MATCHLINE 6J

14

84W23B000700

84W23000RAIL

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- RAILROAD
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

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WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6N

\\LGSVR8\gisprojects\NEXT Renewable Fuels\1199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin14, 11/20/2020 11:25 AM, dchristman

LEGEND

- PHOTO POINT
- SAMPLE PLOT
- WETLAND BOUNDARY
- ORDINARY HIGH WATER
- WATERWAY WITHIN STUDY AREA
- WETLAND WITHIN STUDY AREA
- STUDY AREA
- GRAVEL ROADWAY
- PAVED ROADWAY
- RAILROAD
- TAXLOT BOUNDARY

NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

T. 8 N., R. 4 W., W.M.

100 0 100

SCALE IN FEET

84W15000300

ACCESS ROAD

84W22000ROAD

WETLAND 1
114.41 AC.

Wetland Continues

Wetland Continues

84W220001100

24 26 24a

33 31

Wetland Continues

Wetland Continues

23a 23

25

ACCESS ROAD

34 32

Wetland Continues

Wetland Continues

MATCHLINE 6M

MATCHLINE 6N

20 22

84W220000200

WETLAND 1
114.41 AC.

24

WETLAND 1
114.41 AC.

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NEXT RENEWABLE FUELS OREGON, LLC
NEXT RENEWABLE FUELS OREGON
WETLAND DELINEATION REPORT

WETLAND DELINEATION MAP

FIGURE
6O

\\LGSVR6\gisprojects\NEXT Renewable Fuels\11199-727_PortWestwardDieselRefine\WDR\1199-727_NEXT_WDR.aprx, NEXT_Refinery_WDR_Delin15, 11/20/2020 11:25 AM, dchristman

APPENDIX B
Wetland Determination Data Forms

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 1
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16743570 Long: -123.16026630 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Poa pratensis	80	Yes	FAC
2. Lolium perenne	10	Yes	FAC
3. Trifolium repens	10	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 1

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	95	10YR 4/6	5	C	RC	Sandy Clay Loam	
6-16	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 1a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16742900 Long: -123.16023350 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	40	Yes	FAC
2. Poa palustris	40	Yes	FAC
3. Trifolium repens	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 1a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/3	100		0			Sandy Clay Loam	
9-17	10YR 3/3	100		0			Silty Clay Loam	
17-27	10YR 4/3	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 16
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 2
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16663920 Long: -123.15890510 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Juncus balticus	20	Yes	FACW
3. Rumex crispus	20	Yes	FAC
4. Poa palustris	30	Yes	FAC
5. Phalaris arundinacea	5	No	FACW
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 105			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 0			

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	25	x 2 =	50
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		290 (B)

Prevalence Index = B/A = 2.76

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 2

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	95	10YR 4/6	5	C	M	Silty Clay Loam	
8-17	10YR 3/2	97	10YR 4/6	3	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 2a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16663530 Long: -123.15894310 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	40	Yes	FAC
2. Poa palustris	40	Yes	FAC
3. Rumex crispus	5	No	FAC
4. Juncus balticus	10	No	FACW
5. Cirsium arvense	5	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	85	x 3 =	255
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		295 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 2a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/3	100		0			Sandy Clay Loam	
11-18	10YR 3/2	100		0			Silty Clay Loam	
18-26	10YR 3/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 3
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16620540 Long: -123.16026560 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Lolium perenne 2. Poa palustris 3. Mentha x piperita 4. Carex nebrascensis 5. Juncus balticus 6. 7. 8. 9. 10. 11. Total Cover =100	20 30 10 20 20	Yes Yes No Yes Yes	FAC FAC FACW OBL FACW
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % Bare Ground in Herb Stratum: 0			

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	20	x 1 =	20
FACW species	30	x 2 =	60
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		230 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 3

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100		0			Silty Clay Loam	
7-16	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 14
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 3a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16621940 Long: -123.16026510 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Poa palustris	60	Yes	FAC
3. Matricaria discoidea	10	No	FACU
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	90	x 3 =	270
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 3a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100		0			Sandy Clay Loam	some gravel
12-18	10YR 3/2	99	10YR 4/4	1	C	M	Silty Clay Loam	
18-25	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 22
Saturation Present? Yes Depth (inches): 19
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 4
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16674800 Long: -123.16079500 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Poa palustris 2. Trifolium repens 3. Juncus balticus 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =80	40 20 20	Yes Yes Yes	FAC FACU FACW
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % Bare Ground in Herb Stratum: 20			

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	40	x 3 =	120
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	80 (A)		240 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 4

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100		0			Silty Clay Loam	
6-17	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 14
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 4a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16675300 Long: -123.16077600 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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? No Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Poa palustris 2. Juncus balticus 3. Trifolium repens 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	50 10 40	Yes No Yes	FAC FACW FACU
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	10	x 2 =	20
FAC species	50	x 3 =	150
FACU species	40	x 4 =	160
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 >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? No

Remarks: grazed pasture

SOIL Sampling Point: 4a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100					Sandy Clay Loam	
7-19	10YR 3/2	100					Silty Clay Loam	
19-26	10YR 3/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 5
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16701940 Long: -123.16007280 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Rumex crispus	20	Yes	FAC
3. Poa palustris	30	Yes	FAC
4. Juncus balticus	20	Yes	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% Bare Ground in Herb Stratum: 0			

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	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 5

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	100					Silty Clay Loam	
5-17	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/27/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 5a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16700440 Long: -123.16007180 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	40	Yes	FAC
2. Poa palustris	50	Yes	FAC
3. Rumex crispus	5	No	FAC
4. Juncus balticus	5	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	5	x 2 =	10
FAC species	95	x 3 =	285
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		295 (B)

Prevalence Index = B/A = 2.95

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 5a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100		0			Sandy Clay Loam	
10-18	10YR 3/2	100		0			Silty Clay Loam	
18-25	10YR 3/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 6
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16738840 Long: -123.16203620 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Juncus balticus	20	Yes	FACW
2. Poa palustris	50	Yes	FAC
3. Agrostis capillaris	30	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 6

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	0		0			Silty Clay Loam	
8-17	10YR 4/2	95	10YR 5/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 6a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739080 Long: -123.16205380 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Agrostis capillaris	40	Yes	FAC
2. Poa palustris	40	Yes	FAC
3. Juncus balticus	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =90			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	90 (A)		260 (B)

Prevalence Index = B/A = 2.89

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 6a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100		0			Silty Clay Loam	
9-15	10YR 4/2	100		0			Silty Clay Loam	
15-25	10YR 4/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 19
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 7
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739210 Long: -123.16201950 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Juncus balticus	30	Yes	FACW
2. Poa palustris	50	Yes	FAC
3. Agrostis capillaris	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		270 (B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 7

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	100		0			Silty Clay Loam	
9-19	10YR 4/2	95	10YR 4/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches): 16
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 7a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16739230 Long: -123.16199890 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Agrostis capillaris	40	Yes	FAC
2. Poa palustris	50	Yes	FAC
3. Juncus balticus	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 7a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/2	100		0			Silty Clay Loam	
8-15	10YR 4/2	100		0			Silty Clay Loam	
15-26	10YR 4/3	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 8
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16716800 Long: -123.16266800 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Poa palustris	40	Yes	FAC
3. Carex nebrascensis	20	No	OBL
4. Juncus balticus	10	No	FACW
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	20	x 1 =	20
FACW species	10	x 2 =	20
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		250 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 8

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/2	100		0			Silty Clay Loam	
9-18	10YR 4/2	95	10YR 4/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 8a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16718700 Long: -123.16266700 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	50	Yes	FAC
2. Lolium perenne	40	Yes	FAC
3. Juncus balticus	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 8a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR 3/2	100		0				
12-16	10YR 4/3	99	10YR 4/4	1	C	M	Silty Clay Loam	
16-26	10YR 4/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 9
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16736210 Long: -123.16296360 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	40	Yes	FAC
2. Lolium perenne	30	Yes	FAC
3. Juncus balticus	20	Yes	FACW
4. Carex nebrascensis	10	No	OBL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	10	x 1 =	10
FACW species	20	x 2 =	40
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		260 (B)

Prevalence Index = B/A = 2.60

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 9

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100		0			Silty Clay Loam	
7-18	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 9a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16734410 Long: -123.16296710 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	50	Yes	FAC
2. Lolium perenne	40	Yes	FAC
3. Juncus balticus	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 9a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
18-27	10YR 3/2	95	10YR 4/4	5	C	RC	Silty Clay Loam	
0-11	10YR 3/2	100		0			Silty Clay Loam	
11-18	10YR 3/2	99	10YR 4/4	1	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 19
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 10
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16533480 Long: -123.16423360 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Juncus balticus	30	Yes	FACW
2. Carex nebrascensis	30	Yes	OBL
3. Phalaris arundinacea	30	Yes	FACW
4. Poa palustris	10	No	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	30	x 1 =	30
FACW species	60	x 2 =	120
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		180 (B)

Prevalence Index = B/A = 1.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 10

