

Wetland Delineation Report

# NEXT Renewable Fuels Oregon, LLC

## NEXT RENEWABLE FUELS OREGON

2020





LA GRANDE, OR. WALLA WALLA, WA. REDMOND, OR. HERMISTON, OR.

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## WETLAND DELINEATION REPORT FOR

## **NEXT RENEWABLE FUELS OREGON**

NEXT RENEWABLE FUELS OREGON, LLC

**NOVEMBER 2020** 

By Sue Brady, Biologist

ANDERSON PERRY & ASSOCIATES, INC.

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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 60 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

		_			Total Water
	July	August	September	October	Year*
Recorded Precipitation (inches)	0.01	0.45	2.52	0.88	55.13
Recorded Trecipitation (menes)	0.01	0.45	2.52	(to date)	(to date)
	0.04	0.00	2.22	4.08	F0 70
Precipitation Average (inches)	0.84	0.96	2.22	(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

	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							

# TABLE C-1DSUMMARY OF MONTHLY NORMAL AND RECORDED PRECIPITATIONBETWEEN AUGUST 1, 2019, AND NOVEMBER 14, 2019

\*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*
	-		September	rear
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 (in	ches)														
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

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

							Novemb	er 2018							
Date	16	17	18	19	20	21	22	23	24	25	26	27	28	29	Tota
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 (in	ches)														
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

# TABLE C-2CSUMMARY OF DAILY NORMAL AND RECORDED PRECIPITATION BETWEENMARCH 30, 2019, AND APRIL 12, 2019

	March	n 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 (in	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

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

							er 2019							
1	2	3	4	5	6	7	8	9	10	11	12	13	14	Total
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
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
s)														
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
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
). ).	00 29 ) 20	00 0.00 29 0.29 ) 20 0.20	00 0.00 0.00 29 0.29 0.29 ) 20 0.20 0.20	00     0.00     0.00     0.00       29     0.29     0.29     0.29       )     20     0.20     0.20	00     0.00     0.00     0.00     0.00       29     0.29     0.29     0.29     0.29       )     20     0.20     0.20     0.20	00       0.00       0.00       0.00       0.00       0.00         29       0.29       0.29       0.29       0.29       0.29         0       0.20       0.20       0.20       0.20       0.20	00       0.00       0.00       0.00       0.00       0.00       0.00         29       0.29       0.29       0.29       0.29       0.29       0.29         0       0.20       0.20       0.20       0.20       0.20       0.20	00       0.00       0.00       0.00       0.00       0.00       0.00       0.00       0.00         29       0.29       0.29       0.29       0.29       0.29       0.29       0.29       0.29         0       0.20       0.20       0.20       0.20       0.20       0.20       0.20	00       0.00       <	00       0.00       <	00       0.00       <	00       0.10         20       0.20	00       0.00       <	00       0.00       <

							Septemb	er 2020							
Date	17	18	19	20	21	22	23	24	25	26	27	28	29	30	Total
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 (in	ches)														
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

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

## **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.

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

TABLE D-1 SOILS FOUND WITHIN THE STUDY AREA

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.

Wetland	HGM Class <sup>1</sup>	Cowardin Class <sup>2</sup>	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

TABLE E-1 WETLANDS DELINEATED WITHIN THE STUDY AREA

<sup>1</sup>Adamus, 2001 <sup>2</sup>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 <sup>1</sup>	Habitat within Study Area
	Upper Columbia River DPS	Т	
Charally and	Middle Columbia River DPS	Т	
Steelhead	Lower Columbia River DPS	Т	No
(Oncorhynchus mykiss)	Upper Willamette River DPS	Т	
	Snake River Basin DPS	Т	
	Upper Columbia River spring-run ESU	E	
China ale aslan an	Lower Columbia River ESU	Т	
Chinook salmon	Snake River fall-run ESU	Т	No
(Oncorhynchus tshawytscha)	Snake River spring/summer-run ESU	Т	
	Upper Willamette River ESU	Т	
Chum salmon (Oncorhynchus keta)	Columbia River ESU	т	No
Coho salmon (Oncorhynchus kisutch)	Lower Columbia River ESU	т	No
Sockeye salmon (Oncorhynchus nerka)	Snake River ESU	E	No
Bull trout (Salvelinus confluentus)	Columbia River DPS	т	No
Green sturgeon (Acipenser medirostris)	Southern DPS	т	No
Eulachon (Thaleichthys pacificus)	Southern DPS	т	No
Columbian white-tailed deer (Odocoileus leucurus)	N/A	т	Yes
Marbled murrelet (Brachyramphus marmoratus)	N/A	т	No
Northern spotted owl (Strix occidentalis caurina)	N/A	т	No
Streaked horned lark (Eremophila alpestris strigata)	N/A	т	Possibly
Yellow-billed cuckoo (Coccyzus americanus)	N/A	т	No
Bradshaw's desert-parsley ( <i>Lomatium bradshawii</i> )	N/A	E (Proposed for delisting)	Possibly
Kincaid's lupine (Lupinus sulphureus ssp. kincaidii)	N/A	т	No
Nelson's checker-mallow (Sidalcea nelsoniana)	N/A	т	Possibly
Willamette daisy (Erigeron decumbens)	N/A	E	Possibly

<sup>1</sup> 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

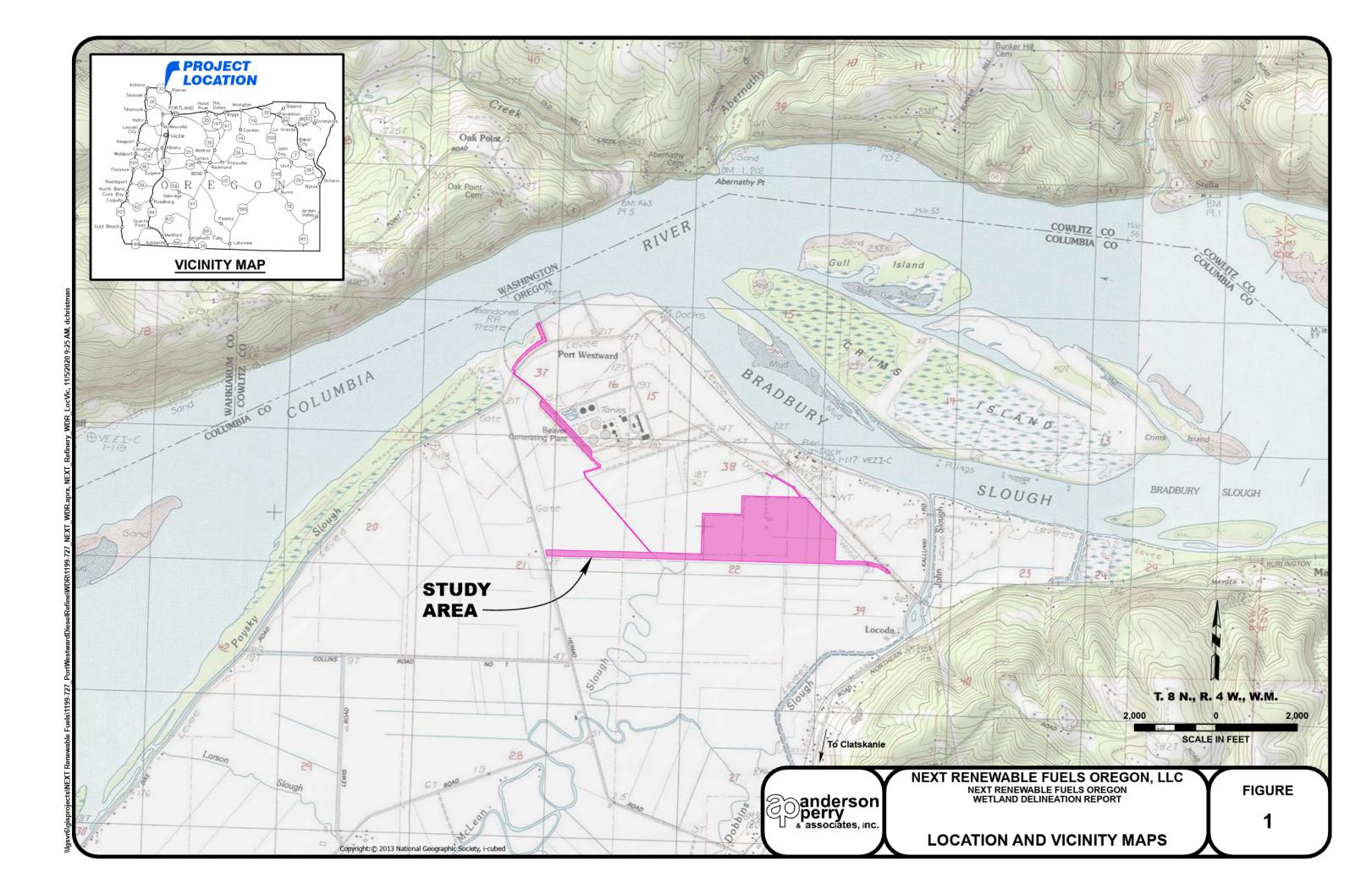
The wetland delineation was conducted in accordance with the routine methodology provided in the 1987 USACE Wetlands Delineation Manual and the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Western Mountains, Valleys, and Coast Region (Version 2.0).

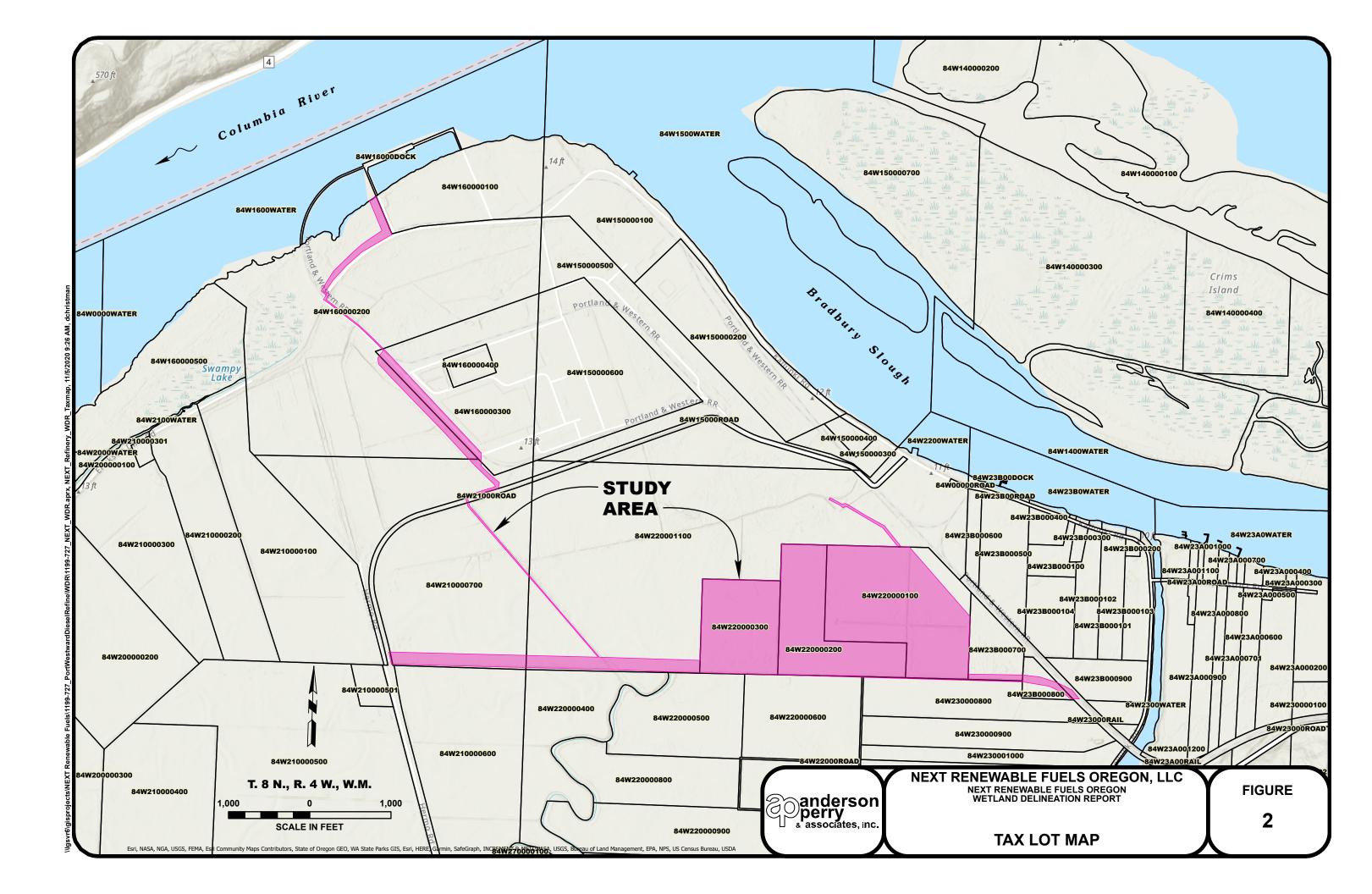
This Report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been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