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100		0			Silty Clay Loam	
3-8	10YR 3/2	90	10YR 4/6	10	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 4
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 10a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 5
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16533460 Long: -123.16425910 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Juncus balticus	20	Yes	FACW
2. Poa palustris	50	Yes	FAC
3. Phalaris arundinacea	30	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	50	x 2 =	100
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		250 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 10a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100		0			Silty Clay Loam	some gravel
9-17	10YR 3/2	100		0			Silty Clay Loam	some gravel
17-26	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 18
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 11
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16537380 Long: -123.16541730 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Juncus balticus	20	Yes	FACW
2. Agrostis capillaris	20	Yes	FAC
3. Rumex crispus	10	No	FAC
4. Phalaris arundinacea	10	No	FACW
5. Poa palustris	40	Yes	FAC
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		270 (B)

Prevalence Index = B/A = 2.70

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 11

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100		0			Silty Clay Loam	
4-13	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 13
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 11a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 2
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16537130 Long: -123.16540220 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	50	Yes	FAC
2. Agrostis capillaris	40	Yes	FAC
3. Juncus balticus	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 11a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100		0			Silty Clay Loam	
9-16	10YR 3/2	100		0			Silty Clay Loam	
16-27	10YR 3/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 18
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 12
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16546030 Long: -123.16546440 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Juncus balticus 2. Poa palustris 3. Phalaris arundinacea 4. Carex nebrascensis 5. 6. 7. 8. 9. 10. 11. Total Cover =100	 30 30 20 20	 Yes Yes Yes Yes	 FACW FAC FACW OBL
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % Bare Ground in Herb Stratum: 0			

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	20	x 1 =	20
FACW species	50	x 2 =	100
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 12

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100		0			Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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 Depth (inches): 1
Water Table Present? Yes Depth (inches): 0
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/28/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 12a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16546570 Long: -123.16548620 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	40	Yes	FAC
2. Juncus balticus	20	Yes	FACW
3. Lolium perenne	40	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 12a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100		0			Silty Clay Loam	
7-15	10YR 3/2	100		0			Silty Clay Loam	
15-25	10YR 3/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 25
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 13
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16513670 Long: -123.15592500 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	50	Yes	FAC
2. Juncus balticus	20	Yes	FACW
3. Carex nebrascensis	20	Yes	OBL
4. Cirsium arvense	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	20	x 1 =	20
FACW species	20	x 2 =	40
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		250 (B)

Prevalence Index = B/A = 2.50

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 13

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 4/2	93	10YR 4/6	7	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 13
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 14
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16642180 Long: -123.15588130 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Poa palustris	30	Yes	FAC
3. Alopecurus pratensis	30	Yes	FAC
4. Trifolium repens	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	0	x 2 =	0
FAC species	90	x 3 =	270
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		310 (B)

Prevalence Index = B/A = 3.10

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
___ 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 14

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/2	100		0			Silty Clay Loam	
3-15	10YR 4/2	95	10YR 4/6	5	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 15
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16587950 Long: -123.15952840 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Lolium perenne	30	Yes	FAC
2. Poa palustris	30	Yes	FAC
3. Juncus balticus	20	Yes	FACW
4. Rumex crispus	20	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 0			

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	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 15

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 4/3	100		0			Silty Clay Loam	
4-15	10YR 4/2	93	10YR 4/6	7	C	RC	Silty Clay Loam	
15-25	10YR 4/2	98	10YR 4/6	2	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 19
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 16
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16468080 Long: -123.15931710 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 16

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-13	10YR 4/2	95	10YR 4/6	5	C	RC	Silty Clay Loam	
13-18	10YR 4/2	90	10YR 4/6	10	C	M	Silty Clay Loam	5% of redox in root channels

[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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 17
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 17
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16520210 Long: -123.16614910 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	40	Yes	FAC
2. Juncus balticus	20	Yes	FACW
3. Phalaris arundinacea	20	Yes	FACW
4. Trifolium repens	20	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	40	x 2 =	80
FAC species	40	x 3 =	120
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 17

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100		0			Silty Clay Loam	
4-16	10YR 3/2	95	10YR 4/6	5	C	M	Silty Clay Loam	
		0		0				

[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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 17a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16520500 Long: -123.16612840 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	60	Yes	FAC
2. Juncus balticus	10	Yes	FACW
3. Phalaris arundinacea	20	Yes	FACW
4. Trifolium repens	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 17a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100		0			Silty Clay Loam	
7-15	10YR 3/2	100		0			Silty Clay Loam	
15-25	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 17
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 18
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16448470 Long: -123.16712220 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 18

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 19
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16679000 Long: -123.16670700 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 25 m²) 1. Populus balsamifera 2. 3. 4. 5. Total Cover =100	100	Yes	FAC
Herb Stratum (Plot size: 4 m²) 1. Poa palustris 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =5	5	Yes	FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % Bare Ground in Herb Stratum: 95			

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	105	x 3 =	315
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	105 (A)		315 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 19

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 2/2	100		0			Silty Clay Loam	
3-18	10YR 2/1	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? Yes Depth (inches): 9
Saturation Present? Yes Depth (inches): 4
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 20
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16840620 Long: -123.16359980 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	50	Yes	FAC
2. Alopecurus pratensis	50	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 20

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/2	100		0			Silty Clay Loam	
6-17	10YR 4/2	95	10YR 4/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 21
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16798160 Long: -123.16200180 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Juncus balticus 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	80 20	Yes Yes	FACW FACW
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 21

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 4/3	100		0			Silty Clay Loam	
6-18	10YR 4/2	95	10YR 4/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 21a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16797530 Long: -123.16198790 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Poa palustris	80	Yes	FAC
2. Juncus balticus	10	No	FACW
3. Phalaris arundinacea	10	No	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 21a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 4/3	100		0				
19-26	10YR 4/2	95	10YR 4/6	5	C	M	Silty Clay Loam	
11-19	10YR 4/2	100		0				

[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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 22
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16810600 Long: -123.16187800 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Poa palustris 3. Rumex crispus 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	90 5 5	Yes No No	FACW FAC FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 22

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 4/3	100		0				
8-18	10YR 4/2	95	10YR 4/6	5	C	RC	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 13
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 22a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16810500 Long: -123.16189600 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover = 0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	20	Yes	FACW
2. Poa palustris	60	Yes	FAC
3. Rumex crispus	10	No	FAC
4. Matricaria discoidea	10	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% 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	70	x 3 =	210
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 22a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100		0			Sandy Clay Loam	
11-19	10YR 4/2	100		0			Silty Clay Loam	
19-24	10YR 4/2	98	10YR 4/4	2	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 23
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16930240 Long: -123.16170010 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 23

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/2	98	10YR 4/6	2	C	RC	Silty Clay Loam	
9-18	10YR 3/2	95	10YR 4/4	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 16
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 23a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16929910 Long: -123.16171280 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Poa palustris 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	90 10	Yes No	FACW FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	90	x 2 =	180
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		210 (B)

Prevalence Index = B/A = 2.10

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 23a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/3	100		0			Sandy Clay Loam	gravel
3-17	10YR 3/2	100		0			Silty Clay Loam	gravel
17-24	10YR 3/2	97	10YR 4/6	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 24
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16993600 Long: -123.16139800 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover = 0			
Sapling/Shrub Stratum (Plot size: 25 m²)			
1. Rubus armeniacus	60	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover = 60			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	30	Yes	FACW
2. Poa palustris	30	Yes	FAC
3. Ranunculus repens	30	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover = 90			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover = 0			
% Bare Ground in Herb Stratum: 10			

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	30	x 2 =	60
FAC species	120	x 3 =	360
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		420 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 24

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	0		0			Silty Clay Loam	
7-18	10YR 3/2	95	10YR 4/4	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 24a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16992700 Long: -123.16138400 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 25 m²) 1. Rubus armeniacus 2. 3. 4. 5. Total Cover =50	50	Yes	FAC
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Poa palustris 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	50 50	Yes Yes	FACW FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	50	x 2 =	100
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		400 (B)

Prevalence Index = B/A = 2.67

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 24a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100		0			Sandy Clay Loam	
10-16	10YR 3/3	97	10YR 4/4	3	C	M	Silty Clay Loam	
16-25	10YR 3/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 25
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17037930 Long: -123.17839180 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification:
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 25

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 8
Saturation Present? Yes Depth (inches): 3
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 25a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17037010 Long: -123.17841930 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	20	Yes	FACW
2. Lolium perenne	30	Yes	FAC
3. Dipsacus fullonum	20	Yes	FAC
4. Poa palustris	30	Yes	FAC
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% Bare Ground in Herb Stratum: 0			

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	20	x 2 =	40
FAC species	80	x 3 =	240
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		280 (B)

Prevalence Index = B/A = 2.80

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 25a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/2	100		0			Sandy Clay Loam	some gravel
11-15	10YR 2/2	100		0			Silty Clay Loam	
15-26	10YR 2/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 26
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17386760 Long: -123.18356620 Datum: WGS84
Soil Map Unit Name: lacoda silt loam, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Lolium perenne 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	70 30	Yes Yes	FACW FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		230 (B)

Prevalence Index = B/A = 2.30

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 26

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/1	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 5
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 26a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17386130 Long: -123.18357800 Datum: WGS84
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m^2) 1. Phalaris arundinacea 2. Lolium perenne 3. Poa pratensis 4. Dipsacus fullonum 5. 6. 7. 8. 9. 10. 11. Total Cover =100	10 50 30 10	No Yes Yes No	FACW FAC FAC FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	10	x 2 =	20
FAC species	90	x 3 =	270
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		290 (B)

Prevalence Index = B/A = 2.90

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 26a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/2	100		0			Sandy Clay Loam	some gravel
15-26	10YR 3/2	97	10YR 4/6	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 27
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17741500 Long: -123.18617600 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1/SSC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 25 m²) 1. Alnus rubra 2. 3. 4. Total Cover =40	40	Yes	FAC
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Lolium perenne 2. Poa palustris 3. Ranunculus repens 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	40 40 20	Yes Yes Yes	FAC FAC FAC
Woody Vine Stratum (Plot size: 4 m²) 1. Rubus armeniacus 2. Total Cover =20 % Bare Ground in Herb Stratum: 0	20	Yes	FAC

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 5 (A)

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

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

Prevalence Index worksheet:

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

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 27

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	100		0			Sandy Clay Loam	
4-17	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 27a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 37
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17740700 Long: -123.18615700 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1/SSC
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 25 m²) 1. Alnus rubra 2. 3. 4. Total Cover =10	10	Yes	FAC
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Lolium perenne 2. Poa palustris 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	50 50	Yes Yes	FAC FAC
Woody Vine Stratum (Plot size: 4) 1. Rubus armeniacus 2. Total Cover =5 % Bare Ground in Herb Stratum: 0	5	Yes	FAC

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	0	x 2 =	0
FAC species	115	x 3 =	345
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	115 (A)		345 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 27a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/3	100		0			Silty Clay Loam	
7-17	10YR 3/2	100		0			Silty Clay Loam	
17-26	10YR 3/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? No Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 28
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16419740 Long: -123.18059780 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology X significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: irrigated mint field	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Mentha x piperita 3. Ranunculus repens 4. Schedonorus arundinacea 5. 6. 7. 8. 9. 10. 11. Total Cover =80	10 10 10 50	No No No Yes	FACW FACW FAC FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	60	x 3 =	180
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	80 (A)		220 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 28

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/3	98	10YR 4/4	2	C	RC	Silty Clay Loam	
4-15	10YR 3/2	95	10YR 4/6	5	C	RC	Silty Clay Loam	
15-25	10YR 4/2	95	10YR 4/4	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 29
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16430860 Long: -123.16805290 Datum: WGS84
Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: mint field	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Cirsium arvense	50	Yes	FAC
2. Phalaris arundinacea	40	Yes	FACW
3. Cardamine occidentalis	10	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% Bare Ground in Herb Stratum: 0			

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	50	x 2 =	100
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		310 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 29

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100		0				
8-18	10YR 3/1	90	10YR 4/6	10				

[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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 14
Saturation Present? Yes Depth (inches): 9
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 30
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16427940 Long: -123.17127860 Datum: WGS84
Soil Map Unit Name: Wauna silt loam, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks: hay field/pasture	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Schedonorus arundinacea	90	Yes	FAC
2. Ranunculus repens	10	No	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	100	x 3 =	300
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		300 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 30

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	90	10YR 4/6	10	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 31
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16975770 Long: -123.16056050 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 25 m^2)			
1. Rubus armeniacus	20	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover =20			
Herb Stratum (Plot size: 4 m^2)			
1. Phalaris arundinacea	80	Yes	FACW
2. Cirsium arvense	20	Yes	FAC
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4)			
1. Rubus armeniacus	10	Yes	Fac
2.			
Total Cover =10			
% 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: 4 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 75 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	80	x 2 =	160
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		280 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 31

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 14
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 32
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16901250 Long: -123.15901710 Datum: WGS84
Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	100	Yes	FACW
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 32

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/2	90	10YR 4/6	10	C	M	Silty 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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 33
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16431830 Long: -123.15154960 Datum: WGS84
Soil Map Unit Name: Crims silt loam, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Juncus balticus 2. Phalaris arundinacea 3. Schedonorus arundinacea 4. Daucas carota 5. Cirsium arvense 6. 7. 8. 9. 10. 11. Total Cover =100	20 20 50 5 5	Yes Yes Yes No No	FACW FACW FAC FACU FAC
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	40	x 2 =	80
FAC species	55	x 3 =	165
FACU species	5	x 4 =	20
UPL species	0	x 5 =	0
Column Totals:	100 (A)		265 (B)

Prevalence Index = B/A = 2.65

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: grazed pasture

SOIL Sampling Point: 33

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 4/3	100		0			Silty Clay Loam	
3-17	10YR 4/2	95	10YR 4/6	5	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 16
Saturation Present? Yes Depth (inches): 11
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 34
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16368120 Long: -123.14971620 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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: 1 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	100	x 2 =	200
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		200 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 34

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100		0			Silty Clay Loam	
5-15	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 34a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 38
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16369360 Long: -123.14971460 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	70	Yes	FACW
2. Daucus carota	20	Yes	FACU
3. Lolium perenne	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% 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: 66 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	70	x 2 =	140
FAC species	30	x 3 =	90
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	120 (A)		310 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 34a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-11	10YR 3/3	100		0			Sandy Clay Loam	
11-19	10YR 3/2	100		0			Silty Clay Loam	
19-26	10YR 3/2	95	10YR 4/4	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 21
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 35
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16876990 Long: -123.17849630 Datum: WGS84
Soil Map Unit Name: lacoda silt loam, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Mentha x piperita 2. Phalaris arundinacea 3. Juncus balticus 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	30 60 10	Yes Yes No	FACW FACW FACW
Woody Vine Stratum (Plot size: 4) 1. Rubus armeniacus 2. Total Cover =30 % Bare Ground in Herb Stratum: 0	30	Yes	FAC

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	100	x 2 =	200
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	130 (A)		290 (B)

Prevalence Index = B/A = 2.23

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: irrigated mint field

SOIL Sampling Point: 35

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100		0			Silty Clay Loam	
7-17	10YR 3/2	95	10YR 4/6	5	C	RC	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 36
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16946800 Long: -123.17943300 Datum: WGS84
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 25 m²)			
1. Rubus armeniacus	50	Yes	FAC
2.			
3.			
4.			
5.			
Total Cover =50			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 0)			
1.			
2.			
Total Cover =0			
% 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	100	x 2 =	200
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		350 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 36

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100		0			Sandy Clay Loam	
5-13	10YR 3/2	93	10YR 4/6	7	C	RC	Silty Clay Loam	
13-24	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 04/12/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 36a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16947900 Long: -123.17943800 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 25 m²) 1. Rubus armeniacus 2. 3. 4. 5. Total Cover =50	50	Yes	FAC
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	100	Yes	FACW
Woody Vine Stratum (Plot size: 0) 1. 2. Total Cover =0 % 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	100	x 2 =	200
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	150 (A)		350 (B)

Prevalence Index = B/A = 2.33

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 36a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 3/3	100		0			Sandy Clay Loam	
9-20	10YR 3/2	100		0			Silty Clay Loam	
20-25	10YR 3/2	97	10YR 4/4	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 37
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16689600 Long: -123.17601800 Datum: WGS84
Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Mentha x piperita 2. Phalaris arundinacea 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	20 80	Yes Yes	FACW FACW
Woody Vine Stratum (Plot size: 4 m²) 1. Rubus armeniacus 2. Total Cover =20 % Bare Ground in Herb Stratum: 0	20	Yes	FAC

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	100	x 2 =	200
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		260 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: irrigated mint field

SOIL Sampling Point: 37

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/3	100		0			Silty Clay Loam	
5-18	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? Yes Depth (inches): 16
Saturation Present? Yes Depth (inches): 11
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/14/2019
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 38
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16560930 Long: -123.17429860 Datum: WGS84
Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1C
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	100	Yes	FACW
Woody Vine Stratum (Plot size: 4 m²) 1. Rubus armeniacus 2. Total Cover =20 % Bare Ground in Herb Stratum: 0	20	Yes	FAC

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	100	x 2 =	200
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		260 (B)

Prevalence Index = B/A = 2.17

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: irrigated mint field

SOIL Sampling Point: 38

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR 3/2	100		0			Silty Clay Loam	
7-14	10YR 3/2	95	10YR 4/6	5	C	RC	Silty Clay Loam	
14-24	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 39
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422400 Long: -123.18284800 Datum: WGS84
Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Mentha x piperita	10	No	FACW
2. Phalaris arundinacea	50	Yes	FACW
3. Cirsium arvense	30	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =90			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% 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	60	x 2 =	120
FAC species	50	x 3 =	150
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		270 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: irrigated mint field

SOIL Sampling Point: 39

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100		0			Silty Clay Loam	
6-18	10YR 3/1	95	10YR 4/6	5	C	M	Silty 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)
_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 39a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): none Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422700 Long: -123.18286200 Datum: WGS84
Soil Map Unit Name: Wauna-Lacoda silt loams, protected NWI classification: PEM1A
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation X, Soil X, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	50	Yes	FACW
2. Cirsium arvense	20	Yes	FAC
3. Lolium perenne	20	Yes	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =90			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	30	Yes	FAC
2.			
Total Cover =30			
% Bare Ground in Herb Stratum: 0			

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	50	x 2 =	100
FAC species	70	x 3 =	210
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		310 (B)

Prevalence Index = B/A = 2.58

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks: irrigated mint field

SOIL Sampling Point: 39a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/3	100		0			Sandy Clay Loam	
10-19	10YR 3/2	100		0			Silty Clay Loam	
19-25	10YR 3/2	97	10YR 4/6	3	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches): 0
Water Table Present? No Depth (inches): 0
Saturation Present? Yes Depth (inches): 20
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 40
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 21
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17015100 Long: -123.17823200 Datum: WGS84
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalarais arundinacea	100	Yes	FACW
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	10	Yes	FAC
2.			
Total Cover =10			
% 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	100	x 2 =	200
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		230 (B)