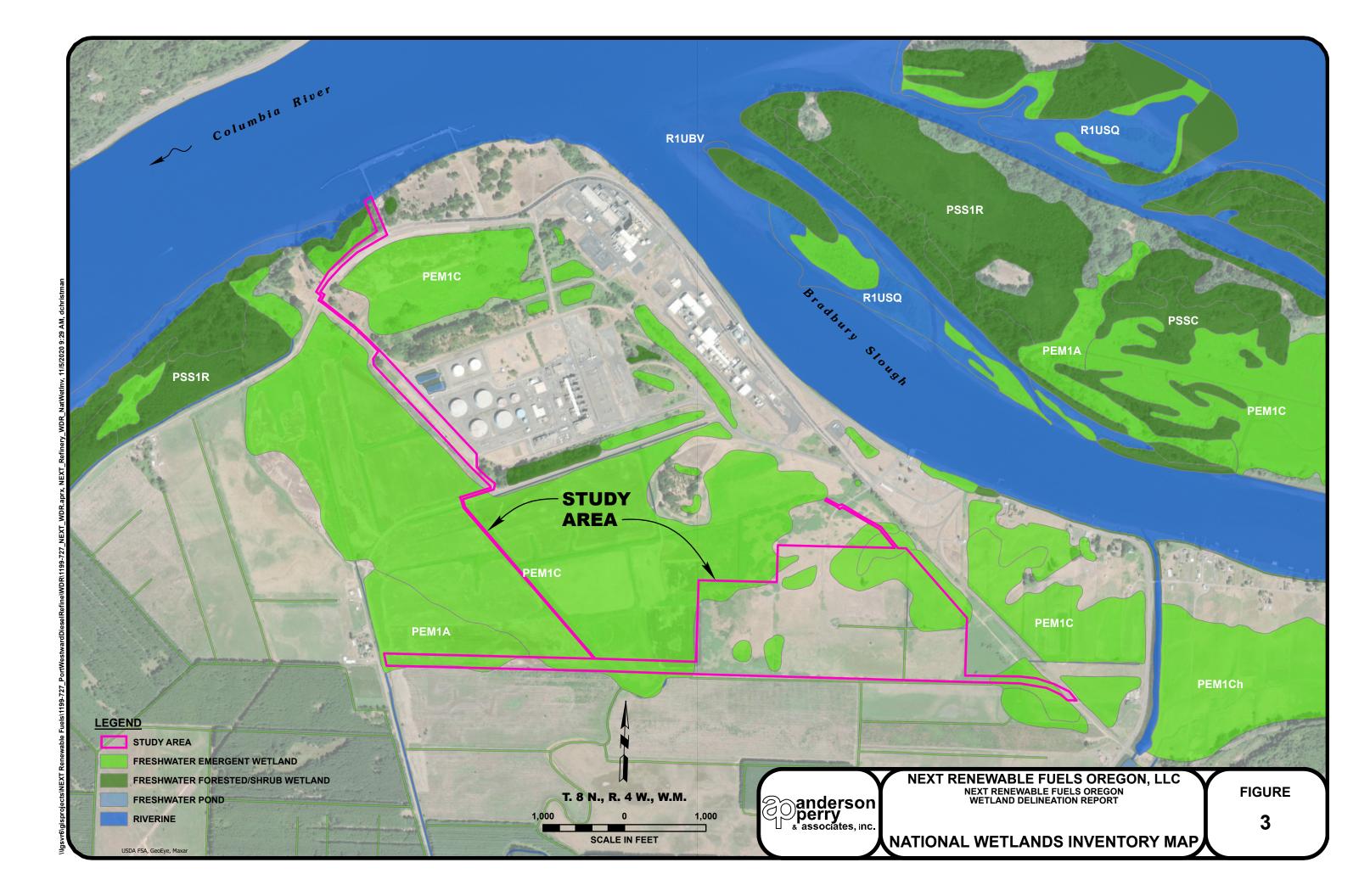
# **Appendices Table of Contents**

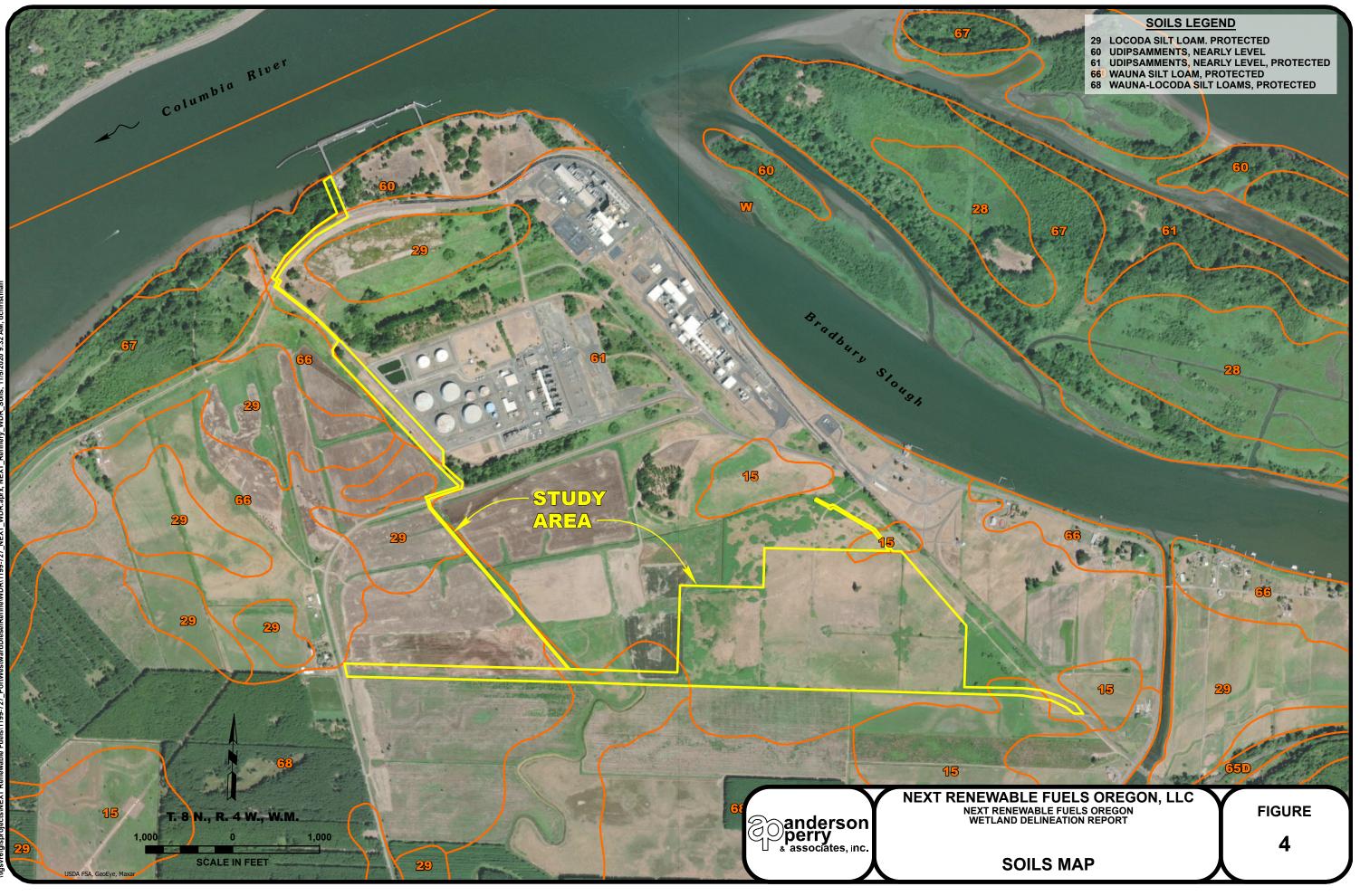
Appendix A	Figures
Appendix B	Wetland Determination Data Forms
Appendix C	Site Photographs
Appendix D	Additional Information
Appendix E	Literature Citations and References