Prevalence Index = B/A = 2.09

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 40

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 2/2	100		0			Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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)
_X_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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 5
Saturation Present? Yes Depth (inches): 0
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia Sampling Date: 11/29/2018
Applicant/Owner: Next Energy Group, Inc. State: OR Sampling Point: 40a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17015500 Long: -123.17821800 Datum: WGS84
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	60	Yes	FACW
2. Sisymbrium altissimum	30	No	FACU
3. Lolium perenne	10	No	FAC
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% 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	60	x 2 =	120
FAC species	30	x 3 =	90
FACU species	30	x 4 =	120
UPL species	0	x 5 =	0
Column Totals:	120 (A)		330 (B)

Prevalence Index = B/A = 2.75

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 40a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR 3/3	100		0			Silty Clay Loam	
8-16	10YR 3/2	100		0			Silty Clay Loam	
16-25	10YR 3/2	95	10YR 4/6	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 21
Saturation Present? Yes Depth (inches): 15
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: NEXT Energy Renewable Biodiesel City/County: Columbia Sampling Date: 09/30/2020
Applicant/Owner: NEXT Energy State: OR Sampling Point: 41
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17096080 Long: -123.17911080 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Scirpus microcarpus 2. Phalaris arundinacea 3. Juncus balticus 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	70 20 10	Yes Yes Yes	OBL FACW FACW
Woody Vine Stratum (Plot size: 4 m²) 1. Rubus armeniacus 2. Total Cover =20 % Bare Ground in Herb Stratum: 0	20	Yes	FAC

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	70	x 1 =	70
FACW species	30	x 2 =	60
FAC species	20	x 3 =	60
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		190 (B)

Prevalence Index = B/A = 1.58

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 41

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/2	95	10YR 4/4	5	C	M	Silty Clay Loam	
9-12	10YR 4/2	90	10YR 4/6	10	C	M	Silty Clay Loam	
12-18	10YR 2/2	90	10YR 4/6	10	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 16
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: NEXT Energy Renewable Biodiesel City/County: Columbia Sampling Date: 09/30/2020
Applicant/Owner: NEXT Energy State: OR Sampling Point: 41a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17095730 Long: -123.17909670 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Equisetum arvense	20	Yes	FAC
2. Scirpus microcarpus	30	Yes	OBL
3. Phalaris arundinacea	30	Yes	FACW
4. Polystichum munitum	20	Yes	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% Bare Ground in Herb Stratum: 0			

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 4 (A)
Total Number of Dominant Species Across All Strata: 5 (B)
Percent of Dominant Species That Are OBL, FACW, or FAC: 80 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	30	x 1 =	30
FACW species	30	x 2 =	60
FAC species	40	x 3 =	120
FACU species	20	x 4 =	80
UPL species	0	x 5 =	0
Column Totals:	120 (A)		290 (B)

Prevalence Index = B/A = 2.42

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 41a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 4/3	98	10YR 4/4	2	C	M	Sandy Clay Loam	
15-24	10YR 4/3	98	10YR 4/4	2	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? Yes Depth (inches): 18
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

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

Project/Site: NEXT Energy Renewable Biodiesel City/County: Columbia Sampling Date: 09/30/2020
Applicant/Owner: NEXT Energy State: OR Sampling Point: 42
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17281700 Long: -123.18192700 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? Yes Wetland Hydrology Present? Yes	**Is the Sampled Area within a Wetland?** Yes
Remarks:	

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 0) 1. 2. 3. 4. Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0) 1. 2. 3. 4. 5. Total Cover =0			
Herb Stratum (Plot size: 4 m²) 1. Phalaris arundinacea 2. Equisetum arvense 3. Juncus balticus 4. 5. 6. 7. 8. 9. 10. 11. Total Cover =100	80 10 10	Yes No No	FACW FAC FACW
Woody Vine Stratum (Plot size: 4 m²) 1. Rubus armeniacus 2. Total Cover =20 % Bare Ground in Herb Stratum: 0	20	Yes	FAC

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	90	x 2 =	180
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		270 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 42

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-9	10YR 4/3	95	10YR 4/4	5	C	M	Silty Clay Loam	
9-18	10YR 5/1	90	10YR 4/6	10	C	M	Silty 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)
_X_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): 0

Hydric Soil Present? Yes

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? Yes Depth (inches): 15
Saturation Present? Yes Depth (inches): 10
(includes capillary fringe)

Wetland Hydrology Present? Yes

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

Remarks:

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

Project/Site: NEXT Energy Renewable Biodiesel City/County: Columbia Sampling Date: 09/30/2020
Applicant/Owner: NEXT Energy State: OR Sampling Point: 42a
Investigator(s): Sue Brady Section, Township, Range: T8N R4W Section 16
Landform (hillslope, terrace, etc.): Drainageway Local relief (concave, convex, none): concave Slope (%): 0
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.17282600 Long: -123.18191500 Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected NWI classification: none
Are climatic/hydrologic conditions on the site typical for this time of year? Yes (if no, explain in Remarks.)
Are Vegetation ___, Soil ___, or Hydrology ___ significantly disturbed? Are "Normal Circumstances" present? Yes
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 Hydric Soil Present? No Wetland Hydrology Present? No	**Is the Sampled Area within a Wetland?** No
Remarks:	

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 0)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
Total Cover =0			
Sapling/Shrub Stratum (Plot size: 0)			
1.			
2.			
3.			
4.			
5.			
Total Cover =0			
Herb Stratum (Plot size: 4 m²)			
1. Phalaris arundinacea	70	Yes	FACW
2. Equisetum arvense	10	Yes	FAC
3. Juncus balticus	20	Yes	FACW
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
Total Cover =100			
Woody Vine Stratum (Plot size: 4 m²)			
1. Rubus armeniacus	20	Yes	FAC
2.			
Total Cover =20			
% Bare Ground in Herb Stratum: 0			

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	90	x 2 =	180
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	120 (A)		270 (B)

Prevalence Index = B/A = 2.25

Hydrophytic Vegetation Indicators:
___ 1 –Rapid Test for Hydrophytic Vegetation
X 2 – Dominance Test >50%
X 3 - Prevalence Index is ≤ 3.0[1]
___ 4 - Morphological Adaptions[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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes

Remarks:

SOIL Sampling Point: 42a

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

	Matrix		Redox Features					
Depth (inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-24	10YR 4/3	95	10YR 5/8	5	C	M	Silty 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): 0

Hydric Soil Present? No

Remarks:

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 (two or more required)

___Water-Stained Leaves (B9)(**MLRA 1,2,4A,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? No Depth (inches):
Water Table Present? No Depth (inches):
Saturation Present? No Depth (inches):
(includes capillary fringe)

Wetland Hydrology Present? No

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

Remarks:

APPENDIX C
Site Photographs

PHOTOGRAPH 1 - Wetland 1, looking south at Plots 1 and 1a. Photograph taken by Sue Brady on November 27, 2018.

PHOTOGRAPH 2 - Wetland 1, looking south at Plots 2 and 2a. Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 3 - Wetland 1, looking east at Plots 3 and 3a.
Photograph taken by Sue Brady on November 27, 2018.

PHOTOGRAPH 4 - Wetland 1, looking north at Plots 4 and 4a.
Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 5 - Wetland 1, looking west toward Plots 5 and 5a. Photograph taken by Sue Brady on October 23, 2018.

PHOTOGRAPH 6 - Wetland 1, looking south at Plots 6, 6a, 7 and 7a. Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 7 - Wetland 1, looking west at Plots 8 and 8a.
Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 8 - Wetland 1, looking east at Plots 9 and 9a.
Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 9 - Wetland 1, looking south at Plots 10 and 10a. Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 10 - Wetland 1, looking north at Plots 11 and 11a. Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 11 - Wetland 1, looking south at Plots 12 and 12a. Photograph taken by Sue Brady on November 28, 2018.

PHOTOGRAPH 12 - Wetland 1, looking north at Plots 17 and 17a. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 13 - Wetland 1, looking west at Plot 13. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 14 - Wetland 1, looking west at Plot 14. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 15 - Wetland 1, looking west at Plot 15. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 16 - Wetland 1, looking west at Plot 16. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 17 - Wetland 1, looking north at the end of the ditch. Photograph taken by Sue Brady on October 22, 2018.

PHOTOGRAPH 18 - Looking west along the ditch at the southern edge of the study area. Photograph taken by Sue Brady on October 22, 2018.

PHOTOGRAPH 19 - Looking west along the ditch at the southern edge of the study area. Photograph taken by Sue Brady on October 22, 2018.

PHOTOGRAPH 20 - Wetland 1, Looking east at Plot 18. Photograph taken by Sue Brady on October 23, 2018.

PHOTOGRAPH 21 - Wetland 1, looking northwest at Plot 19. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 22 - Wetland 1, Looking west at Plot 20. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 23 - Wetland 1, looking south at Plots 21 and 21a.
Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 24 - Wetland 1, Looking south at Plots 22 and 22a.
Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 25 - Wetland 1, looking north at Plots 23 and 23a.
Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 26 - Wetland 1, Looking southwest at Plots 24 and 24a.
Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 27 - Wetland 3, looking southeast at Plots 25 and 25a. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 28 - Wetland 3, Looking southeast at Plots 26 and 26a. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 29 - Wetland 4, looking north at Plots 27 and 27a. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 30 - Wetland 1, Looking east at Plot 28. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 31 - Wetland 1, looking west at Plot 29. Photograph taken by Sue Brady on April 12, 2019.

PHOTOGRAPH 32 - Wetland 1, Looking east at Plot 30. Photograph taken by Sue Brady on April 12, 2019.

PHOTOGRAPH 33 - Wetland 1, looking south at Plot 31. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 34 - Wetland 1, Looking southeast at Plot 32. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 35 - Wetland 1, looking southeast at Plot 33. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 36 - Wetland 1, Looking northeast at Plots 34 and 34a. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 37 - Wetland 1, looking southeast at Plot 35. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 38 - Wetland 1, Looking northwest at Plot 38. Photograph taken by Sue Brady on November 14, 2019.

PHOTOGRAPH 39 - Wetland 2, looking northwest at Plots 40 and 40a. Photograph taken by Sue Brady on November 29, 2018.

PHOTOGRAPH 40 - Wetland 3, Looking northwest at Plot 41 and 41a. Photograph taken by Sue Brady on September 30, 2020.

PHOTOGRAPH 41 - Wetland 3, looking northwest at Plots 42 and 42a. Photograph taken by Sue Brady on September 30, 2020.

APPENDIX D
Additional Information

WETS Station: CLATSKANIE, OR
Requested years: 1971 - 2000

Month	Temperature (°F)			Precipitation (inches)				
	Avg daily max	Avg daily min	Avg daily mean	Avg	30% chance will have		Avg number of days with 0.10 inch or more	Average total snowfall
					less than	more than		
Jan	45.3	33.6	39.5	8.28	5.13	10.00	14	2.4
Feb	49.8	34.8	42.3	6.74	4.56	8.06	13	1.3
Mar	54.6	37.1	45.8	5.94	4.36	6.98	14	0.3
Apr	58.9	39.5	49.2	4.08	2.85	4.85	10	0.0
May	64.2	44.5	54.4	2.70	1.82	3.22	8	0.0
Jun	68.3	49.1	58.7	1.83	1.28	2.17	6	0.0
Jul	73.6	52.6	63.1	0.84	0.40	1.01	2	0.0
Aug	74.6	53.0	63.8	0.96	0.40	1.17	3	0.0
Sep	71.6	48.8	60.2	2.22	0.72	2.65	5	0.0
Oct	61.7	42.3	52.0	4.08	2.17	4.98	8	0.0
Nov	50.7	37.6	44.2	8.84	5.92	10.59	15	0.4
Dec	44.9	33.9	39.4	9.12	6.35	10.83	15	1.4
Annual:					49.06	61.32		
Average	59.8	42.2	51.0	-	-	-	-	-
Total	-	-	-	55.62			114	5.7

GROWING SEASON DATES

Requested years of data:	1971 - 2000		
Years with missing data:	24 deg = 1	28 deg = 1	32 deg = 0
Years with no occurrence:	24 deg = 8	28 deg = 0	32 deg = 0
Data years used:	24 deg = 29	28 deg = 29	32 deg = 30

Probability	Temperature		
	24 F or higher	28 F or higher	32 F or higher
	Beginning and Ending Dates Growing Season Length		
50 percent *	1/24 to 12/22 332 days	3/1 to 11/20 264 days	4/17 to 10/28 194 days
70 percent *	12/29 to 1/17 384 days	2/20 to 11/30 283 days	4/10 to 11/4 208 days

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

Monthly Total Precipitation for CLATSKANIE, OR

Year	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
2017	5.27	11.23	11.27	5.38	2.55	1.27	0.02	0.17	2.21	7.39	12.14	5.76	64.66
2018	9.29	4.98	4.21	6.34	0.16	1.00	0.01	0.45	2.52	4.41	5.17	8.43	46.97
2019	4.70	5.62	1.40	4.58	1.69	1.03	1.17	0.40	3.22	3.57	2.59	8.49	38.46
2020	16.44	7.00	3.76	2.20	3.21	2.93	0.58	0.29	4.75	M	M	M	M
Mean	8.93	7.21	5.16	4.62	1.90	1.56	0.44	0.33	3.18	5.12	6.63	7.56	50.03

Climatological Data for CLATSKANIE, OR - October 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-10-01	66	52	59.0	19	9	0.00	0.0	0
2018-10-02	65	51	58.0	18	8	0.00	0.0	0
2018-10-03	63	37	50.0	10	0	0.00	0.0	0
2018-10-04	62	39	50.5	11	1	0.00	0.0	0
2018-10-05	61	42	51.5	12	2	0.04	0.0	0
2018-10-06	54	44	49.0	9	0	0.30	0.0	0
2018-10-07	62	43	52.5	13	3	0.23	0.0	0
2018-10-08	53	51	52.0	12	2	0.13	0.0	0
2018-10-09	60	52	56.0	16	6	0.18	0.0	0
2018-10-10	64	48	56.0	16	6	0.00	0.0	0
2018-10-11	64	37	50.5	11	1	0.00	0.0	0
2018-10-12	67	37	52.0	12	2	0.00	0.0	0
2018-10-13	66	37	51.5	12	2	0.00	0.0	0
2018-10-14	65	32	48.5	9	0	0.00	0.0	0
2018-10-15	69	32	50.5	11	1	0.00	0.0	0
2018-10-16	72	36	54.0	14	4	0.00	0.0	0
2018-10-17	73	33	53.0	13	3	0.00	0.0	0
2018-10-18	74	35	54.5	15	5	0.00	0.0	0
2018-10-19	60	37	48.5	9	0	0.00	0.0	0
2018-10-20	56	38	47.0	7	0	0.00	0.0	0
2018-10-21	61	40	50.5	11	1	0.00	0.0	0
2018-10-22	62	39	50.5	11	1	0.00	0.0	0
2018-10-23	64	39	51.5	12	2	0.00	0.0	0
2018-10-24	56	41	48.5	9	0	0.00	0.0	0
2018-10-25	60	46	53.0	13	3	0.28	0.0	0
2018-10-26	60	46	53.0	13	3	0.60	0.0	0
2018-10-27	62	47	54.5	15	5	0.02	0.0	0
2018-10-28	58	49	53.5	14	4	1.39	0.0	0
2018-10-29	56	42	49.0	9	0	0.99	0.0	0
2018-10-30	57	42	49.5	10	0	0.05	0.0	0
2018-10-31	56	48	52.0	12	2	0.20	0.0	0
Average|Sum	62.2	41.7	51.9	378	76	4.41	0.0	0.0

Climatological Data for CLATSKANIE, OR - November 2018

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2018-11-01	54	49	51.5	12	2	0.35	0.0	0
2018-11-02	62	54	58.0	18	8	0.28	0.0	0
2018-11-03	60	50	55.0	15	5	0.05	0.0	0
2018-11-04	58	51	54.5	15	5	0.47	0.0	0
2018-11-05	60	42	51.0	11	1	0.10	0.0	0
2018-11-06	57	40	48.5	9	0	0.23	0.0	0
2018-11-07	56	37	46.5	7	0	0.03	0.0	0
2018-11-08	53	30	41.5	2	0	0.02	0.0	0
2018-11-09	52	29	40.5	1	0	0.00	0.0	0
2018-11-10	47	31	39.0	0	0	0.03	0.0	0
2018-11-11	50	29	39.5	0	0	0.02	0.0	0
2018-11-12	57	28	42.5	3	0	0.00	0.0	0
2018-11-13	59	29	44.0	4	0	0.00	0.0	0
2018-11-14	51	29	40.0	0	0	0.12	0.0	0
2018-11-15	48	42	45.0	5	0	0.00	0.0	0
2018-11-16	53	39	46.0	6	0	0.02	0.0	0
2018-11-17	53	35	44.0	4	0	0.02	0.0	0
2018-11-18	55	28	41.5	2	0	0.01	0.0	0
2018-11-19	54	27	40.5	1	0	0.00	0.0	0
2018-11-20	53	27	40.0	0	0	0.00	0.0	0
2018-11-21	53	27	40.0	0	0	0.02	0.0	0
2018-11-22	48	41	44.5	5	0	0.29	0.0	0
2018-11-23	49	43	46.0	6	0	0.93	0.0	0
2018-11-24	49	32	40.5	1	0	0.29	0.0	0
2018-11-25	46	30	38.0	0	0	0.02	0.0	0
2018-11-26	46	38	42.0	2	0	0.08	0.0	0
2018-11-27	55	45	50.0	10	0	1.05	0.0	0
2018-11-28	53	43	48.0	8	0	0.55	0.0	0
2018-11-29	51	38	44.5	5	0	0.05	0.0	0
2018-11-30	51	39	45.0	5	0	0.14	0.0	0
Average|Sum	53.1	36.7	44.9	157	21	5.17	0.0	0.0