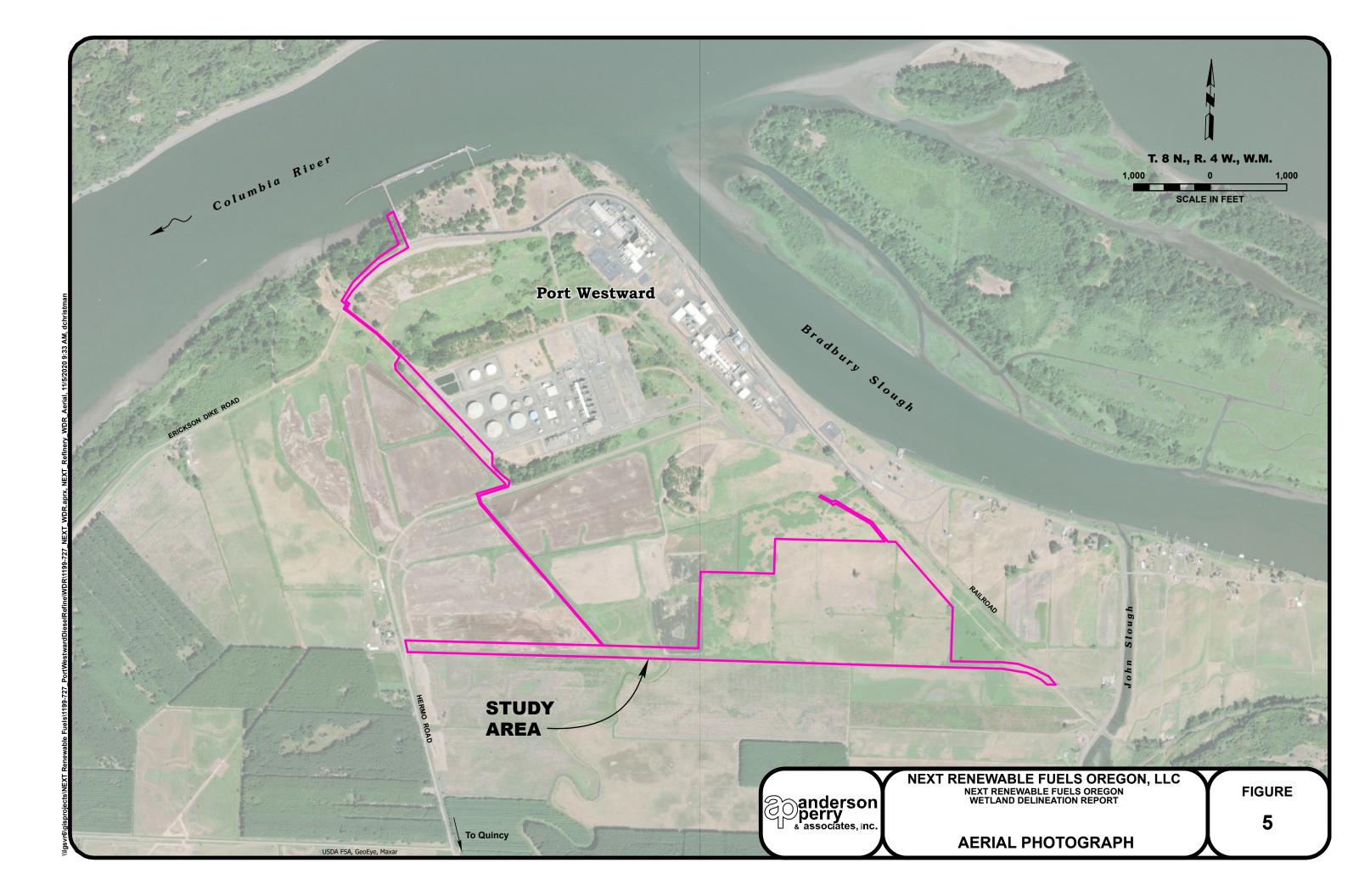
## APPENDIX A Figures

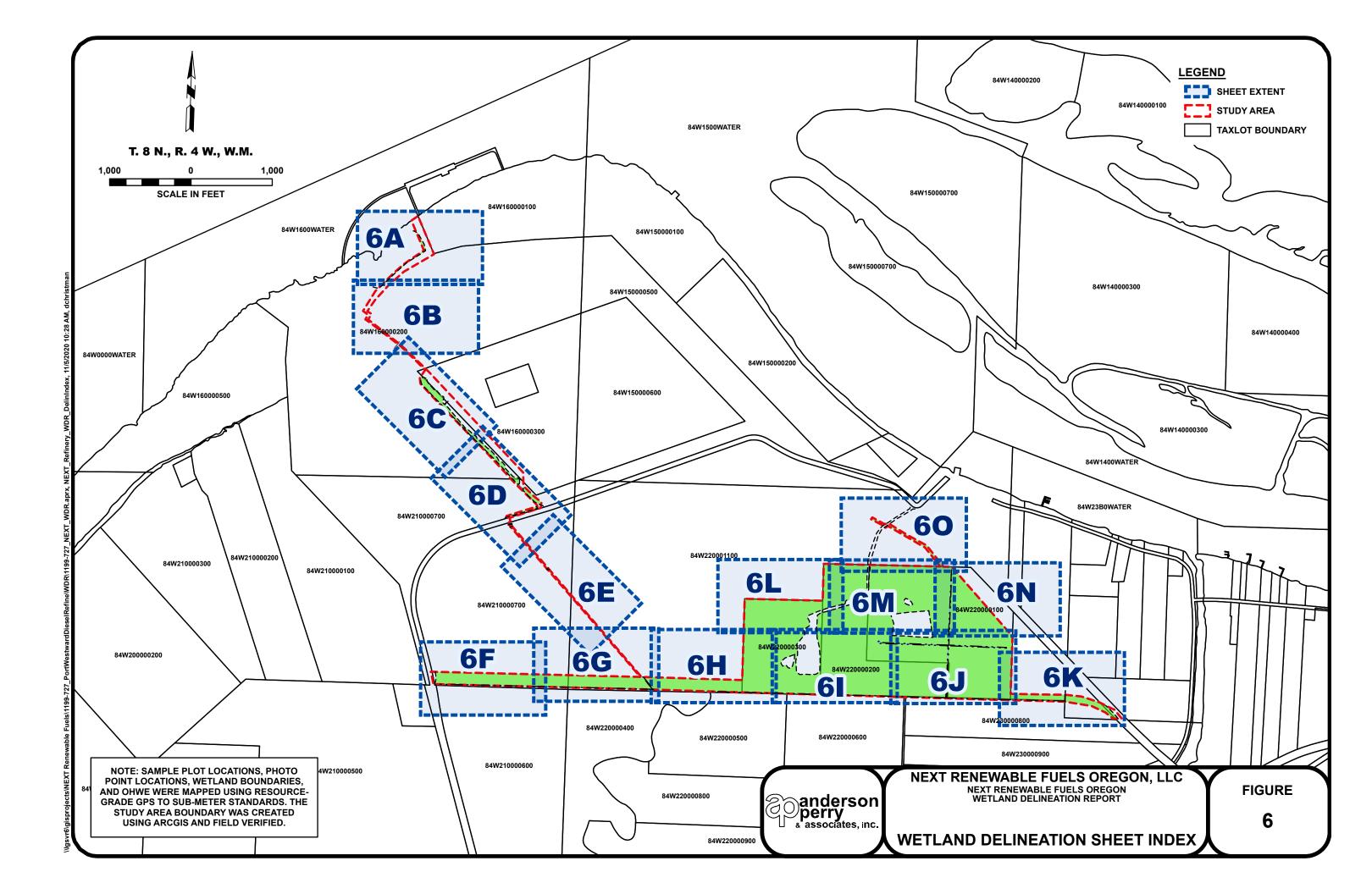


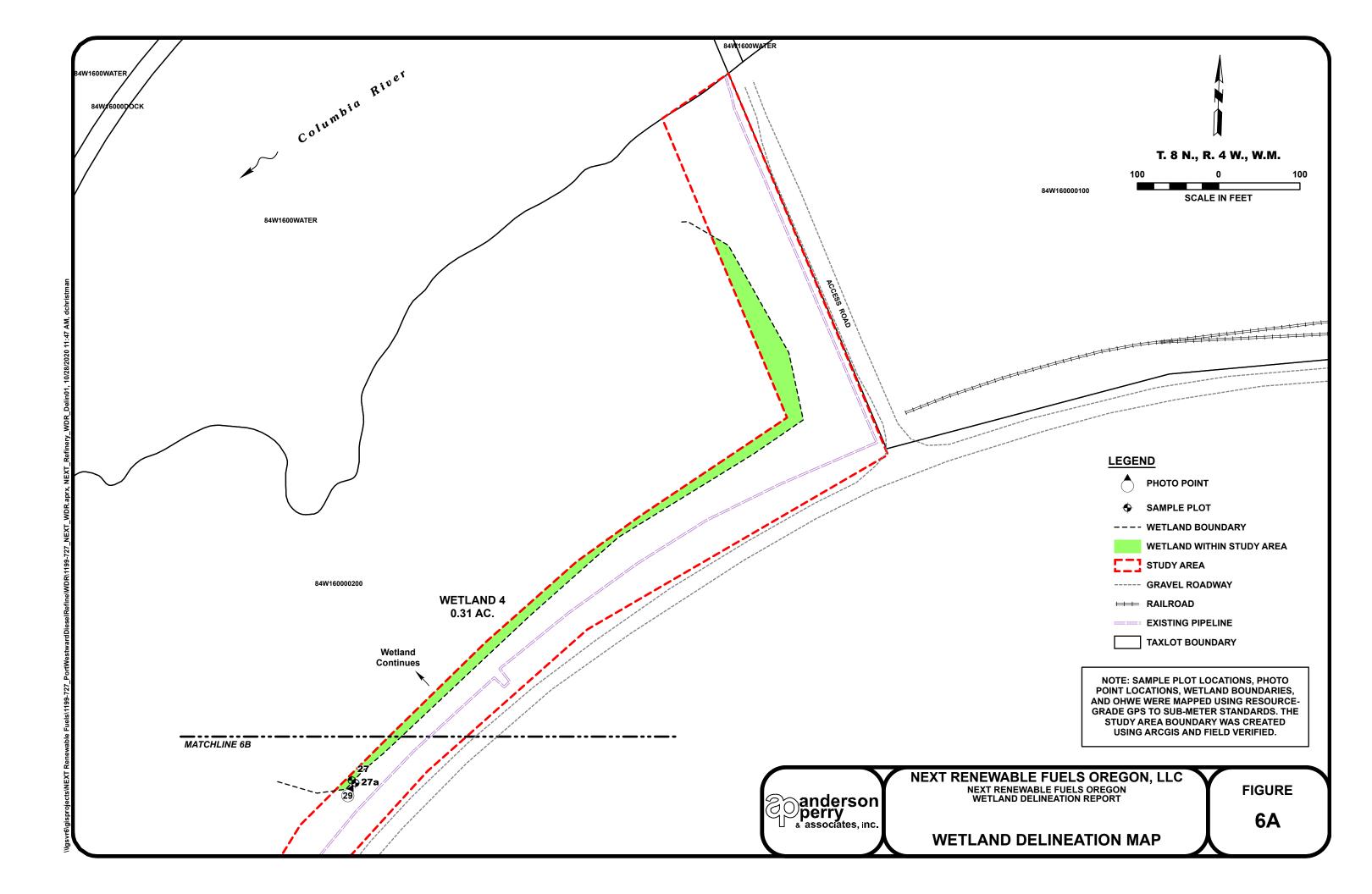


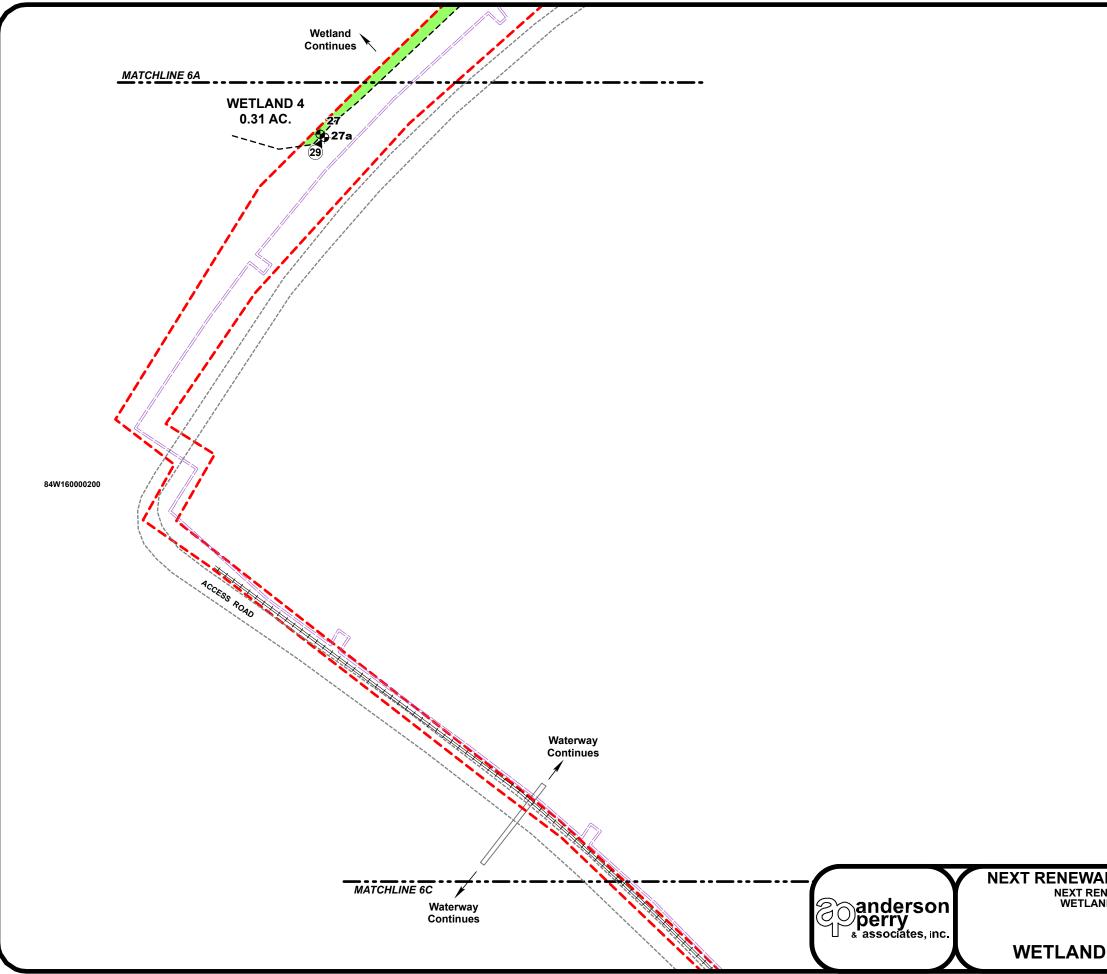


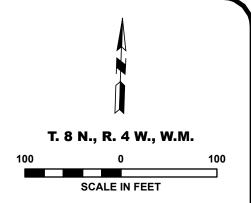


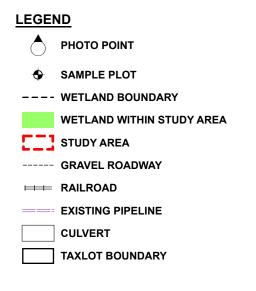






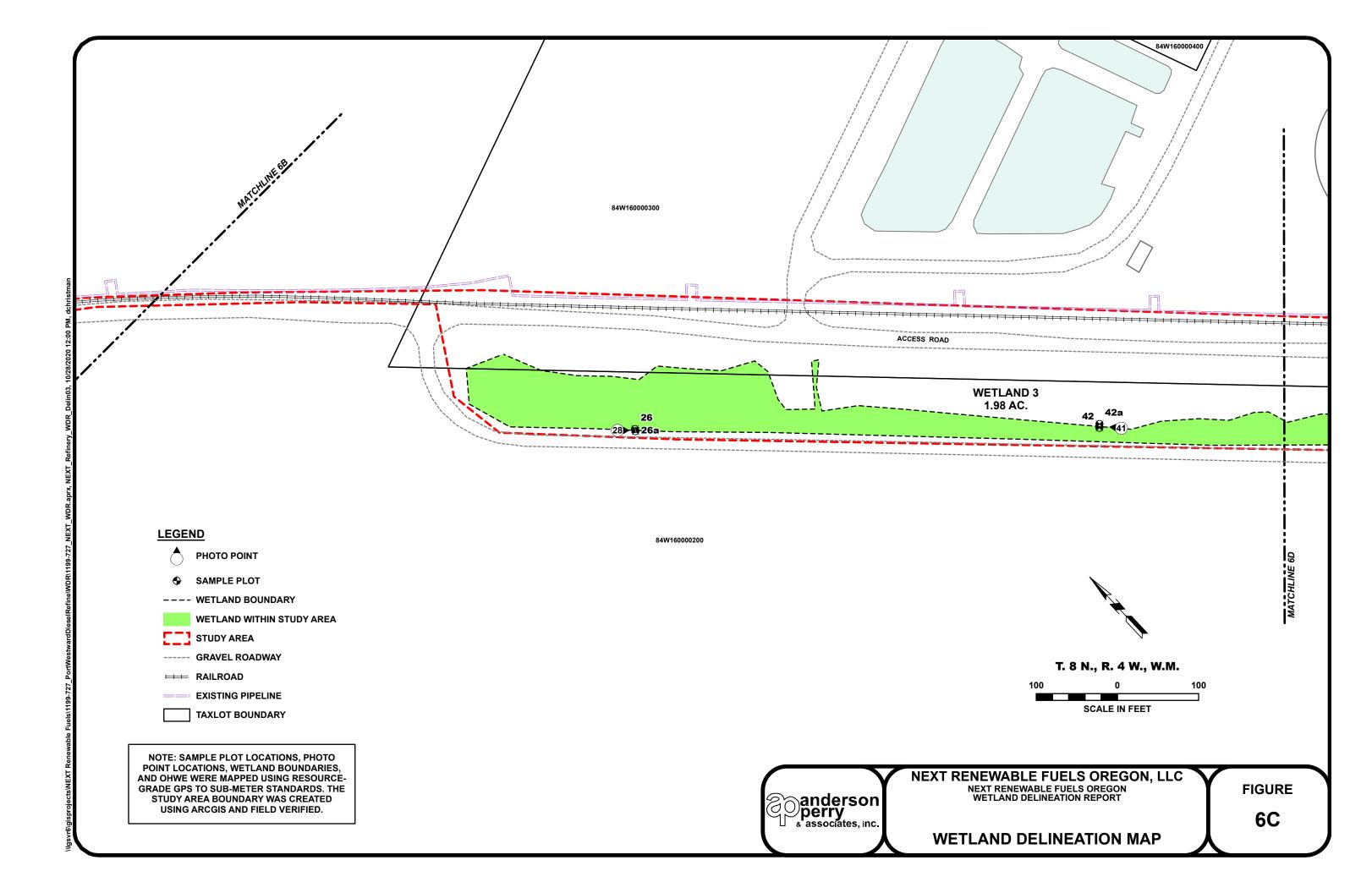


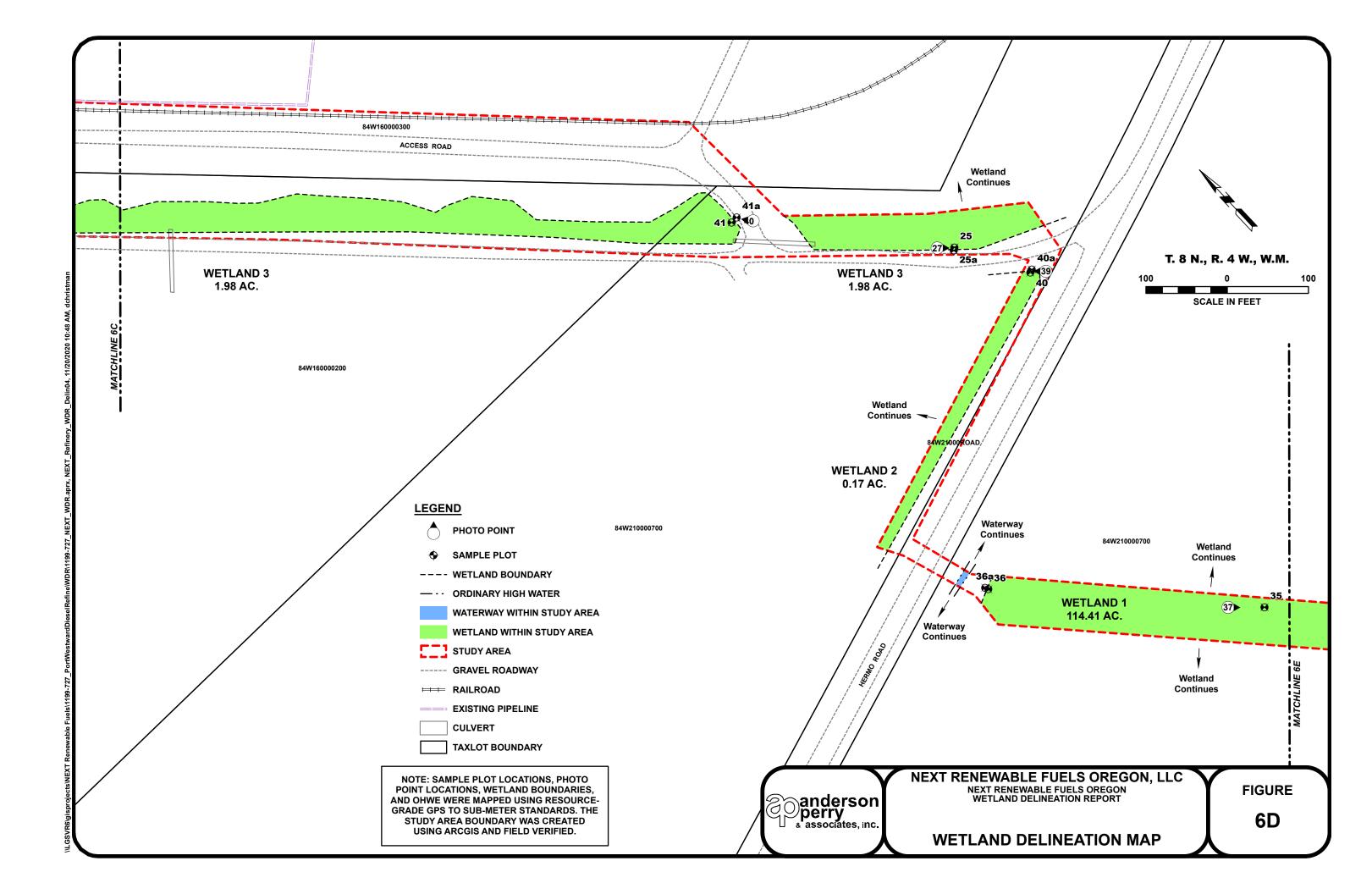


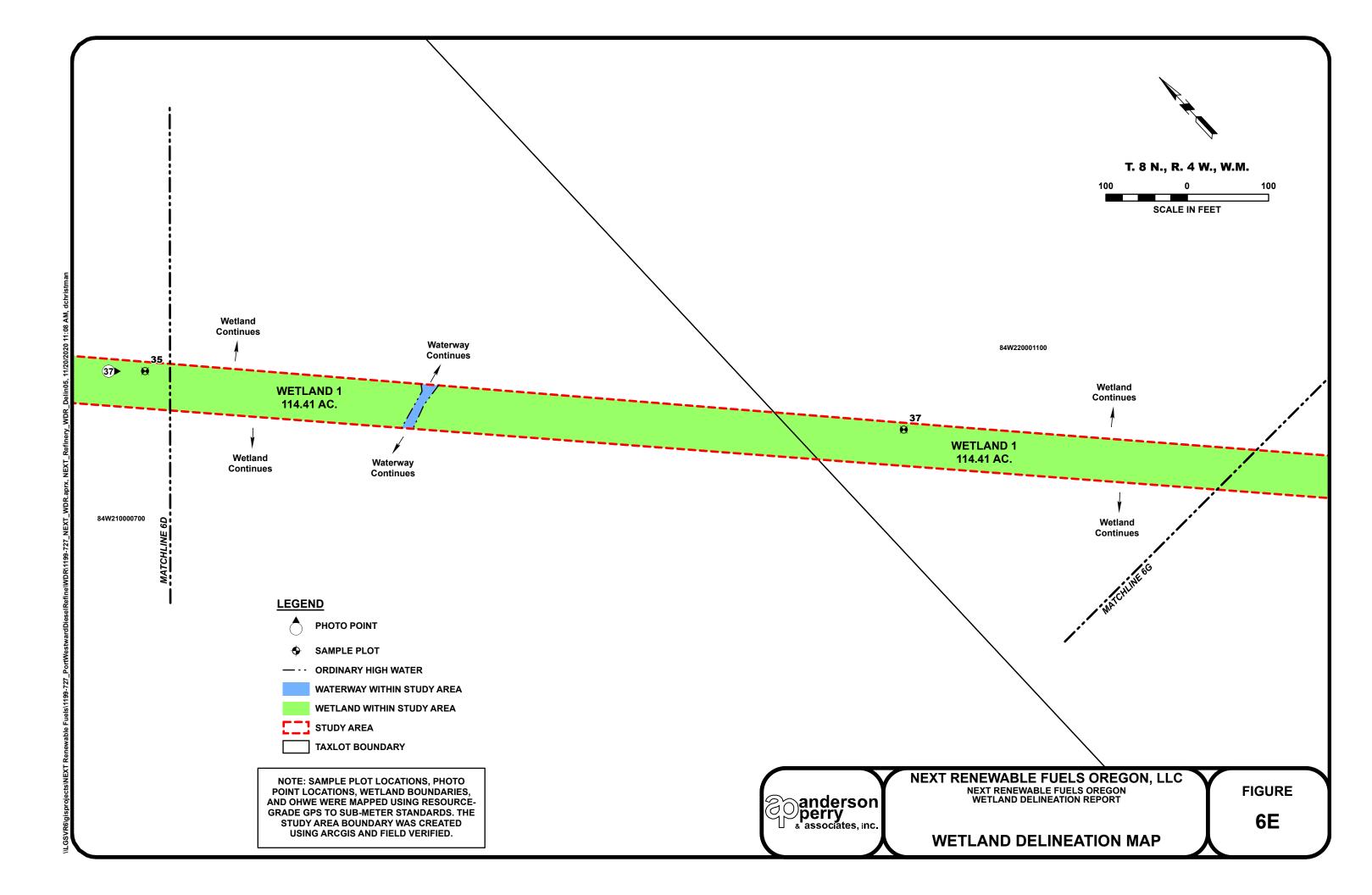


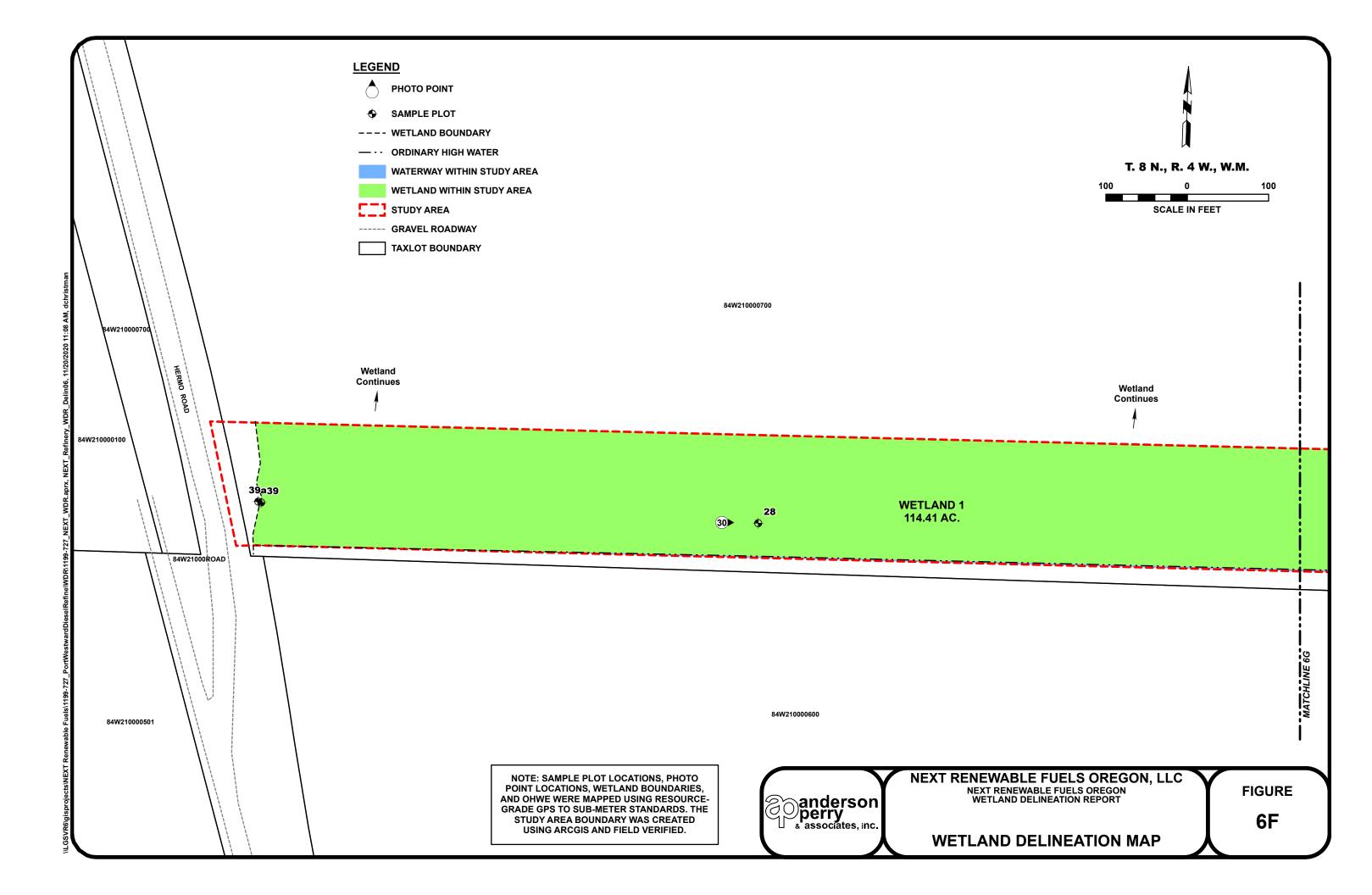
NOTE: SAMPLE PLOT LOCATIONS, PHOTO POINT LOCATIONS, WETLAND BOUNDARIES, AND OHWE WERE MAPPED USING RESOURCE-GRADE GPS TO SUB-METER STANDARDS. THE STUDY AREA BOUNDARY WAS CREATED USING ARCGIS AND FIELD VERIFIED.