Climatological Data for CLATSKANIE, OR - March 2019

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-03-01	42	29	35.5	0	0	0.05	0.0	0
2019-03-02	52	26	39.0	0	0	0.00	0.0	0
2019-03-03	53	22	37.5	0	0	0.01	0.0	0
2019-03-04	46	18	32.0	0	0	0.00	0.0	0
2019-03-05	44	18	31.0	0	0	0.00	0.0	0
2019-03-06	49	18	33.5	0	0	0.00	0.0	0
2019-03-07	38	28	33.0	0	0	0.22	T	0
2019-03-08	45	27	36.0	0	0	0.02	T	0
2019-03-09	44	28	36.0	0	0	0.17	0.0	0
2019-03-10	49	23	36.0	0	0	0.00	0.0	0
2019-03-11	53	24	38.5	0	0	0.00	0.0	0
2019-03-12	55	25	40.0	0	0	0.35	0.0	0
2019-03-13	48	38	43.0	3	0	0.27	0.0	0
2019-03-14	52	31	41.5	2	0	0.00	0.0	0
2019-03-15	54	31	42.5	3	0	0.00	0.0	0
2019-03-16	62	33	47.5	8	0	0.00	0.0	0
2019-03-17	70	31	50.5	11	1	0.00	0.0	0
2019-03-18	70	30	50.0	10	0	0.00	0.0	0
2019-03-19	73	33	53.0	13	3	0.00	0.0	0
2019-03-20	74	35	54.5	15	5	0.00	0.0	0
2019-03-21	74	38	56.0	16	6	0.00	0.0	0
2019-03-22	59	34	46.5	7	0	0.00	0.0	0
2019-03-23	54	38	46.0	6	0	0.03	0.0	0
2019-03-24	57	36	46.5	7	0	0.00	0.0	0
2019-03-25	60	36	48.0	8	0	0.00	0.0	0
2019-03-26	50	33	41.5	2	0	0.13	0.0	0
2019-03-27	59	31	45.0	5	0	0.00	0.0	0
2019-03-28	51	34	42.5	3	0	0.15	0.0	0
2019-03-29	51	32	41.5	2	0	0.00	0.0	0
2019-03-30	67	34	50.5	11	1	0.00	0.0	0
2019-03-31	68	33	50.5	11	1	0.00	0.0	0
Average|Sum	55.6	29.9	42.7	143	17	1.40	T	0.0

Climatological Data for CLATSKANIE, OR - April 2019

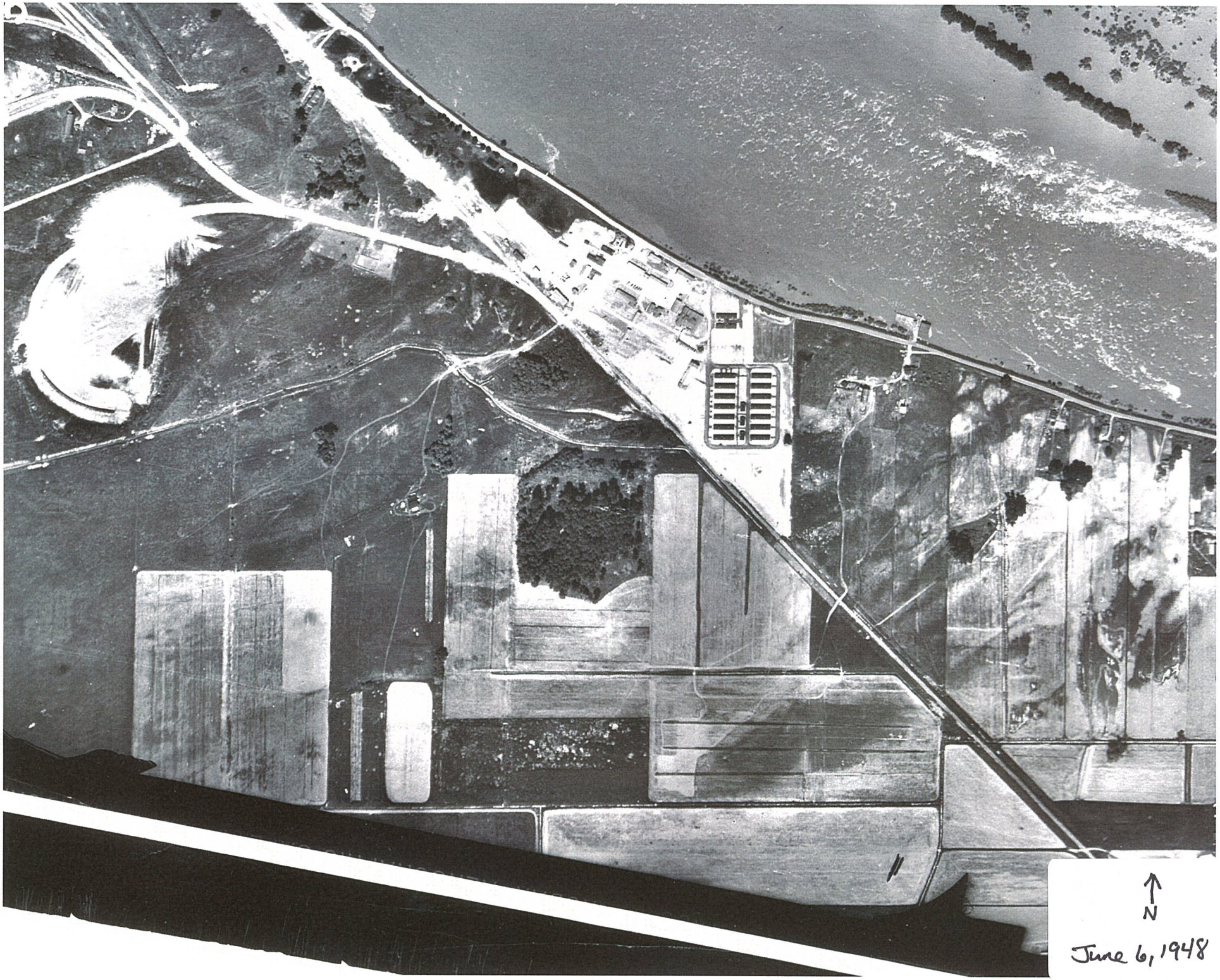
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-04-01	69	33	51.0	11	1	0.00	0.0	0
2019-04-02	67	46	56.5	17	7	0.05	0.0	0
2019-04-03	60	47	53.5	14	4	0.51	0.0	0
2019-04-04	59	41	50.0	10	0	0.03	0.0	0
2019-04-05	59	44	51.5	12	2	0.19	0.0	0
2019-04-06	58	40	49.0	9	0	0.42	0.0	0
2019-04-07	59	40	49.5	10	0	0.70	0.0	0
2019-04-08	55	46	50.5	11	1	0.02	0.0	0
2019-04-09	62	46	54.0	14	4	0.43	0.0	0
2019-04-10	56	44	50.0	10	0	0.08	0.0	0
2019-04-11	52	46	49.0	9	0	0.79	0.0	0
2019-04-12	52	46	49.0	9	0	0.35	0.0	0
2019-04-13	57	42	49.5	10	0	0.00	0.0	0
2019-04-14	53	38	45.5	6	0	0.25	0.0	0
2019-04-15	51	37	44.0	4	0	0.15	0.0	0
2019-04-16	52	42	47.0	7	0	0.12	0.0	0
2019-04-17	58	46	52.0	12	2	0.18	0.0	0
2019-04-18	63	44	53.5	14	4	0.05	0.0	0
2019-04-19	71	49	60.0	20	10	0.00	0.0	0
2019-04-20	71	48	59.5	20	10	0.18	0.0	0
2019-04-21	62	44	53.0	13	3	0.00	0.0	0
2019-04-22	59	37	48.0	8	0	0.00	0.0	0
2019-04-23	59	42	50.5	11	1	0.08	0.0	0
2019-04-24	56	38	47.0	7	0	0.00	0.0	0
2019-04-25	63	34	48.5	9	0	0.00	0.0	0
2019-04-26	69	35	52.0	12	2	0.00	0.0	0
2019-04-27	58	45	51.5	12	2	0.00	0.0	0
2019-04-28	55	37	46.0	6	0	0.00	0.0	0
2019-04-29	63	33	48.0	8	0	0.00	0.0	0
2019-04-30	66	33	49.5	10	0	0.00	0.0	0
Average|Sum	59.8	41.4	50.6	325	53	4.58	0.0	0.0

Climatological Data for CLATSKANIE, OR - November 2019

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-11-01	54	24	39.0	0	0	0.00	0.0	0
2019-11-02	60	28	44.0	4	0	0.00	0.0	0
2019-11-03	61	28	44.5	5	0	0.00	0.0	0
2019-11-04	52	35	43.5	4	0	0.00	0.0	0
2019-11-05	55	35	45.0	5	0	0.00	0.0	0
2019-11-06	52	34	43.0	3	0	0.00	0.0	0
2019-11-07	59	30	44.5	5	0	0.00	0.0	0
2019-11-08	59	30	44.5	5	0	0.00	0.0	0
2019-11-09	57	38	47.5	8	0	0.06	0.0	0
2019-11-10	53	44	48.5	9	0	0.09	0.0	0
2019-11-11	55	46	50.5	11	1	0.00	0.0	0
2019-11-12	64	42	53.0	13	3	0.10	0.0	0
2019-11-13	49	46	47.5	8	0	0.07	0.0	0
2019-11-14	56	39	47.5	8	0	0.00	0.0	0
2019-11-15	55	39	47.0	7	0	0.20	0.0	0
2019-11-16	56	39	47.5	8	0	0.08	0.0	0
2019-11-17	55	39	47.0	7	0	0.08	0.0	0
2019-11-18	54	50	52.0	12	2	0.15	0.0	0
2019-11-19	53	46	49.5	10	0	0.96	0.0	0
2019-11-20	53	31	42.0	2	0	0.05	0.0	0
2019-11-21	53	29	41.0	1	0	0.00	0.0	0
2019-11-22	51	27	39.0	0	0	0.00	0.0	0
2019-11-23	51	27	39.0	0	0	0.03	0.0	0
2019-11-24	49	37	43.0	3	0	0.17	0.0	0
2019-11-25	52	35	43.5	4	0	0.38	0.0	0
2019-11-26	50	34	42.0	2	0	0.10	0.0	0
2019-11-27	40	31	35.5	0	0	0.07	0.0	0
2019-11-28	47	24	35.5	0	0	0.00	0.0	0
2019-11-29	45	21	33.0	0	0	0.00	0.0	0
2019-11-30	40	18	29.0	0	0	0.00	0.0	0
Average|Sum	53.0	34.2	43.6	144	6	2.59	0.0	0.0