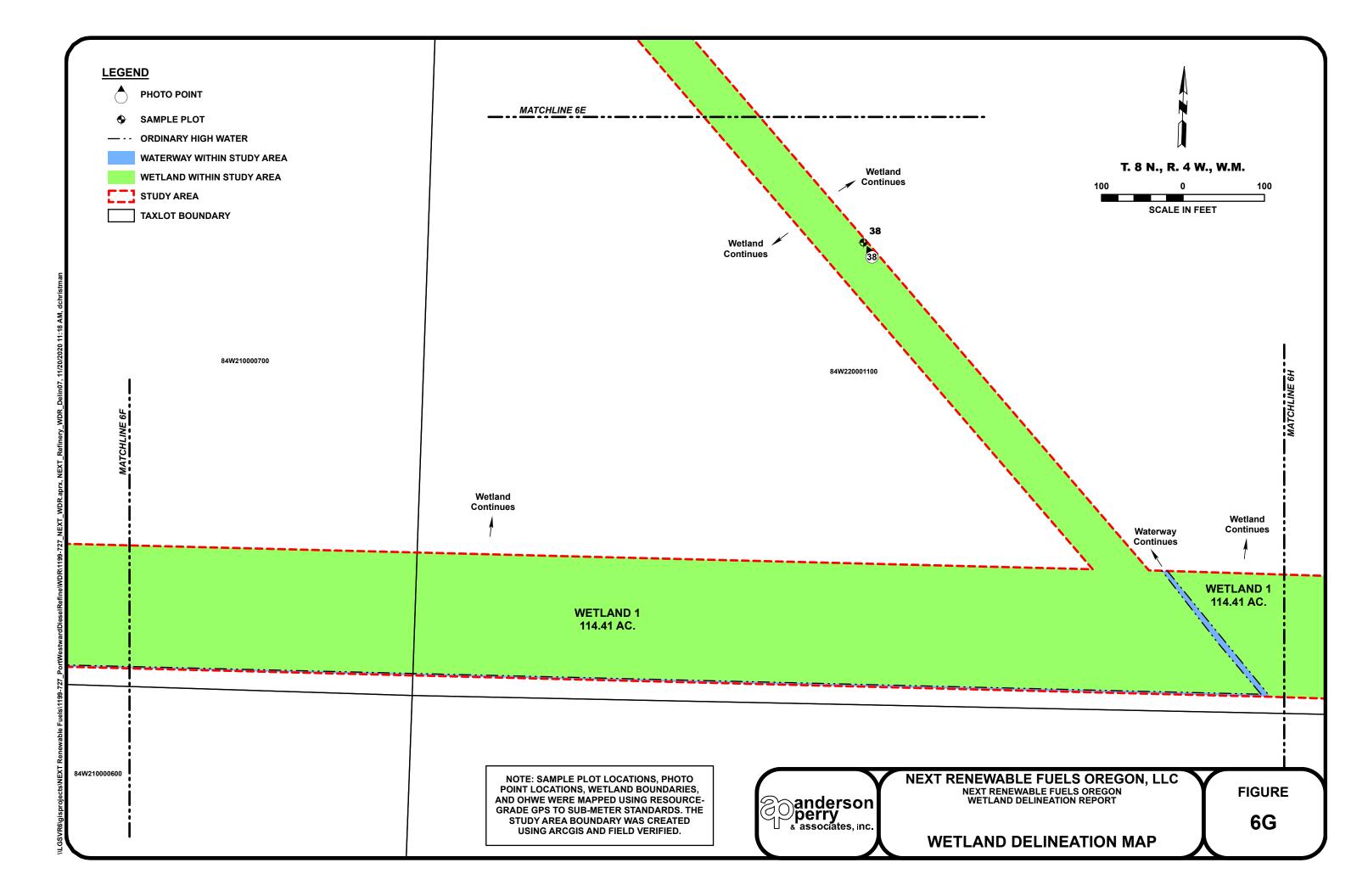
NEXT RENEWABLE FUELS OREGON, LLC NEXT RENEWABLE FUELS OREGON WETLAND DELINEATION REPORT WETLAND DELINEATION MAP