Climatological Data for CLATSKANIE, OR - September 2020

Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2020-09-01	73	49	61.0	21	11	0.00	0.0	0
2020-09-02	83	55	69.0	29	19	0.00	0.0	0
2020-09-03	81	51	66.0	26	16	0.00	0.0	0
2020-09-04	91	55	73.0	33	23	0.00	0.0	0
2020-09-05	72	56	64.0	24	14	0.00	0.0	0
2020-09-06	85	49	67.0	27	17	0.00	0.0	0
2020-09-07	86	57	71.5	32	22	0.00	0.0	0
2020-09-08	84	47	65.5	26	16	0.00	0.0	0
2020-09-09	82	43	62.5	23	13	0.00	0.0	0
2020-09-10	88	46	67.0	27	17	0.00	0.0	0
2020-09-11	88	46	67.0	27	17	0.00	0.0	0
2020-09-12	58	49	53.5	14	4	0.00	0.0	0
2020-09-13	64	48	56.0	16	6	0.00	0.0	0
2020-09-14	68	50	59.0	19	9	0.00	0.0	0
2020-09-15	71	58	64.5	25	15	0.11	0.0	0
2020-09-16	73	56	64.5	25	15	0.00	0.0	0
2020-09-17	71	58	64.5	25	15	0.00	0.0	0
2020-09-18	71	60	65.5	26	16	0.55	0.0	0
2020-09-19	64	55	59.5	20	10	1.30	0.0	0
2020-09-20	67	55	61.0	21	11	0.22	0.0	0
2020-09-21	72	51	61.5	22	12	0.00	0.0	0
2020-09-22	72	51	61.5	22	12	0.00	0.0	0
2020-09-23	72	55	63.5	24	14	0.16	0.0	0
2020-09-24	63	53	58.0	18	8	1.60	0.0	0
2020-09-25	69	55	62.0	22	12	0.32	0.0	0
2020-09-26	67	50	58.5	19	9	0.09	0.0	0
2020-09-27	67	49	58.0	18	8	0.19	0.0	0
2020-09-28	69	45	57.0	17	7	0.11	0.0	0
2020-09-29	79	47	63.0	23	13	0.04	0.0	0
2020-09-30	80	47	63.5	24	14	0.06	0.0	0
Average|Sum	74.3	51.5	62.9	695	395	4.75	0.0	0.0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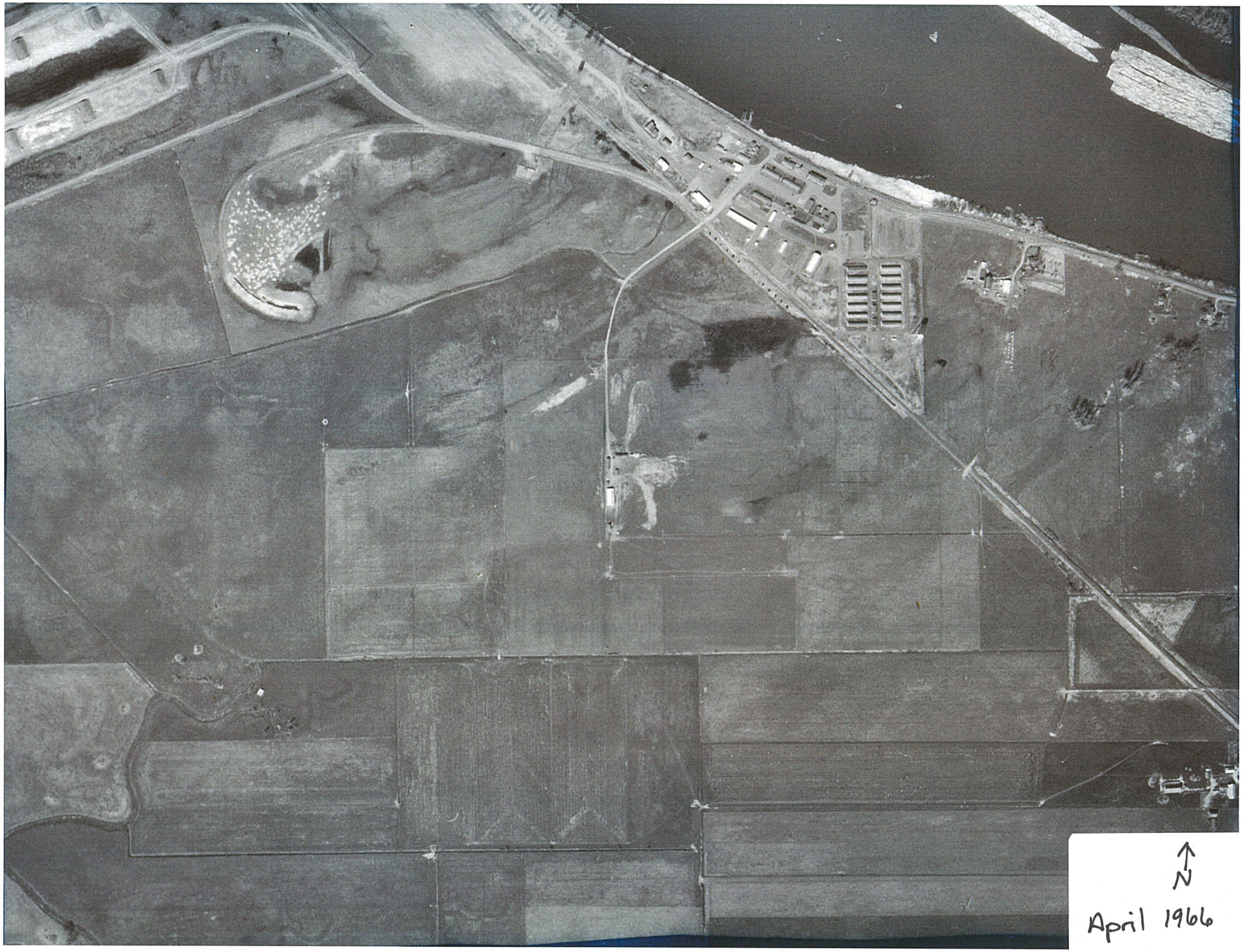
June 18, 1948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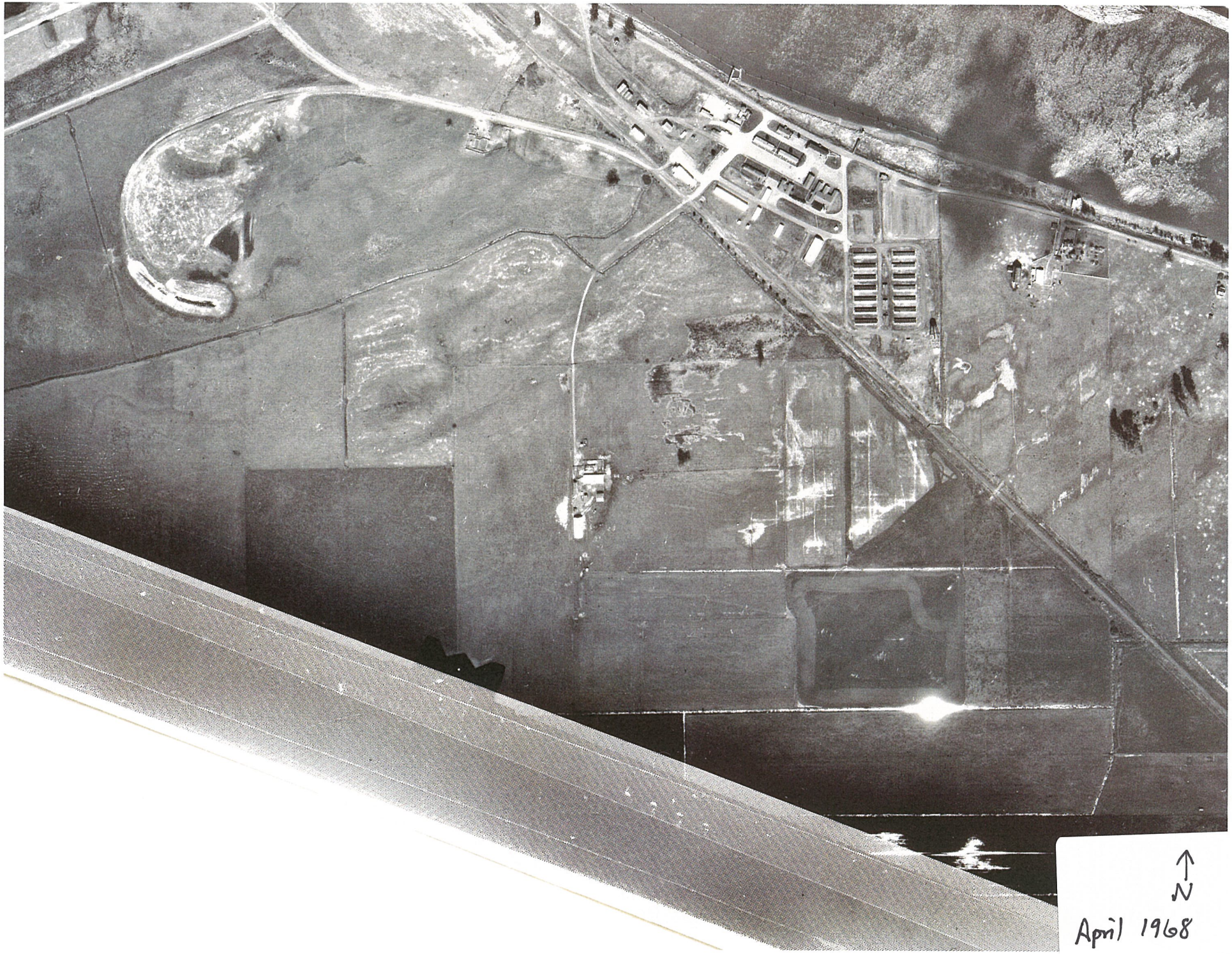