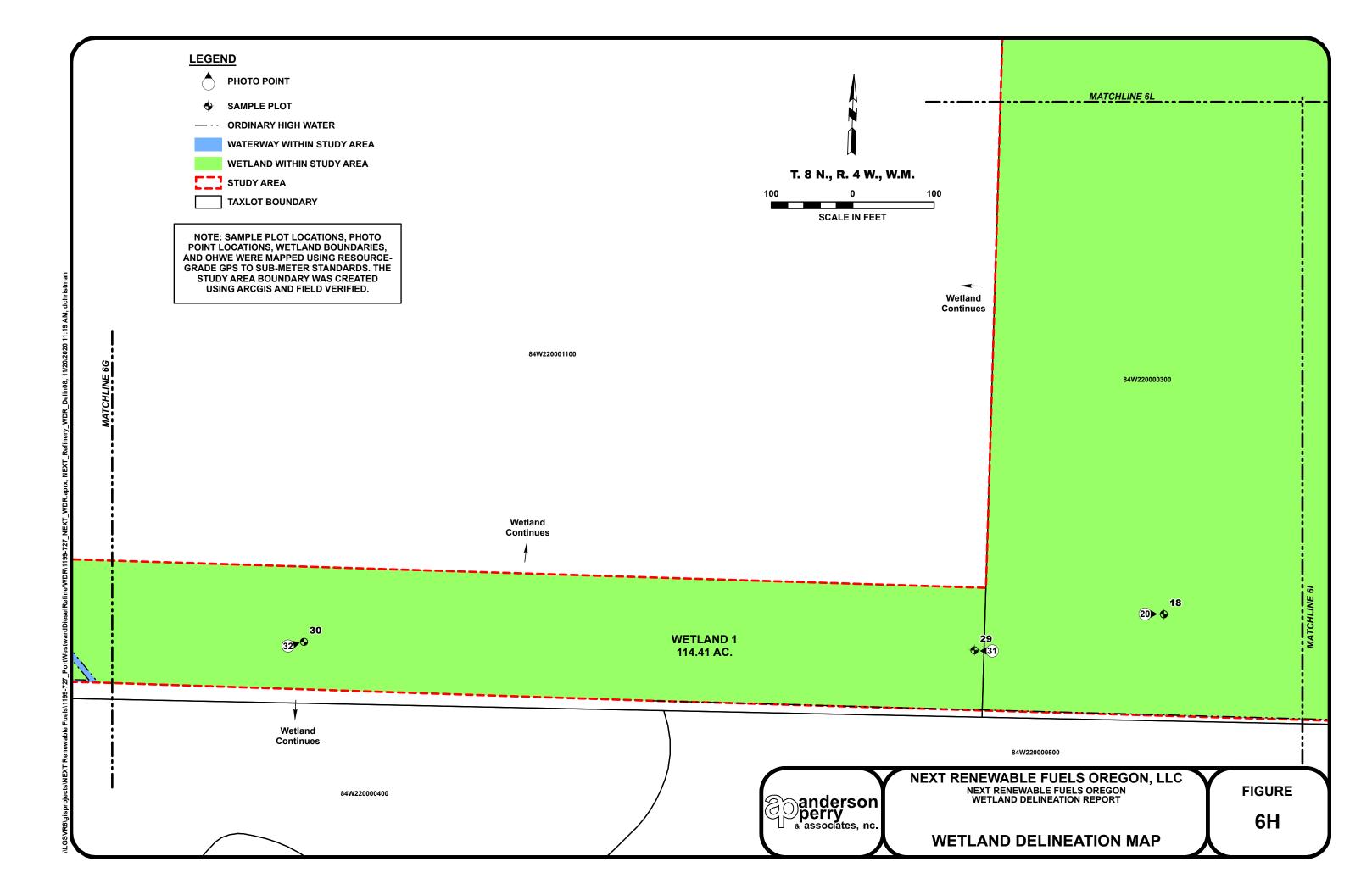


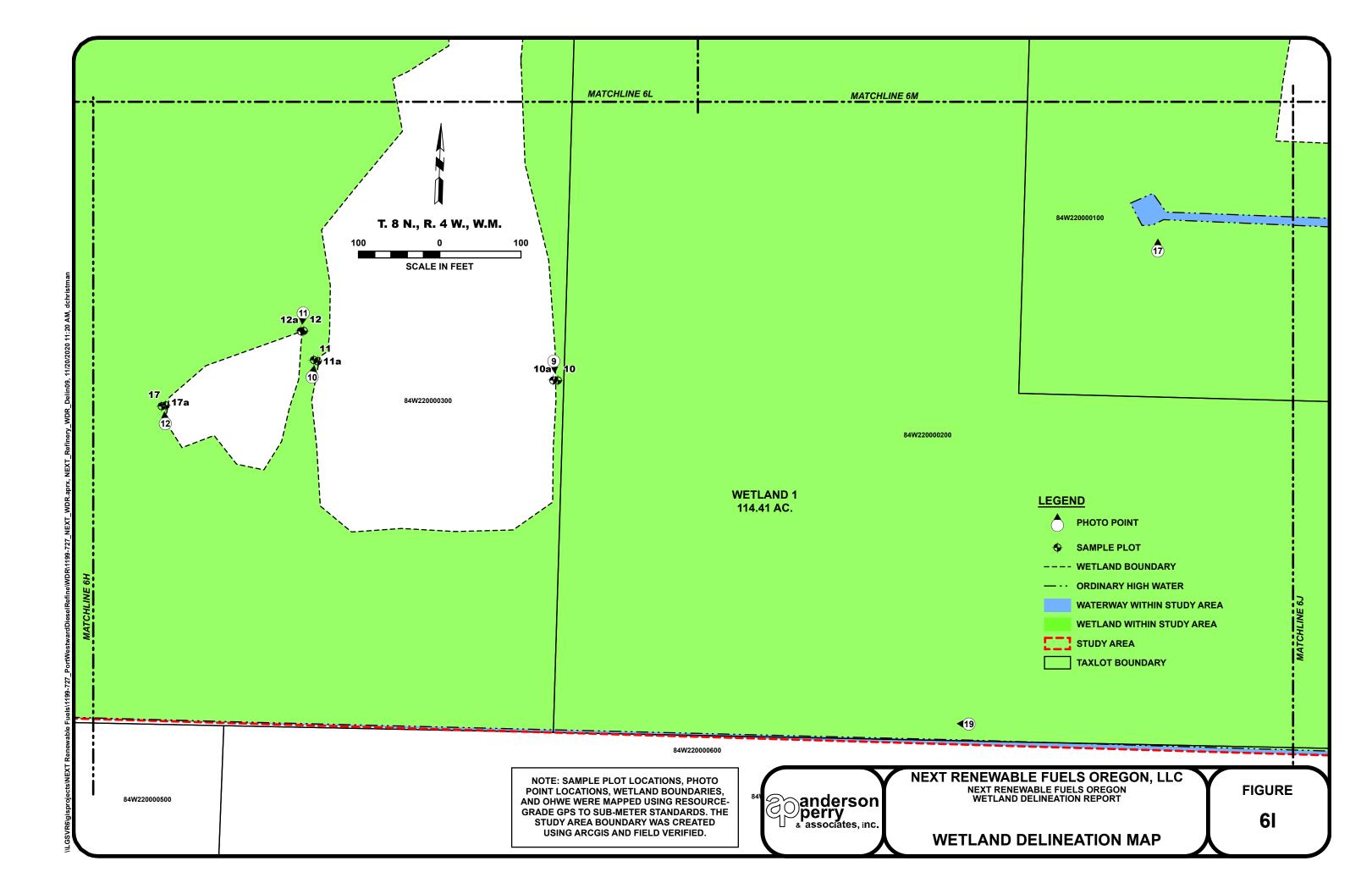


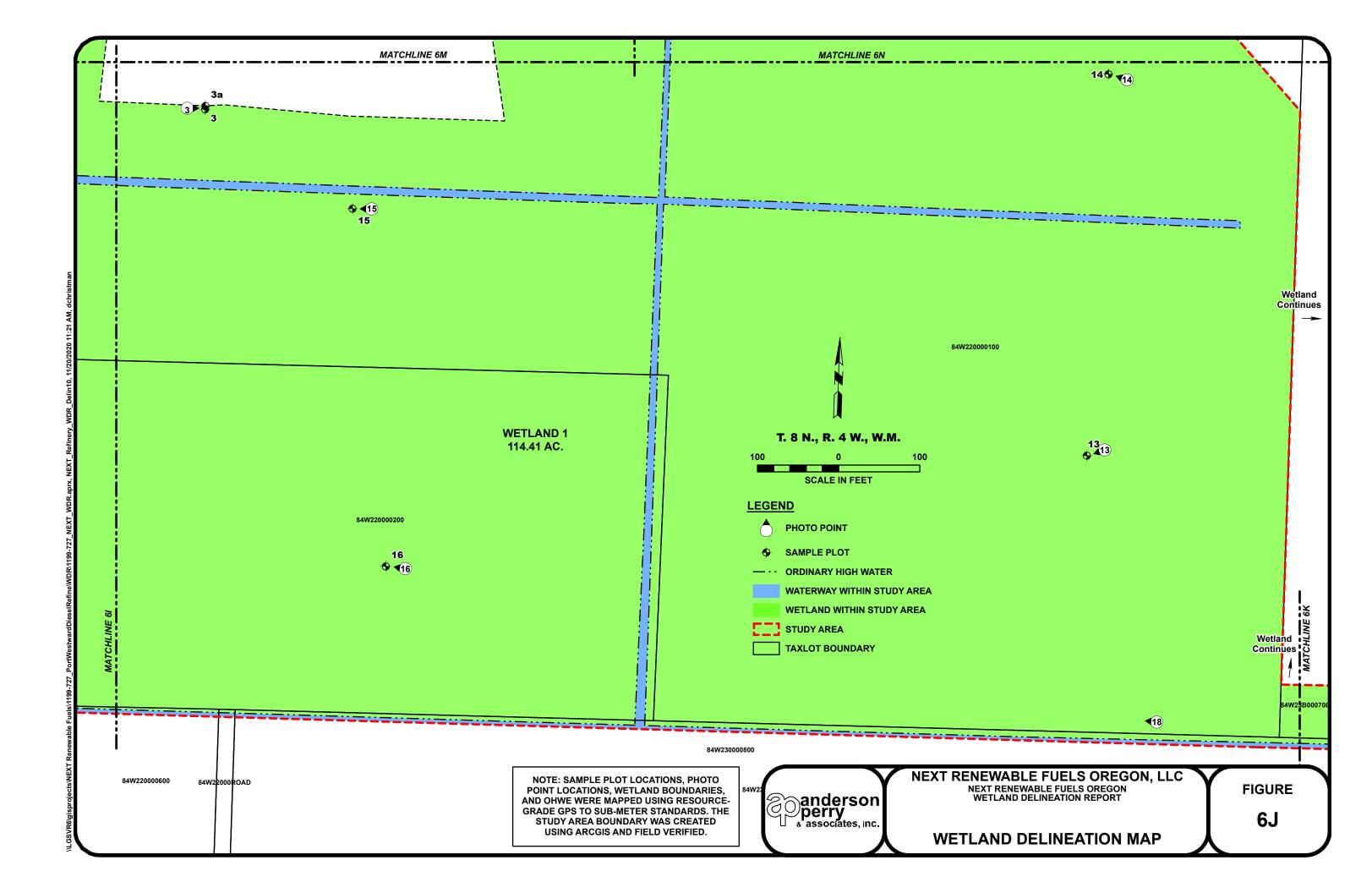


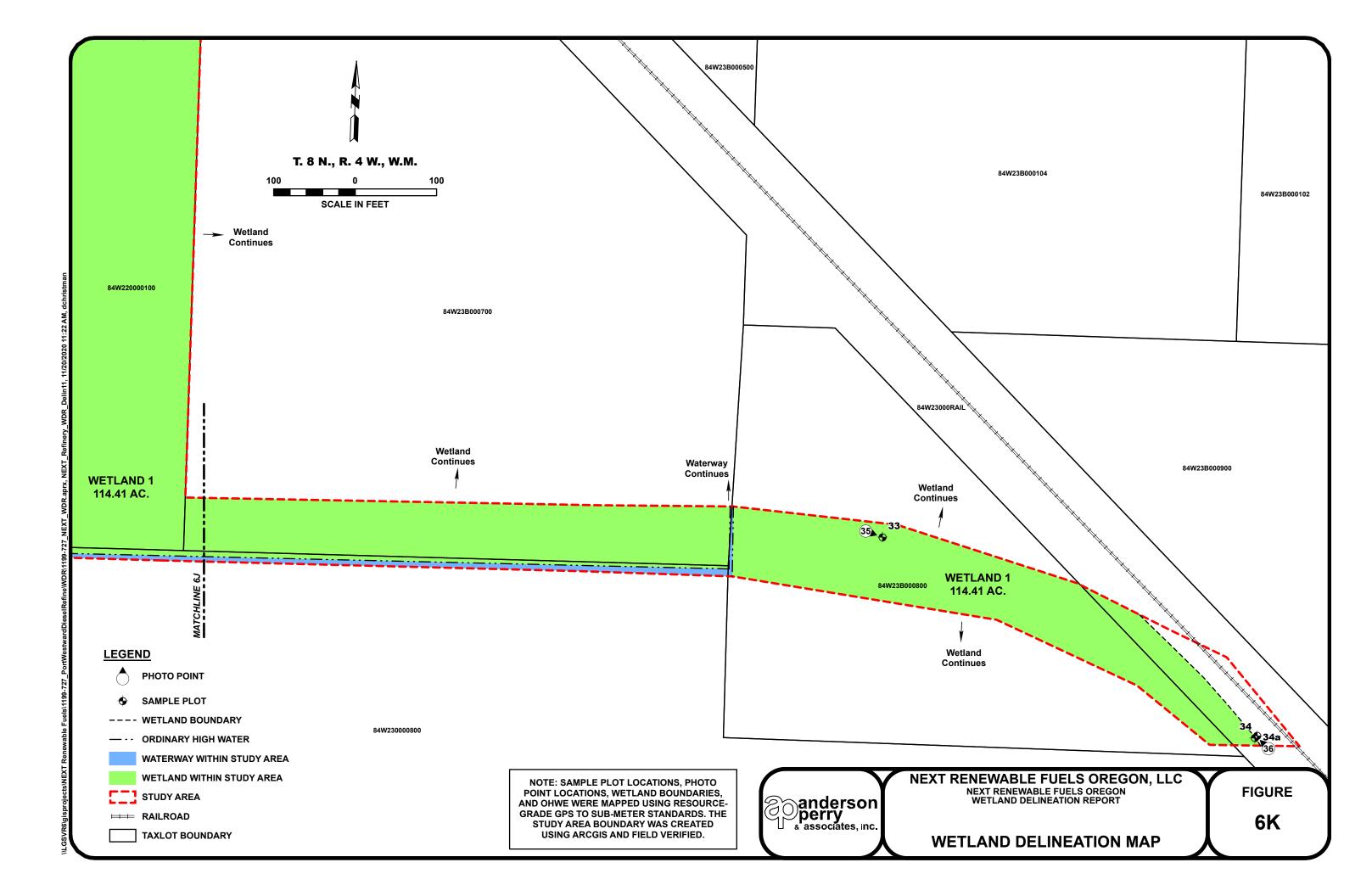


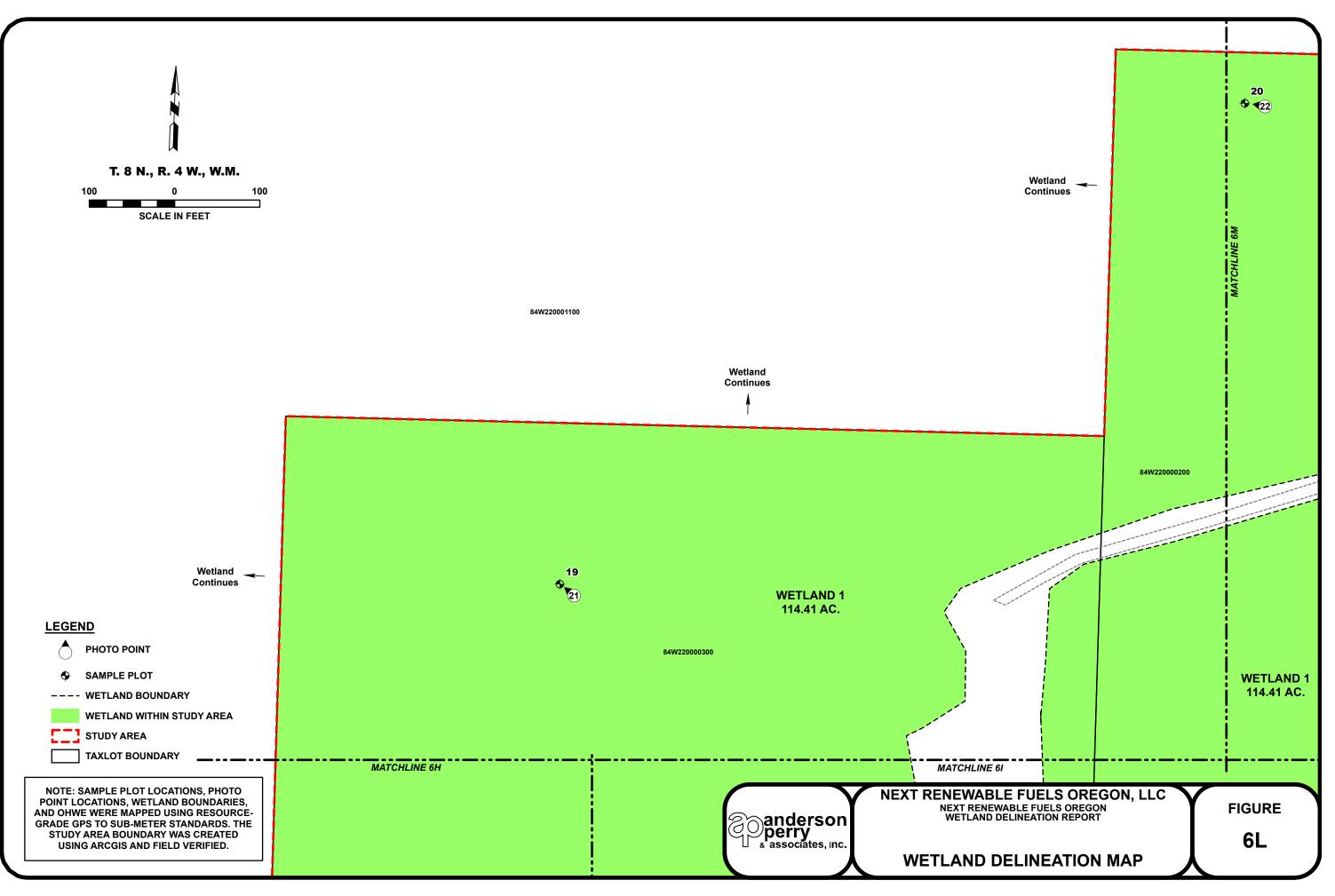


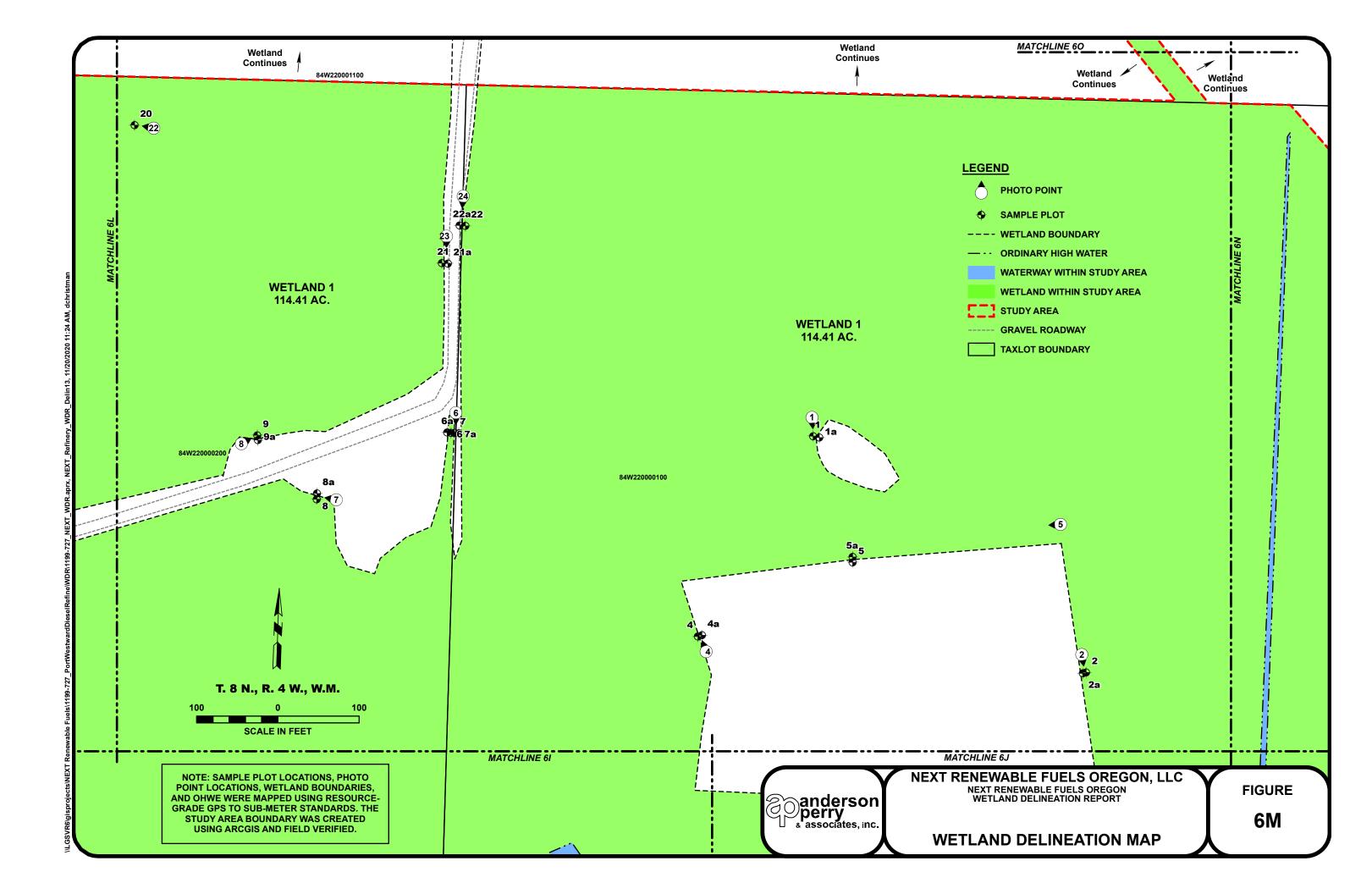


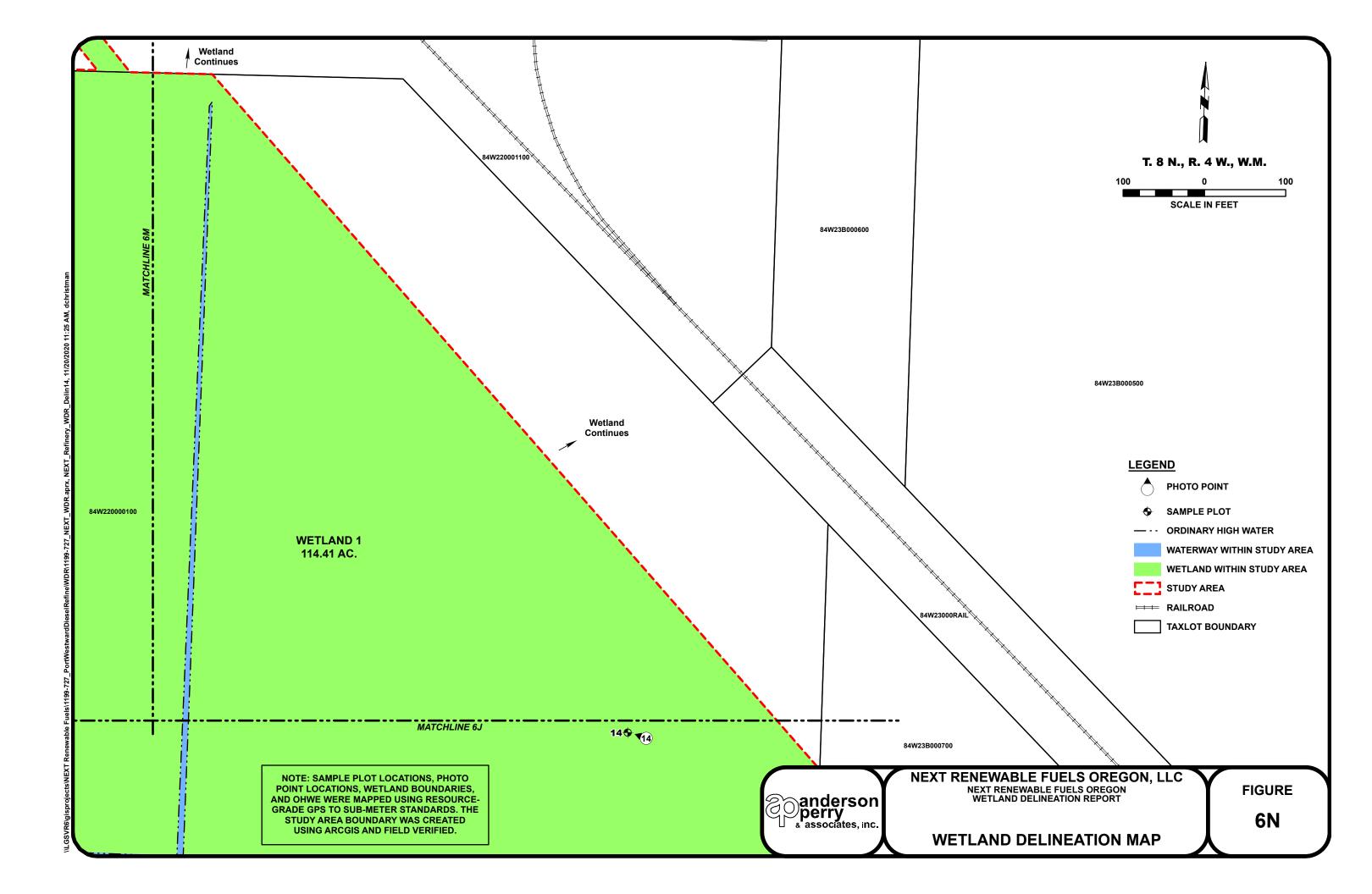


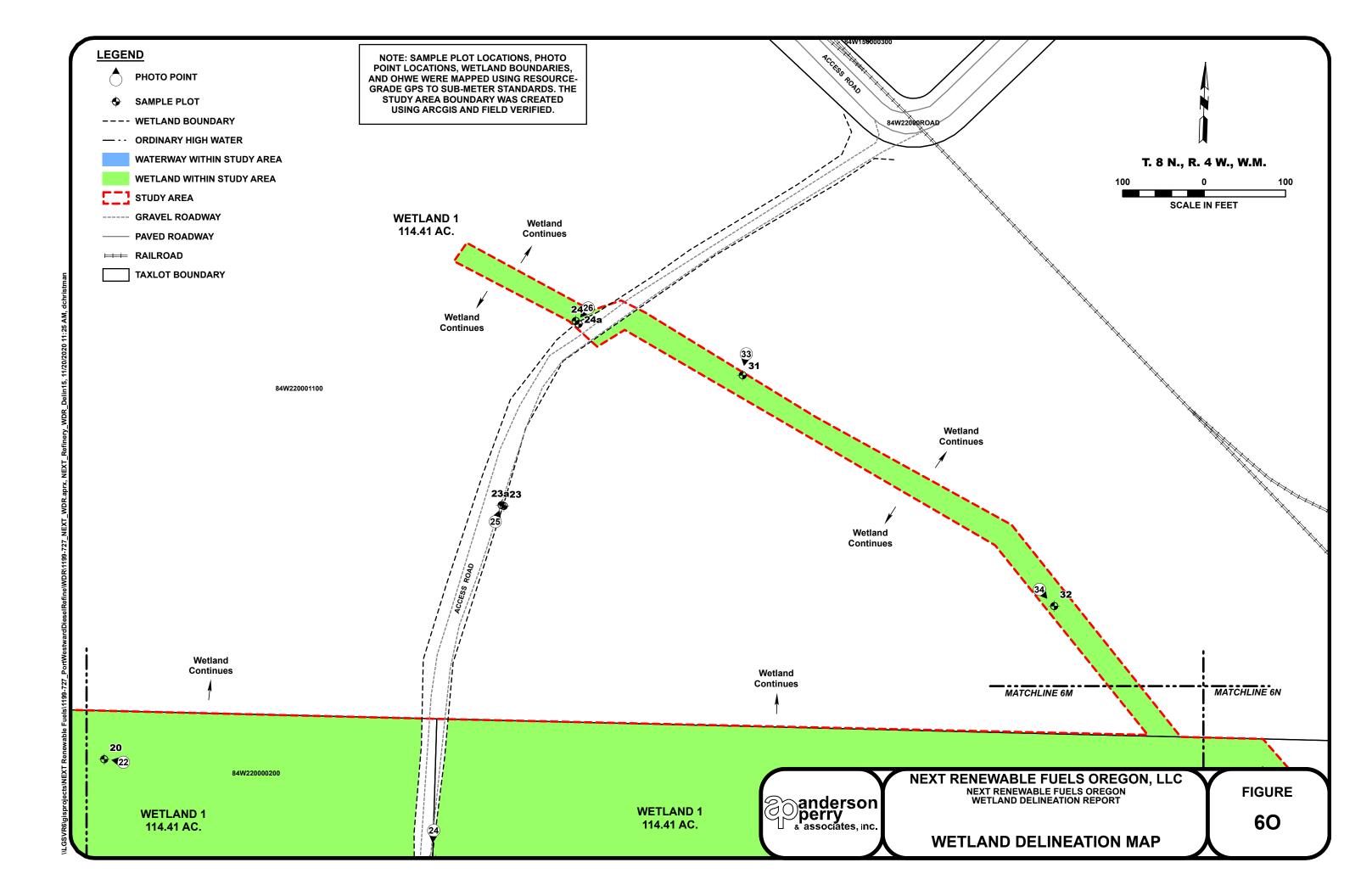












# **APPENDIX B** Wetland Determination Data Forms

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling D	ate: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			S	ampling Point: <u>1</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16743570</u>	Long: <u>-123.16026630</u>	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	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)	

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? Yes
Remarks:		

vederation – ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
Total Cover = <u>0</u>				FAC species $100 \times 3 = 300$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. <u>Poa pratensis</u>	<u>80</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals:100(A)300(B)
2. <u>Lolium perenne</u>	<u>10</u>	Yes	FAC	$\frac{100}{100}$ (A) $\frac{500}{100}$ (B)
3. <u>Trifolium repens</u>	<u>10</u>	Yes	FAC	Prevalence Index = $B/A = 3.00$
4.				$\frac{1}{2.00}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$\underline{X}$ 2 – Dominance Test >50%
8.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11. Tetel Course 400				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	-			

Profile Des	 Matı		•		eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
(inches)										
<u>0-6</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Sandy Clay Loam			
6-16	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	<u>Silty Clay Loam</u>			
<sup>1</sup> Type: C-	Concentration D	-Depletion	n, RM=Reduced Ma	atrix CS-(	Covered o	Costed S	and Grains <sup>2</sup> 1 o	cation: PL=Pore Lining, M=Matrix		
						Coaleu 3		<u> </u>		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
<u> </u>	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and		
	/ Mucky Mineral (			•	ark Surface			wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.		
	e Layer (if presen	t):								
Туре:										
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>		
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	s (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Stunted or Stressed Plants (D1)(LRR A)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>Yes</u>	Depth (inches): <u>15</u>	Wetland Hvd	Irology Present? Yes
includes capillary fringe)	tions), if availa	on <u> </u>	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>1a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	(, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16742900</u>	Long: <u>-123.16023350</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1A	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

· · · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
Total Cover = <u>0</u>				FAC species $100 \times 3 = 300$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$
1. Lolium perenne	<u>40</u>	Yes	FAC	
2. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>300</u> (I
3. <u>Trifolium repens</u>	<u>20</u>	Yes	FAC	Prevalence Index = $B/A = 3.00$
4.				$\frac{1}{3.00}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$\underline{X}$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporti
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u> </u>				must be present, unless disturbed or problematic.
2.				, . , . ,
Total Cover = <u>0</u>				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mati	rix		Redox I	eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
(inches)										
<u>0-9</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam			
9-17	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>			
<u>17-27</u>	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>			
1Tupo: C-	Concontration D	-Doplatio	PM-Poducod M	striv CC-	Covered o	Costod	and Grains 21 a	cation: DI-Dara Lining, M-Matrix		
-Type: C=	Concentration, D	=Depletio	n, RM=Reduced Ma	atrix, CS=0		Coaled		cation: PL=Pore Lining, M=Matrix		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
<u> </u>	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.		
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>No</u>		
Remarks:								•		

Surface Water (A1)	urface Water (A1)Water-Stained Leaves (B9)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	s (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B	<li>Other (Explain in Remarks)</li>	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B	88)			
Field Observations:			1	
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? Yes	Depth (inches): <u>16</u>			
(includes capillary fringe) Wetland H			drology Present? <u>No</u>	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling	g Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>2</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16663920</u>	Long: <u>-123.15890510</u>	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	f year? Yes(if no, ex	plain in Remarks.)		
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				Demonst of Deminent Crossies
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> )				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $25$ x 2 = $50$
Total Cover = <u>0</u>				FAC species $\underline{80}$ x 3 = $\underline{240}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Lolium perenne	<u>30</u>	Yes	<u>FAC</u>	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 105 (A) 290 (B)
2. Juncus balticus	<u>20</u>	Yes	FACW	Column Totals: <u>105</u> (A) <u>290</u> (B)
3. <u>Rumex crispus</u>	<u>20</u>	Yes	FAC	Drevelance Index D/A 2.70
4. <u>Poa palustris</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = $B/A = 2.76$
5. <u>Phalaris arundinacea</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	
6.				Hydrophytic Vegetation Indicators:
7.				<ul> <li>1 –Rapid Test for Hydrophytic Vegetation</li> <li>X 2 – Dominance Test &gt;50%</li> </ul>
8.				
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>105</u>				9 – Wetahu Holl-Vascular Flants Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
···· ··· <u>·</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	1		•	· · · · · · · · · · · · · · · · · · ·

Profile Des	<u>Matr</u>	rix	•	Redox I	eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	F	Remarks	
(inches)										
<u>0-8</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam			
8-17	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	M	<u>Silty Clay Loam</u>			
17	Concentration D	Devilation					and Cusing 21 a	antinus Di		
Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: PL=	Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise ı	noted.)			Indicators	for Problematic Hydric Soils <sup>3</sup> :	
Histos	Histosol (A1)Sandy Redox (S5)							2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>    X  </u> Re	dox Dark	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed	l or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (ind	ches): <u>0</u>							Hydric So	il Present? <u>Yes</u>	
Remarks:								•		

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	; Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:			l	
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>Yes</u>	Depth (inches): <u>15</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	\A/atland Llug	helen: Dresent? Vec	
includes capillary fringe)	Irology Present? Yes			

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>2a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16663530</u>	Long: <u>-123.15894310</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

•	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $10$ x 2 = $20$
Total Cover = <u>0</u>				FAC species $\frac{85}{5}$ x 3 = $\frac{255}{5}$
Herb Stratum (Plot size: 4 m <sup>2</sup> )				FACU species $5 \times 4 = 20$
1. Lolium perenne	<u>40</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>295</u> (B)
3. <u>Rumex crispus</u>	<u>40</u> <u>5</u>	No	FAC	
4. Juncus balticus	<u>10</u>	No	FACW	Prevalence Index = $B/A = 2.95$
5. <u>Cirsium arvense</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	
6.				Hydrophytic Vegetation Indicators:
7.				1 – Rapid Test for Hydrophytic Vegetation
8.				$X_2$ 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				5 – Wetland Non-Vascular Plants <sup>2</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				must be present, unless disturbed of problematic.
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	<u>Mati</u>				eatures		initia che absence o			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-11</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam			
11-18	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
<u>18-26</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	M	Silty Clay Loam			
1										
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	<sup>r</sup> Coated S	and Grains. <sup>2</sup> Lo	cation: PL=	Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators	s for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed	d or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric So	bil Present? <u>No</u>	
Remarks:								L		

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Hydrogen Sulfide Odor (C1)		
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soil	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? No	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? <u>Yes</u>	Depth (inches): <u>20</u>	Wotland Hud	release Brecont 2 No	
includes capillary fringe)	wetianu nyu	rology Present? <u>No</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/27/2</u>	018
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Poir	ıt: <u>3</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convert	k, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16620540</u>	Long: <u>-123.16026560</u>	Datum: <u>WGS84</u>	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none		
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers in Remarks.)	