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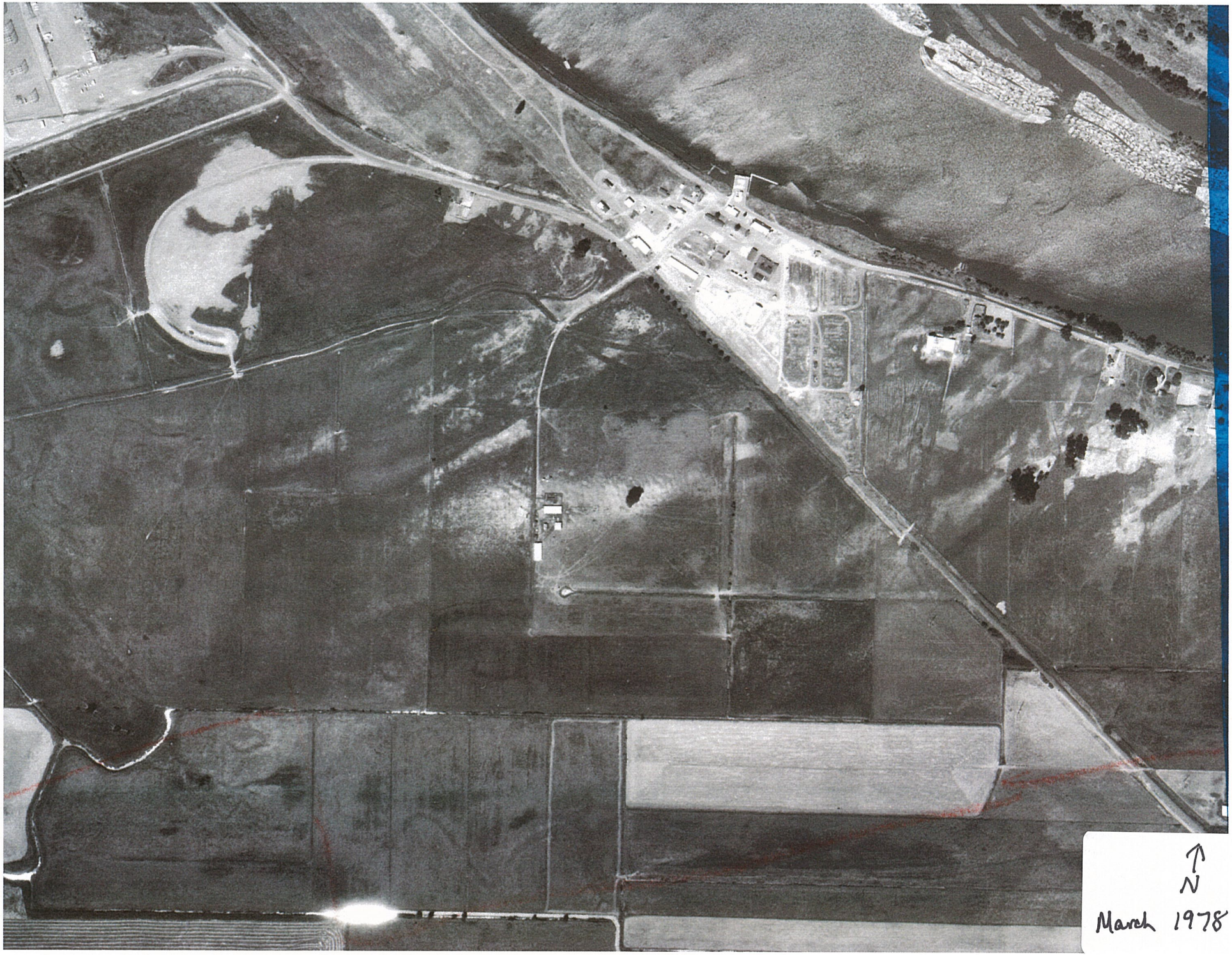
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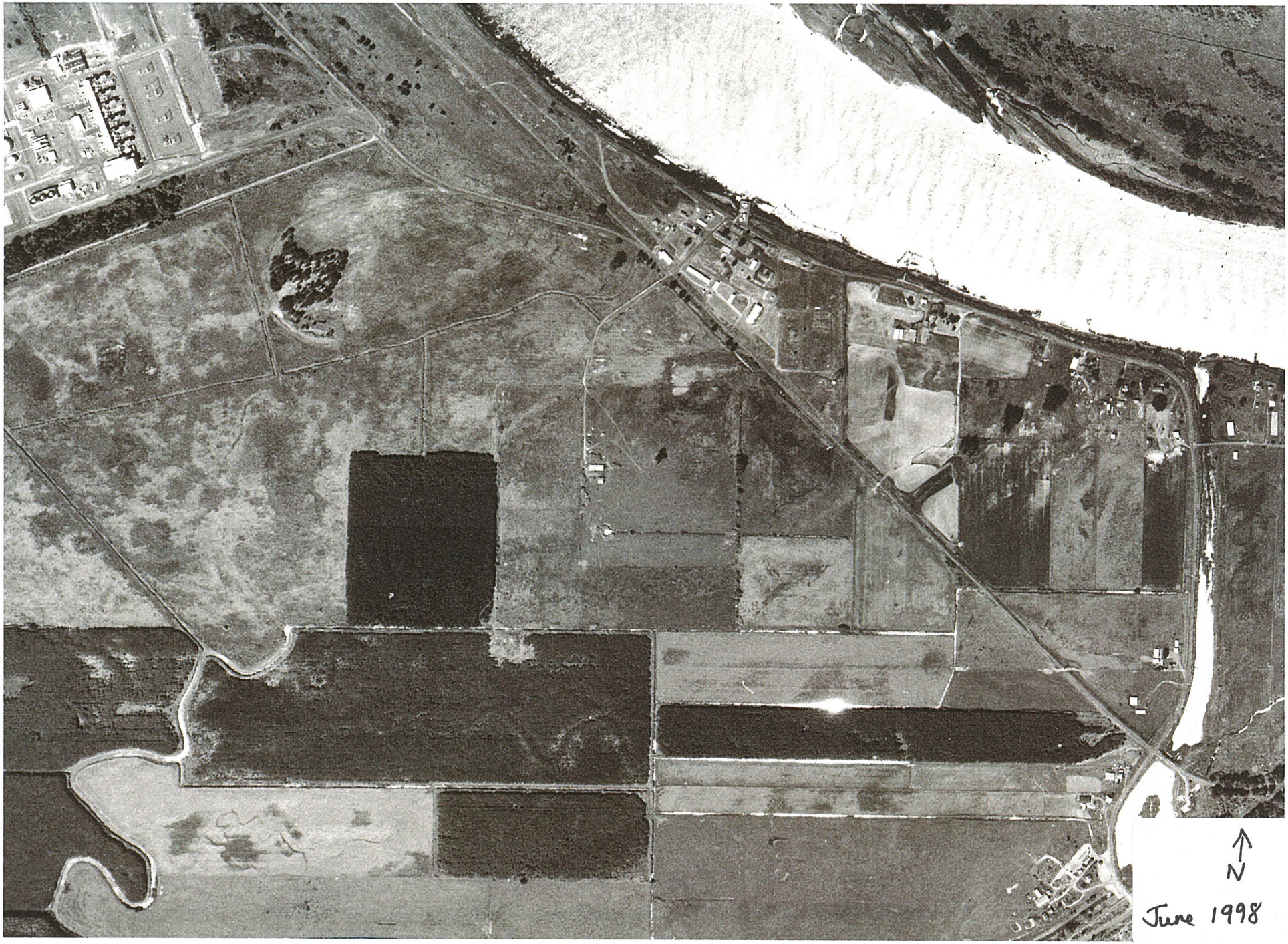
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June 1998

N
May 2001

APPENDIX E
Literature Citations and References

Literature Citations and References

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