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

· · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $20$ x 1 = $20$
5.				FACW species $\frac{30}{50}$ x 2 = $\frac{60}{150}$
Total Cover = <u>0</u>				FAC species $50 \times 3 = 150$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Lolium perenne</u>	<u>20</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals:100(A)230(B)
2. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>230</u> (B)
3. <u>Mentha x piperita</u>	<u>10</u>	<u>No</u>	FACW	Prevalence Index = $B/A = 2.30$
4. <u>Carex nebrascensis</u>	<u>20</u>	<u>Yes</u>	<u>OBL</u>	Prevalence index – $B/A = 2.30$
5. Juncus balticus	<u>20</u>	Yes	FACW	Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Frevalence index is $\leq$ 3.0 <sup>-1</sup> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	•	•	•	· · · ·

	 Mati		•		eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remark	S	
(inches)										
<u>0-7</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
7-16	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>			
1Tuno: C-	Concontration D	-Doplation	n, RM=Reduced Ma	atrix CS-(	Covered o	Costod S	and Crains <sup>2</sup> Lo	ation: DI - Doro Li	ning M-Matrix	
-Type: C=	Concentration, D	=Depietion	i, Rivi=Reduced Ivia	atrix, CS=0	Lovered of	Coaled S		ation: PL=Pore Li	ning, wi=watrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Pro	oblematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
<u> </u>	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallov	w Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Expla	in in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark S	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or pro	blematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric Soil Pres	ent? <u>Yes</u>	
Remarks:										

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
X_Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)		
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6)		Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:			1	
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? Yes	Depth (inches): <u>14</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>9</u>	Motored Live		
(includes capillary fringe) Wetland Hy			drology Present? Yes	

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>3a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16621940</u>	Long: <u>-123.16026510</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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?	<u>No</u>	Is the Sampled Area within a Wetland? No
Remarks:		

· · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
Total Cover = <u>0</u>				FAC species $\underline{90}$ x 3 = $\underline{270}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $10 \times 4 = 40$
1. Lolium perenne	<u>30</u>	<u>Yes</u>	<u>FAC</u>	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 310 (B)
2. <u>Poa palustris</u>	<u>60</u>	<u>Yes</u>	FAC	Column Totals: <u>100</u> (A) <u>310</u> (B)
3. Matricaria discoidea	<u>10</u>	<u>No</u>	FACU	Prevalence Index = $B/A = 3.10$
4.				Prevalence muex – $B/A = \frac{5.10}{2}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				$3$ - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	1		•	······································

SOIL

Profile De	scription: (Describ	pe to the d	epth needed to do	ocument	the indicat	tor or con	firm the absence o	f indicato	ors.)
	Mat	rix		Redox I	-eatures		-		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-12</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		some gravel
12-18	<u>10YR 3/2</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	M	Silty Clay Loam		
<u>18-25</u>	<u>10YR 3/2</u>	<u>95</u>	10YR 4/6	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
1Tunou C-	Concentration D	-Doplation	n, RM=Reduced Ma	atrix CC-	Covered o	Contod	and Crains 21 a	antion, DI	-Doro Lining M-Motrix
-Type: C=	-concentration, D	=Depietion	i, Rivi=Reduced Ivia	atrix, CS=0	Lovered of	Coaled		Cation: Pl	L=Pore Lining, M=Matrix
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :									
Histos	Histosol (A1)Sandy Redox (S5)					2 cr	2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red	l Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Depleted Below Dark Surface (A11)Depleted Matrix (F3)									
·						<sup>3</sup> Indicators of hydrophytic vegetation and			
	y Mucky Mineral (	-			ark Surface	-		wetland hydrology must be present, unless	
	y Gleyed Matrix (S	-			essions (F8				ed or problematic.
			<u></u> ite	uox Depr		,			
	ve Layer (if presen	t):							
Type:								Undrice	Soil Present? No
Depth (in	ches): <u>0</u>							Hyuric :	
Remarks:									

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)		
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6)		Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? Yes	Depth (inches): <u>22</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>19</u>	Wotland Hyp	Irology Present? <u>No</u>	
(includes capillary fringe) Wetland H			ble:	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling	Date: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>4</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16674800</u>	Long: <u>-123.16079500</u>	Datum: <u>WGS84</u>	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none		
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)		
Are Vegetation, Soil, or Hydrology significantly disturbed?	1	Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:		

Vederation – Ose sciencing names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.		-		That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>66</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $20$ x 2 = $40$
Total Cover = <u>0</u>				FAC species $40$ x 3 = $120$ FACU species $20$ x 4 = $80$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $20$ x 4 = $80$ UPL species $0$ x 5 = $0$
1. <u>Poa palustris</u>	<u>40</u>	<u>Yes</u>	FAC	Column Totals: $\underline{80}$ (A) $\underline{240}$ (B)
2. <u>Trifolium repens</u>	<u>20</u>	Yes	FACU	$\frac{240}{10}$
3. Juncus balticus	<u>20</u>	Yes	FACW	Prevalence Index = $B/A = 3.00$
4.				
5.				Hydrophytic Vegetation Indicators:
6. 7.				1 –Rapid Test for Hydrophytic Vegetation
7. 8.				X 2 – Dominance Test >50%
8. 9.				$\overline{X}$ 3 - Prevalence Index is $\leq 3.0^1$
9. 10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
Total Cover = <u>80</u>				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>20</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	1	1	I	The second

6-17 <u>10YR 3/2</u>	<u>100</u> 95	olor (moist) <u>10YR 4/6</u>	% <u>0</u> <u>5</u>	Type <sup>1</sup>	Loc <sup>2</sup>	Texture <u>Silty Clay Loam</u> <u>Silty Clay Loam</u>	Remarks	
0-6 <u>10YR 3/2</u> 6-17 <u>10YR 3/2</u>	<u>95</u>			<u>C</u>	<u>RC</u>			
6-17 <u>10YR 3/2</u>	<u>95</u>			<u>C</u>	<u>RC</u>			
			<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>		
	Depletion, RM							
	Depletion, RM							
	Depletion, RM							
17	Depletion, RM							
	Depletion, RN							
17	Depletion, RM							
1T	Depletion, RN							
<sup>1</sup> Type: C=Concentration, D=De		/I=Reduced Ma	trix, CS=C	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :								
Histosol (A1)			ndy Redox	-			2 cm Muck (A10)	
Histic Epipedon (A2)			•	. ,			2 cm Mack (A10) Red Parent Material (TF2)	
Black Histic (A3)	)Stripped Matrix (S6) Loamy Mucky Mineral (F1) ( <b>except MLRA 1</b> )				Very Shallow Dark Surface (TF12)			
Depleted Below Dark Surface (A11)      Depleted Matrix (F3)        Thick Dark Surface (A12)      X Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation								
Thick Dark Surface (A12)				-	•		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless	
Sandy Mucky Mineral (S1)	-			rk Surface			disturbed or problematic.	
Sandy Gleyed Matrix (S4)	)	Re	dox Depre	essions (F8	3)			
Restrictive Layer (if present):	:							
Туре:								
Depth (inches): <u>0</u>							Hydric Soil Present? <u>Yes</u>	
Remarks:								

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)		
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B	8)			
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>			
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>14</u>	Wetland Hy	drology Present? <u>Yes</u>	
includes capillary fringe)		tions), if availa	illingy Flesent: 165	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>4a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16675300</u>	Long: <u>-123.16077600</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers in Remarks.)

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

Hydrophytic Vegetation Present?	' <u>No</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

Vederation – Ose scientific fiames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>50</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $10$ x 2 = $20$
Total Cover = <u>0</u>				FAC species $50$ x 3 = $150$ FACU species40x 4 =160
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				$\begin{array}{ccc} FACO \text{ species} & \underline{40} & x & 4 & \underline{160} \\ \text{UPL species} & \underline{0} & x & 5 & \underline{0} \end{array}$
1. <u>Poa palustris</u>	<u>50</u>	<u>Yes</u>	FAC	Column Totals: $100$ (A) $330$ (B)
2. Juncus balticus	<u>10</u>	No	FACW	$\frac{100}{100}$
3. <u>Trifolium repens</u>	<u>40</u>	Yes	FACU	Prevalence Index = B/A = <u>3.30</u>
4.				
5.				Hydrophytic Vegetation Indicators:
6. 7.				1 –Rapid Test for Hydrophytic Vegetation
7. 8.				2 – Dominance Test >50%
8. 9.				3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
5. 10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet)
Total Cover = $100$				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2. Tatal Gauge 2				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? No
Remarks: grazed pasture	1	1	1	/···/···

	Mat				eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-7</u>	<u>10YR 3/3</u>	<u>100</u>					Sandy Clay Loam			
7-19	<u>10YR 3/2</u>	<u>100</u>					Silty Clay Loam			
<u>19-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam			
1										
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Str	ripped Ma	atrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	v Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	v Gleyed Matrix (S	4)	Re	Redox Depressions (F8)					ed or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (ind	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>	
Remarks:								1		

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	(except MLRA 1,2,4A, and 4B)		
Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	 Recent Iron Reduction in Tilled Soils (C6)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B	7)Other (Explain in Remarks)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B	8)			
Field Observations:				
Surface Water Present? No	Depth (inches): <u>0</u>			
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>18</u>	Wetland Hy	Irology Present? No	
includes capillary fringe)		wetianu nyt	TOTOgy Fresent: NO	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling	g Date: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>5</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16701940</u>	Long: <u>-123.16007280</u>	Datum: <u>WGS84</u>	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none		
Are climatic/hydrologic conditions on the site typical for this time or	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:	

vederation – ose scientific fiames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{20}{20}$ x 2 = $\frac{40}{210}$
Total Cover = <u>0</u>				FAC species $\underline{80}$ x 3 = $\underline{240}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. Lolium perenne	<u>30</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 280 (B)
2. <u>Rumex crispus</u>	<u>20</u>	Yes	FAC	Column rotals. $100$ (A) $200$ (B)
3. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Prevalence Index = $B/A = 2.80$
4. Juncus balticus	<u>20</u>	Yes	FACW	$\frac{1}{2.80}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	•	•		· · · · · · · · · · · · · · · · · · ·
~ ·				

FIONE Des	Mati			Redox F	eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-5</u>	<u>10YR 3/2</u>	<u>100</u>					Silty Clay Loam			
5-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: PL:	=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	n Muck (A10)	
Histic	Epipedon (A2)		Sti	ripped Ma	trix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (Fe	5)		<sup>3</sup> Indicato	ors of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	irk Surface	e (F7)			hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	d or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (ind	ches): <u>0</u>							Hydric S	oil Present? Yes	
Remarks:								1		
Rellidi KS:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Sol	ls (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>15</u>		
Saturation Present? Yes	Depth (inches): <u>10</u>	Motond Ibu	helen: Dresent? Vec
includes capillary fringe)	Irology Present? <u>Yes</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/27/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>5a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16700440</u>	Long: <u>-123.16007180</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

Second and a second first frames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{5}{25}$ x 2 = $\frac{10}{255}$
Total Cover = <u>0</u>				FAC species $95$ x 3 = $285$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species 0 x 5 = 0
1. <u>Lolium perenne</u>	<u>40</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 295 (B)
2. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	Column rotals. $100$ (A) $235$ (B)
3. <u>Rumex crispus</u>	<u>5</u> 5	<u>No</u>	FAC	Prevalence Index = $B/A = 2.95$
4. Juncus balticus	<u>5</u>	<u>No</u>	FACW	$\frac{1}{2.55}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				$\underline{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )	1			<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture		1	1	, , , , , , , , <u></u>

Prome Des	 Mati	rix	•	Redox I	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-10</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		
10-18	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>18-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>		
1Type: C-	Concontration D	-Doplatio	n, RM=Reduced Ma	atrix CS-1	Covered o	Costod S	and Grains <sup>2</sup> 1 o	cation: PL=Pore Lining, M=Matrix	
Type. C-	Concentration, D	-Depietioi	i, RM-Reduced Ma	atrix, C3–0		Coaleu S			
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Туре:									
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>No</u>	
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)	
Drift Deposits (B3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soil	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	RA)	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? Yes	Depth (inches): <u>18</u>		
(includes capillary fringe)		Wetland Hyd	Irology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>	<u>l</u>	Sampling	g Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>6</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convert	x, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16738840</u>	Long: <u>-123.16203620</u>	Datum: WGS84	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none		
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

Vederation – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{20}$ x 2 = $\underline{40}$
Total Cover = <u>0</u>				FAC species $\underline{80}$ x 3 = $\underline{240}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Juncus balticus	<u>20</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. Agrostis capillaris	<u>30</u>	Yes	FAC	Developed Index D(A 2.00
4.				Prevalence Index = $B/A = 2.80$
5.				Hudronhutic Vagatation Indicators
6.				Hydrophytic Vegetation Indicators: 1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
<u>_</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture		•		

0-8 8-17       10YR 3/2 10YR 4/2       0 95       10YR 5/6       0 5       C       RC       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)         Histic Epipedon (A2)      Stripped Matrix (S6)      2 cm Muck (A10)         Black Histic (A3)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)         Depleted Below Dark Surface (A11)      Depleted Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if present):      Redox Depressions (F8)       Hydric Soil Present? Yes		<u>Mati</u>				eatures		initiatine absence o		,
0-8 8-17       10YR 3/2 10YR 4/2       0 95       10YR 5/6       0 5       C       RC       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)         Histic Epipedon (A2)      Stripped Matrix (S6)      2 cm Muck (A10)         Black Histic (A3)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)         Depleted Below Dark Surface (A11)      Depleted Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if present):      Redox Depressions (F8)       Hydric Soil Present? Yes	Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
8-17       10YR 4/2       95       10YR 5/6       5       C       RC       Silty Clay Loam         "Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       2Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histosol (A1)	(inches)									
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :		<u>10YR 3/2</u>						Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	8-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 5/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	1									
Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain on Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	<sup>1</sup> Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=0	Covered of	r Coated S	and Grains. <sup>2</sup> Lo	cation: Pl	L=Pore Lining, M=Matrix
Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Gther (Explain of Nydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Mucky Mineral (S1)      Redox Depressions (F8)      Miter Soil Present? Yes         Restrictive Layer (if present):	Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1)	Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cr	n Muck (A10)
Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       Depleted Matrix (F3)       Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Sandy Mucky Mineral (S1)       X Depleted Dark Surface (F7)       disturbed or problematic.         Sandy Gleyed Matrix (S4)       Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:       Hydric Soil Present? Yes	Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red	l Parent Material (TF2)
	Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Vei	ry Shallow Dark Surface (TF12)
Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Mucky Mineral (S1)      X Depleted Dark Surface (F7)       wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	er (Explain in Remarks)
Sandy Mucky Mineral (S1)       XDepleted Dark Surface (F7)       wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
	Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)			
Restrictive Layer (if present):     Hydric Soil Present? Yes       Depth (inches): 0     Hydric Soil Present? Yes	Sandy	/ Mucky Mineral (	S1)	<u>    X  </u> De	pleted Da	rk Surface	(F7)			
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	ed or problematic.
Depth (inches): 0 Hydric Soil Present? Yes	Restrictiv	e Layer (if presen	t):							
	Туре:									
Remarks:	Depth (in	ches): <u>0</u>							Hydric S	Soil Present? <u>Yes</u>
	Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)			
Drift Deposits (B3)	Shallow Aquitard (D3)				
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)			
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present? <u>No</u>	Depth (inches):				
Water Table Present? <u>No</u>	Depth (inches):				
Saturation Present? Yes	Depth (inches): <u>15</u>				
(includes capillary fringe)		wetland Hyd	Hydrology Present? Yes		

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>6a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convert	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16739080</u>	Long: <u>-123.16205380</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers 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?	<u>No</u>	Is the Sampled Area within a Wetland? No
Remarks:		

Section of the sciencific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				Demonst of Deminerat Caseline
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				
2.				Prevalence Index worksheet: Total % Cover of: Multiply by:
3.				
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$ FACW species10x 2 =20
5.				FACW species $10$ x 2 = $20$ FAC species80x 3 = $240$
Total Cover = <u>0</u>				FACU species $\underline{0}$ x 3 = $\underline{240}$ FACU species $\underline{0}$ x 4 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				$\begin{array}{ccc} UPL species & \underline{0} & x + \underline{-} & \underline{0} \\ UPL species & \underline{0} & x + 5 = \underline{0} \end{array}$
1. Agrostis capillaris	<u>40</u>	Yes	FAC	Column Totals: $\underline{90}$ (A) $\underline{260}$ (B)
2. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	
3. Juncus balticus	<u>10</u>	No	FACW	Prevalence Index = $B/A = 2.89$
4.				<u></u>
5.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^1$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet)
Total Cover = <u>90</u>				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mati	rix		Redox F	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-9</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
9-15	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>15-25</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
17	Concentration D	Develoption					and Cusing 21 a		Deve Linite - NA Markein
-Type: C=	Concentration, D	=Depletio	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: PL	=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histo	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	n Muck (A10)
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicato	ors of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			hydrology must be present, unless
Sandy	/ Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	d or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric S	oil Present? <u>No</u>
Remarks:								1	

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	RA)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? Yes	Depth (inches): <u>19</u>		lasta en Dua a esta Na
(includes capillary fringe)	toring well, aerial photos, previous inspec	-	Irology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery Cit	ty/County: <u>Columbia</u>		Sampling	g Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>7</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16739210</u>	Long: <u>-123.16201950</u>	Datum: <u>WGS84</u>	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none		
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation, Soil, or Hydrology significantly disturbed?	?	Are "Normal Circumstances	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers 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:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				Prevalence Index worksheet:
2.				
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $30$ x 2 = $60$
Total Cover = <u>0</u>				FAC species $70$ x 3 = $210$ FACU species 0 x 4 = 0
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. Juncus balticus	<u>30</u>	Yes	FACW	Column Totals: 100 (A) 270 (B)
2. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	$\frac{100}{100}$ (A) $\frac{270}{100}$ (B)
3. <u>Agrostis capillaris</u>	<u>20</u>	Yes	FAC	Prevalence Index = $B/A = 2.70$
4.				$\frac{1}{2.70}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$\underline{X}$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Para Ground in Harb Strature 0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:				

	Mati	rix		Redox F	eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-9</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam	
9-19	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains. <sup>2</sup> Lo	ocation: PL=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
Histos	ol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)
Histic	Epipedon (A2)		Str	Stripped Matrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	Depleted Below Dark Surface (A11) Z_Depleted Matrix (F3)							
Thick							<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Гуре:		-,						
Depth (ind	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	able (A2) (except MLRA 1,2,4A, and 4B)Drainage Patt		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	ils (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LF	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? <u>No</u>	Depth (inches): <u>16</u>	Wotland Uve	kalogy Bracont? Vac	
(includes capillary fringe)		wetianu nyt	Irology Present? Yes	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>7a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Transmission</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16739230</u>	Long: <u>-123.16199890</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present?	Yes	
Hydric Soil Present?	<u>No</u>	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

Tree Stratum (Plot size: <u>0</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4. Total Cover =0				Species Across All Strata: <u>2</u> (B)
				Percent of Dominant Species
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> ) 1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. 2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $10$ x 2 = $20$
Total Cover = <u>0</u>				FAC species90x 3 =270FACU species $\underline{0}$ x 4 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )	10		540	$\frac{1}{2} \text{ UPL species } \frac{1}{2} \text{ VPL species } \frac{1}{2} \text{ x} \text{ x} \text{ x} = \frac{1}{2}$
<ol> <li><u>Agrostis capillaris</u></li> <li>Poa palustris</li> </ol>	<u>40</u> 50	Yes Yes	FAC FAC	Column Totals: 100 (A) 290 (B
3. Juncus balticus	<u>10</u>	No	FACW	
4.			<u></u>	Prevalence Index = $B/A = 2.90$
5.				
6.				Hydrophytic Vegetation Indicators: 1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				$\frac{X}{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$
9. 10.				4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
Total Cover = <u>100</u>				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				······································
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	•	•		· · · · · · · · · · · · · · · · · · ·

Tronic De.	Mati				eatures		firm the absence of	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
<u>0-8</u>	10YR 3/2	<u>100</u>		<u>0</u>			Silty Clay Loam	
8-15	10YR 4/2	100		0			Silty Clay Loam	
<u>15-26</u>	10YR 4/3	<u>97</u>	<u>10YR 4/4</u>	3	<u>C</u>	M	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletio	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :								
<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)
<u> </u>	Epipedon (A2)		St	ripped Ma	itrix (S6)			Red Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)			
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>No</u>
Remarks:								
l								

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	n Water Table (A2) (except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B1	13)	Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C	21)	Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres al	ong Living Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iror	n (C4)	FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in	Tilled Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plant	ts (D1)( <b>LRR A</b> )	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imager	y (B7)Other (Explain in Remark	s)	
Sparsely Vegetated Concave Surfac	e (B8)		
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):		
(includes capillary fringe)		Wetland Hyd	drology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling	g Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>8</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16716800</u>	Long: <u>-123.16266800</u>	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	f year? Yes(if no, ex	plain in Remarks.)		
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)	

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

Tree Stratum (Plot size: 0.)	Absolute %	Dominant	Indicator	Dominance Test worksheet: Number of Dominant Species
<u>Tree Stratum</u> (Plot size: <u>0</u> ) 1.	Cover	Species?	Status	That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				Percent of Dominant Species
Sapling/Shrub Stratum (Plot size: 0)				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. 2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $20$ x 1 = $20$
5.				FACW species $10$ x 2 = $20$
Total Cover = <u>0</u>				FAC species $\underline{70}$ x 3 = $\underline{210}$ FACU species $\underline{0}$ x 4 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )	20		540	$\frac{1}{1} \frac{1}{1} \frac{1}$
<ol> <li>Lolium perenne</li> <li>Poa palustris</li> </ol>	<u>30</u> <u>40</u>	<u>Yes</u> Yes	FAC FAC	Column Totals: $100$ (A) $250$ (B)
3. Carex nebrascensis	<u>40</u> 20	No	OBL	
4. Juncus balticus	10	No	FACW	Prevalence Index = $B/A = 2.50$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7. 8.				X = Dominance Test > 50%
8. 9.				$\overline{X}$ 3 - Prevalence Index is $\leq 3.0^1$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet) 5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				S – Wetland Non-Vascular Plants <sup>2</sup> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	•			· · · · · · <u>—</u>

	<u>Mati</u>				eatures		initiation absence o		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-9</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
9-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: PL:	=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	n Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicato	ors of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland	hydrology must be present, unless
Sandy	/ Gleyed Matrix (S	4)	Re	dox Depr	essions (F	3)		disturbe	d or problematic.
Restrictiv	e Layer (if presen	t):							
Type:	,								
Depth (in	ches): <u>0</u>							Hydric S	oil Present? Yes
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B	)	Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	ving Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Soils (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)	)(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery	(B7)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface	e (B8)		
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>		
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>		
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>	Wotland Hy	drology Present? Yes
(includes capillary fringe)	monitoring well, aerial photos, previous ins	wetianu nyt	arology Present: 185

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>8a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16718700</u>	Long: <u>-123.16266700</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:		

Cole ration – ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)	
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata: <u>2</u> (B)	
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species	<i>i</i>
1.				That Are OBL, FACW, or FAC: <u>100</u> (A	(/B)
2.				Prevalence Index worksheet:	
3.				Total % Cover of: Multiply by:	
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$	
5.				FACW species $\frac{10}{10}$ x 2 = $\frac{20}{10}$	
Total Cover = <u>0</u>				FAC species $\underline{90}$ x 3 = $\underline{270}$	
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$	
1. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$	(D)
2. Lolium perenne	<u>40</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>290</u>	(B)
3. Juncus balticus	<u>10</u>	<u>No</u>	FACW	Prevalence Index = B/A = <u>2.90</u>	
4.				Prevalence index – $B/A = \frac{2.90}{2.90}$	
5.				Hydrophytic Vegetation Indicators:	
6.				1 –Rapid Test for Hydrophytic Vegetation	
7.				$\underline{X}$ 2 – Dominance Test >50%	
8.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$	
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supp	orting
10.				data in Remarks or on a separate sheet)	Joi ting
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>	
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Exp	olain)
					,
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrolog	şy
1.				must be present, unless disturbed or problema	
2.					
Total Cover = <u>0</u>					
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes	
Remarks: grazed pasture					

SOIL

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

	Mat	rix		Redox I	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-12</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>					
12-16	<u>10YR 4/3</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
<u>16-26</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix									
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 c	m Muck (A10)
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Rec	d Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	ox Dark Surface (F6)				tors of hydrophytic vegetation and
<u>    S</u> andy	v Mucky Mineral (	S1)	De	pleted Dark Surface (F7)					d hydrology must be present, unless
<u>    S</u> andy	v Gleyed Matrix (S	4)	Re	edox Depressions (F8)				disturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric	Soil Present? No
Remarks:								1	

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)			
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	lor (C1)Geomorphic Position (E			
Drift Deposits (B3)	Shallow Aquitard (D3)				
Algal Mat or Crust (B4)	FAC-Neutral Test (D5)				
Iron Deposits (B5)	Raised Ant Mounds (D6)(LRR A)				
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	RR A)	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (E	37)Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (E	38)				
Field Observations:			1		
Surface Water Present? No	Depth (inches): <u>0</u>				
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>				
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>	Watland Hy	trology Procent2 No		
includes capillary fringe)		wetianu nyt	rdrology Present? <u>No</u> able:		

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>	<u>l</u>	Sampling	g Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>				Sampling Point: <u>9</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16736210</u>	Long: <u>-123.16296360</u>	Datum: WGS84	
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1A		
Are climatic/hydrologic conditions on the site typical for this time or	f year? <u>Yes</u> (if no, ex	plain in Remarks.)		
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	s" present? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	wers in Remarks.)	

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

the Sampled Area within a Wetland? Yes
t

	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>3</u> (A)
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata:	<u>3</u> (B)
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species	100 (4/0)
1.				That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
2.				Prevalence Index worksheet:	
3.				<u>Total % Cover of:</u> <u>Multiply by</u>	
4.				OBL species $10$ x 1 =	<u>10</u>
5.				FACW species $\frac{20}{70}$ x 2 =	<u>40</u>
Total Cover = <u>0</u>				FAC species $\frac{70}{2}$ x 3 =	<u>210</u>
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species <u>0</u> x 4 = UPL species <u>0</u> x 5 =	<u>0</u>
1. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	Column Totals: 100 (A)	<u>0</u> 260 (B)
2. <u>Lolium perenne</u>	<u>30</u>	Yes	FAC	$\underline{100}$ (A)	<u>200</u> (B)
3. Juncus balticus	<u>20</u>	Yes	FACW	Prevalence Index = $B/A = 2.60$	
4. <u>Carex nebrascensis</u>	<u>10</u>	No	<u>OBL</u>	Frevalence muex – $B/A = 2.00$	
5.				Hydrophytic Vegetation Indicators:	
6.				1 –Rapid Test for Hydrophytic Ve	actation
7.				$\underline{X}$ 2 – Dominance Test >50%	getation
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$	
9.				$\underline{-}$ 4 - Morphological Adaptions <sup>1</sup> (Pro	wido supporting
10.				data in Remarks or on a separate sheet)	ovide supporting
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>	1
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetat	
					(
Woody Vine Stratum (Plot size: _0_)				<sup>1</sup> Indicators of hydric soil and wetland	hydrology
1.				must be present, unless disturbed or	
2.					
Total Cover = <u>0</u>					
% Bare Ground in Herb Stratum: <u>0</u>				Hudronbutic Vegetation Procent? Veg	
Remarks: grazed pasture	1	1		Hydrophytic Vegetation Present? Yes	2
nemarks. grazeu pasture					

	<u>Mati</u>				eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-7</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam	
7-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	ocation: PL=Pore Lining, M=Matrix
Hydric So	il Indicators: (Apr	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
-			-		-			•
	sol (A1)			ndy Redo				2 cm Muck (A10)
	Epipedon (A2)			ripped Ma		(54) (		Red Parent Material (TF2)
	Histic (A3)			•	•		ept MLRA 1)	Very Shallow Dark Surface (TF12)
·	ogen Sulfide (A4)			· ·	ed Matrix	(F2)		Other (Explain in Remarks)
·	ted Below Dark S			pleted M	. ,			
	Dark Surface (A12	-			Surface (F	•		<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	/ Gleyed Matrix (S	4)	Re	dox Depr	essions (F	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)	
Drift Deposits (B3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
ield Observations:			
Surface Water Present? No	Depth (inches):		
Nater Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>Yes</u>	Depth (inches): <u>15</u>	Wotland Hyp	Irology Present? Yes
includes capillary fringe)		wetianu nyt	inology Flesent: Tes

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>9a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16734410</u>	Long: <u>-123.16296710</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1A	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	′′ present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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?	<u>No</u>	Is the Sampled Area within a Wetland? No
Remarks:		

VEGETATION – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
<u></u>				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{10}{10}$ x 2 = $\frac{20}{10}$
Total Cover = <u>0</u>				FAC species $\underline{90}$ x 3 = $\underline{270}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Lolium perenne	<u>40</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>290</u> (B
3. Juncus balticus	<u>10</u>	<u>Yes</u>	FACW	$P_{rovelence}$ index = $P/A = 2.00$
4.				Prevalence Index = B/A = <u>2.90</u>
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				$X$ 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Matr	rix		<u>Redox l</u>	-eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>18-27</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
0-11	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>11-18</u>	<u>10YR 3/2</u>	<u>99</u>	<u>10YR 4/4</u>	<u>1</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
1		- • •							
<sup>1</sup> Type: C=	Concentration, D	=Depletio	n, RM=Reduced Ma	atrix, CS=	Covered o	r Coated S	and Grains. <sup>2</sup> Lc	cation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise i	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Histic Epipedon (A2) Stripped Matrix (S6)							Red Parent Material (TF2)	
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1)						ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro								Other (Explain in Remarks)	
Deple	ted Below Dark Si	urface (A1	1)De	pleted M	atrix (F3)				
Thick Dark Surface (A12)Redox Dark Surface (F6)						<sup>3</sup> Indicators of hydrophytic vegetation and			
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>No</u>	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	ils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
ield Observations:			
urface Water Present? No	Depth (inches):		
Vater Table Present? <u>No</u>	Depth (inches):		
aturation Present? Yes	Depth (inches): <u>19</u>	Wotland Uve	Irology Brocont2 No
includes capillary fringe)		wetianu nyt	Irology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>10</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16533480</u>	Long: <u>-123.16423360</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1A	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

Vederation – Ose scientific frames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{30}$ x 1 = $\underline{30}$
5.				FACW species $\frac{60}{10}$ x 2 = $\frac{120}{20}$
Total Cover = <u>0</u>				FAC species $10$ x 3 = $30$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Juncus balticus	<u>30</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 180 (B)
2. <u>Carex nebrascensis</u>	<u>30</u>	Yes	<u>OBL</u>	Column Totals: <u>100</u> (A) <u>180</u> (B)
3. Phalaris arundinacea	<u>30</u>	Yes	FACW	Drevelance lades D(A 1.00
4. <u>Poa palustris</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	Prevalence Index = $B/A = 1.80$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq$ 3.0 <sup>-1</sup> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mat				eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-3</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
3-8	<u>10YR 3/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	M	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration. D	=Depletion	n, RM=Reduced Ma	atrix. CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix	
									-	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 c	m Muck (A10)	
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red	d Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>X</u> Re	X_Redox Dark Surface (F6) 3Indicators of hydrophytic vegetation and				tors of hydrophytic vegetation and		
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:	/ - 、	-1								
Depth (in	ches): <u>0</u>							Hydric	Soil Present? Yes	
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
X_High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Recent Iron Reduction in Tilled Soils (C6)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LF	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:			1	
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>Yes</u>	Depth (inches): <u>4</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>0</u>	Wotland Uv	trology Procent? Voc	
(includes capillary fringe)		wettand Hyd	drology Present? <u>Yes</u>	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>10a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>5</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16533460</u>	Long: <u>-123.16425910</u>	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	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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? <u>No</u>
Remarks:		

vederation – ose sciencific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:   100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{50}{100}$ x 2 = $\frac{100}{100}$
Total Cover = <u>0</u>				FAC species $50 \times 3 = 150$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \underline{0}$ UPL species $\underline{0}$ $x \ 5 = \underline{0}$
1. Juncus balticus	<u>20</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals:100(A)250(B)
2. <u>Poa palustris</u>	<u>50</u>	<u>Yes</u>	FAC	Column rotals. $100$ (A) $230$ (B)
3. Phalaris arundinacea	<u>30</u>	Yes	FACW	Prevalence Index = $B/A = 2.50$
4.				$\frac{1}{2.50}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				$\frac{1}{X}$ 3 - Prevalence Index is ≤ 3.0 <sup>1</sup>
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11. Total Cover =100				5 – Wetland Non-Vascular Plants <sup>1</sup>
10tal Cover = 100				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<u>Woody Vine Stratum</u> (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture		1	I	Hydrophyde vegetation riesent: 103

Matrix Redox Features										
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-9</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		some gravel	
9-17	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		some gravel	
<u>17-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam			
1Tupo: C-	Concontration D	-Doplatio	n, RM=Reduced Ma	atrix CS-1	Covered o	Costod	and Grains 21 a	cotion: D	L=Pore Lining, M=Matrix	
-Type. C-	Concentration, D	-Depietioi	i, Rivi-Reduced ivi	atrix, C3–0		Coaleu S				
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :	
<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
<u> </u>	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)			<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)				
	Mucky Mineral (	-		•	ark Surface					
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		aisturb	ed or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric	Soil Present? No	
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)				
High Water Table (A2)	Drainage Patterns (B10)				
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)		
Drift Deposits (B3)	Oxidized Rhizospheres along Li	ving Roots (C3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled	Soils (C6)	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1	(LRR A)	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B8)					
ield Observations:					
urface Water Present? No	Depth (inches):				
Vater Table Present? <u>Yes</u>	Depth (inches): <u>18</u>				
aturation Present? <u>Yes</u>	Depth (inches): <u>15</u>	Wotland Uv	drology Present? No		
includes capillary fringe)	arology Present: NO				

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>11</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16537380</u>	Long: <u>-123.16541730</u>	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	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $30$ x 2 = $60$
Total Cover = <u>0</u>				FAC species $\frac{70}{2}$ x 3 = $\frac{210}{2}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $0$ x 4 = $0$ UPL species 0 x 5 = 0
1. Juncus balticus	<u>20</u>	<u>Yes</u>	FACW	
2. Agrostis capillaris	<u>20</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>270</u> (B)
3. <u>Rumex crispus</u>	<u>10</u>	<u>No</u>	FAC	Provolonoo Indox = P/A = 2.70
4. <u>Phalaris arundinacea</u>	<u>10</u>	<u>No</u>	<u>FACW</u>	Prevalence Index = $B/A = 2.70$
5. <u>Poa palustris</u>	<u>40</u>	<u>Yes</u>	FAC	Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\Lambda}$ 5 - Prevalence index is $\leq 5.0^{-2}$ $\underline{\Lambda}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)	1			<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				······································
Total Cover = <u>0</u>				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	·	•		·

Matrix Redox Features										
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
(inches)										
<u>0-4</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
4-13	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam			
1= 0						<u> </u>				
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	overed o	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix		
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (Fe	5)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.		
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (ind	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>		
Remarks:								1		

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	ls (C6)	Raised Ant Mounds (D6)( <b>LRR A</b> )
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)	)		
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>13</u>		
Saturation Present? Yes	Depth (inches): <u>9</u>	14/	
(includes capillary fringe)	wetland Hyd	drology Present? Yes	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>				
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>11a</u>				
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16						
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>2</u>					
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16537130</u>	Long: <u>-123.16540220</u>	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? <u>Yes</u>				
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?	Y <u>es</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

Cole ration – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)	
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata: <u>2</u> (B)	
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC: <u>100</u> (A,	/B)
2.				Prevalence Index worksheet:	
3.				Total % Cover of: Multiply by:	
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$	
5.				FACW species $10$ x 2 = $20$	
Total Cover = <u>0</u>				FAC species $90 \times 3 = 270$	
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species 0 x 5 = 0	
1. <u>Poa palustris</u>	<u>50</u>	Yes	FAC		(B)
2. <u>Agrostis capillaris</u>	<u>40</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>290</u>	(D)
3. Juncus balticus	<u>10</u>	<u>No</u>	FACW	Prevalence Index = $B/A = 2.90$	
4.				$\frac{1}{2.50}$	
5.				Hydrophytic Vegetation Indicators:	
6.				1 –Rapid Test for Hydrophytic Vegetation	
7.				$\underline{X}$ 2 – Dominance Test >50%	
8.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$	
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supp	orting
10.				data in Remarks or on a separate sheet)	orting
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>	
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Exp	lain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrolog	y
1.				must be present, unless disturbed or problema	tic.
2.					
Total Cover = <u>0</u>					
% Bare Ground in Herb Stratum: <u>0</u>					
				Hydrophytic Vegetation Present? Yes	
Remarks: grazed pasture					

on	Mati				eatures		initiation absence of	i malcatoi	,	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-9</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
9-16	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
<u>16-27</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	M	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL	=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	2 cm Muck (A10)	
Histic	Epipedon (A2)		Sti	ipped Ma	trix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Mucl	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gleye	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	irk Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	d or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric S	oil Present? <u>No</u>	
Remarks:								I		

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Liv	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled S	Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(	LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
ield Observations:			
urface Water Present? No	Depth (inches):		
Vater Table Present? Yes	Depth (inches): <u>18</u>		
aturation Present? <u>Yes</u>	Depth (inches): <u>15</u>	Wotland Hy	drology Present? No
ncludes capillary fringe)	arology Present: NO		

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>12</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16546030</u>	Long: <u>-123.16546440</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers 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:		

· · · · · · · · · · · · · · · · · · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: $\underline{4}$ (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100 (A/B)
2.				Prevalence Index worksheet:
3.				<u>Total % Cover of:</u> <u>Multiply by:</u>
4.				OBL species $20$ x 1 = $20$
5.				FACW species $50 \times 2 = 100$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Juncus balticus	<u>30</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 210 (B)
2. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>210</u> (B)
3. Phalaris arundinacea	<u>20</u>	Yes	FACW	Provolonco Indox - P/A = 2.10
4. <u>Carex nebrascensis</u>	<u>20</u>	Yes	<u>OBL</u>	Prevalence Index = $B/A = 2.10$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u> </u>				must be present, unless disturbed or problematic.
2.				, ,
Total Cover =0				
-				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				
- •				

Matrix Redox Features										
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-9</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
1- 0						<u> </u>				
<sup>1</sup> Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	plicable to	all LRRs, unless ot	herwise ı	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :	
Histos	Histosol (A1)Sandy Redox (S5)							2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
<u>X</u> Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	v Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	v Gleyed Matrix (S	54)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.	
Restrictiv	e Layer (if presen	nt):								
Type:										
Depth (inches): <u>0</u>							Hydric	Soil Present? Yes		
Remarks:								1		

<u>X</u> Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
<u>X</u> High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	<u>X</u> Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? Yes	Depth (inches): <u>1</u>		
Water Table Present? Yes	Depth (inches): <u>0</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>0</u>	Wotland Uv	Irology Brocont? Voc
(includes capillary fringe)	Irology Present? <u>Yes</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	:y/County: <u>Columbia</u>		Sampling Date: <u>11/28/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>12a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16546570</u>	Long: <u>-123.16548620</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present?	? <u>Yes</u>	
Hydric Soil Present?	<u>No</u>	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

· · · · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{20}$ x 2 = $\underline{40}$
Total Cover = <u>0</u>				FAC species $\frac{80}{240}$ x 3 = $\frac{240}{240}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Juncus balticus	<u>20</u>	Yes	FACW	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. Lolium perenne	<u>40</u>	Yes	FAC	Drevelance Index D(A 2.00
4.				Prevalence Index = $B/A = 2.80$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation X2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{X}$ 5 - Prevalence index is $\leq$ 5.0- 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				<ul> <li>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</li> </ul>
Woody Vine Stratum (Plot size: 0)		1		<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
···· ··· <u>-</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	·	•	•	· · · · · · · · · · · · · · · · · · ·
- •				

Matrix Redox Features									
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-7</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
7-15	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>		
<u>15-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	M	Silty Clay Loam		
1Turnet C	Concentration D	-Doplation	DNA-Dodwood NA	atrix CC-(	Covered o	Costod	and Crains 21 a	ation: DI-Dara Lining N	1-Matrix
-Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	ation: PL=Pore Lining, N	I=IVIATIX
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problema	tic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		Sti	Stripped Matrix (S6)			/atrix (S6)Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1) Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Re	emarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and	
	/ Mucky Mineral (	-		•	ark Surface			wetland hydrology mus	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problemat	IC.
	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric Soil Present? No	<u>)</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	)	Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Liv	ving Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled	Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)	(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7	)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8	)		
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>Yes</u>	Depth (inches): <u>25</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>18</u>	Watland Uv	drology Present? No
includes capillary fringe)	arology Present? <u>NO</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	:y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>13</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16513670</u>	Long: <u>-123.15592500</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

· · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100100(A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{20}$ x 1 = $\underline{20}$
5.				FACW species $\underline{20}$ x 2 = $\underline{40}$
Total Cover = <u>0</u>				FAC species $50 \times 3 = 150$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $10$ x 4 = $40$
1. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Juncus balticus	<u>20</u>	Yes	FACW	Column Totals: <u>100</u> (A) <u>250</u> (B)
3. <u>Carex nebrascensis</u>	<u>20</u>	Yes	OBL	Developer Index D/A 2 50
4. <u>Cirsium arvense</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	Prevalence Index = $B/A = 2.50$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation X2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _0_)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture	•	•	•	·
- •				

(inches)       0-13       10YR 4/2       93       10YR 4/6       Z       C       M       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :		Mati		0	<u>Redox I</u>	eatures				
0-13       10YR 4/2       93       10YR 4/6       Z       C       M       Silty Clay Loam         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         ''Histosol (A1)		Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      2 cm Muck (A10)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A11)       XDepleted Matrix (F3)	. ,									
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	<u>0-13</u>	<u>10YR 4/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	M	<u>Silty Clay Loam</u>		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	<sup>1</sup> Type: C=	Concentration. D	=Depletion	I n. RM=Reduced Ma	atrix. CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	L Docation: PL=Pore Lining, M=Matrix	
Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):         Type:									0.	
Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:	Hydric So	il Indicators: (App	plicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:       Hydric Soil Present? Yes         Depth (inches): 0       Hydric Soil Present? Yes       Hydric Soil Present? Yes	Histosol (A1)Sandy Redox (S5)									
					••					
	Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
	Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Deple	eted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)				
Sandy Gleyed Matrix (S4)    Redox Depressions (F8)     disturbed or problematic.       Restrictive Layer (if present):	Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)			
Restrictive Layer (if present):     Hydric Soil Present? Yes       Depth (inches): 0     Hydric Soil Present? Yes	Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Sandy	y Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Restrictiv	e Layer (if presen	t):							
	Type:									
Pomorke:	Depth (in	ches): <u>0</u>							Hydric Soil Present? Yes	
	Remarks:									

escribe Recorded Data (stream gauge, monit	oring well, aerial photos, previous inspe	ections), if avalia	DIE:
ncludes capillary fringe)		,	drology Present? Yes
aturation Present? Yes	Depth (inches): <u>9</u>		
Vater Table Present? <u>Yes</u>	Depth (inches): <u>13</u>		
	Depth (inches):		
ield Observations:			
Sparsely Vegetated Concave Surface (B8)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	.nn Aj	
Iron Deposits (B5) Surface Soil Cracks (B6)	Recent Iron Reduction in Tilled Source Stunted or Stressed Plants (D1)	( )	Raised Ant Mounds (D6)(LRR A) Frost-Heave Hummocks (D7)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Drift Deposits (B3)	X Oxidized Rhizospheres along Livir	ig Roots (C3)	Shallow Aquitard (D3)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	a Doots (C2)	Geomorphic Position (D2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		

Project/Site: Port Westward Renewable Diesel Refinery City	//County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>14</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8</u>	3N R4W Section 16		
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16642180</u>	Long: <u>-123.15588130</u>	Datum: <u>WGS84</u>
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, ex	plain in Remarks.)	
Are Vegetation X, Soil , or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
Total Cover = <u>0</u>				FAC species $90$ x 3 = $270$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $10$ x 4 = $40$ UPL species $0$ x 5 = $0$
1. Lolium perenne	<u>30</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals:100(A)310(B)
2. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Column rotals. $100$ (A) $310$ (B)
3. <u>Alopecurus pratensis</u>	<u>30</u>	Yes	FAC	Prevalence Index = $B/A = 3.10$
4. <u>Trifolium repens</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	$\frac{1}{2.10}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				$3$ - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				······································

	Mati	rix		Redox F	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-3</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
3-15	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
4-									
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: PL	=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	oted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	ו Muck (A10)
Histic	Epipedon (A2)		Sti	ripped Ma	trix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless	
<u>    Sandy</u>	/ Mucky Mineral (	S1)	De	pleted Da	irk Surface	e (F7)			
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric S	oil Present? <u>Yes</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Sol	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>Yes</u>	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	Motond Llug	
includes capillary fringe)		wetianu nyt	drology Present? Yes

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>15</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16587950</u>	Long: <u>-123.15952840</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:		

Vederation – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $20$ x 2 = $40$
Total Cover = <u>0</u>				FAC species $\frac{80}{2}$ x 3 = $\frac{240}{2}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Lolium perenne	<u>30</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. Juncus balticus	<u>20</u>	Yes	FACW	
4. <u>Rumex crispus</u>	<u>20</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = $B/A = 2.80$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				$\underline{X}$ 2 - Dominance Test >50% $\underline{X}$ 3 - Prevalence Index is $\leq 3.0^1$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq$ 5.0- $\underline{-}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture		1		······································

SOIL

	Mati	rix		Redox	-eatures		-		
Depth (inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
<u>0-4</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
4-15	<u>10YR 4/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
<u>15-25</u>	<u>10YR 4/2</u>	<u>98</u>	<u>10YR 4/6</u>	<u>2</u>	<u>C</u>	M	Silty Clay Loam		
1Tupo: C-	Concontration D	-Doplation	n, RM=Reduced Ma	atrix CS-	Covered o	r Costod S	and Crains <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix	
-Type: C=	Concentration, D	=Depletion	i, Rivi=Reduced Ivi	atrix, CS=		r Coaled S		cation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histosol (A1)Sandy Redox (S5)					2 cm Muck (A10)				
<u> </u>	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			
Sandy	Gleyed Matrix (S	4)	Re	Redox Depressions (F8)				disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric Soil Present? Yes	
Remarks:								I	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	X_Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		 FAC-Neutral Test (D5)
Iron Deposits (B5)	 Recent Iron Reduction in Tilled So	ls (C6)	 Raised Ant Mounds (D6)( <b>LRR A</b> )
Surface Soil Cracks (B6)			Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? Yes	Depth (inches): <u>19</u>		
(includes capillary fringe)	wetland Hyd	drology Present? <u>Yes</u>	

Project/Site: Port Westward Renewable Diesel Refinery City	//County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>16</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8</u>	3N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: 46.16468080	Long: <u>-123.15931710</u>	Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	<u>none</u>	
Are climatic/hydrologic conditions on the site typical for this time of	year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X. Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

VEGETATION – Ose scientific fiames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:         100         (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $100 \times 2 = 200$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2.				Column Totals: <u>100</u> (A) <u>200</u> (B)
3.				$P_{rouslones}$ index = $P/A = 2.00$
4.				Prevalence Index = $B/A = 2.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				$\frac{X}{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u> </u>				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

Profile Description: (Describe to the depth needed to document the indicator or confirm the abs	sence of indicators.)
Trome Description. (Describe to the depth needed to document the matcator of commit the as	sence of marcators.

				INCUUM I	eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
(inches)										
<u>0-13</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>			
13-18	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>M</u>	Silty Clay Loam	5% of redox in root channels		
17	Concentration D	Devlation				. C	and Cusing 21 a			
Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histo	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	trix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	irk Surface	e (F7)				
Sandy	/ Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.		
Restrictiv	e Layer (if presen	t):								
Туре:										
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>		
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)				
High Water Table (A2)	Water-Stained Leaves (B9) (except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)	•••••			
Water Marks (B1)	Aquatic Invertebrates (B13)		Dry-Season Water Table (C2) Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)		
Drift Deposits (B3)	X Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aguitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	,	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	ls (C6)	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	( )	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	,			
Sparsely Vegetated Concave Surface (B8)					
ield Observations:					
urface Water Present? No	Depth (inches):				
Vater Table Present? <u>No</u>	Depth (inches):				
aturation Present? Yes	Depth (inches): <u>17</u>				
includes capillary fringe)		Wetland Hyd	Irology Present? Yes		

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>17</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16520210</u>	Long: <u>-123.16614910</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers in Remarks.)

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

Hydrophytic Vegetation Present?		
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	<u>Yes</u>	Is the Sampled Area within a Wetland? Yes
Remarks:		

·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{40}{10}$ x 2 = $\frac{80}{10}$
Total Cover = <u>0</u>				FAC species $\frac{40}{20}$ x 3 = $\frac{120}{20}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $20$ x 4 = $80$
1. <u>Poa palustris</u>	<u>40</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Juncus balticus	<u>20</u>	Yes	FACW	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. Phalaris arundinacea	<u>20</u>	Yes	FACW	
4. <u>Trifolium repens</u>	<u>20</u>	Yes	<u>FACU</u>	Prevalence Index = $B/A = 2.80$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 – Rapid Test for Hydrophytic Vegetation
8.				$X_2$ 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				must be present, unless disturbed of problematic.
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mati	r <u>ix</u>		<u>Redox F</u>	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-4</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
4-16	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	<u>Silty Clay Loam</u>		
		<u>0</u>		<u>0</u>					
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark S	Surface (Fe	5)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (inches): <u>0</u>						Hydric Soil Present? Yes			
Remarks:									

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Recent Iron Reduction in Tilled Soils (C6)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	Matland Live	
(includes capillary fringe) Wetland Hyd			arology Present? <u>Yes</u>

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>17a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16520500</u>	Long: <u>-123.16612840</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation X, Soil , or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{30}{10}$ x 2 = $\frac{60}{10}$
Total Cover = <u>0</u>				FAC species $\underline{60}$ x 3 = $\underline{180}$
Herb Stratum (Plot size: 4 m <sup>2</sup> )				FACU species $10$ x 4 = $40$
1. <u>Poa palustris</u>	<u>60</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 280 (B)
2. Juncus balticus	<u>10</u>	Yes	FACW	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. Phalaris arundinacea	<u>20</u>	Yes	FACW	Drevelance Index D/A 2.00
4. <u>Trifolium repens</u>	<u>10</u>	<u>No</u>	<u>FACU</u>	Prevalence Index = $B/A = 2.80$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq 3.0^{-1}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	 Mati		•		eatures		infinitine absence of		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-7</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>		
7-15	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>		
<u>15-25</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>		
17	Concentration D	Develoption					and Crains 21 a	antine Di Deve Linine M. Mateix	
Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Thick Dark Surface (A12)Redox Dark Surface (F6)					<sup>3</sup> Indicators of hydrophytic vegetation and			
Sandy	v Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric Soil Present? <u>No</u>	
Remarks:								•	

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)( <b>LRR A</b> )	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? No	Depth (inches):		
	Depth (inches):		
Saturation Present? <u>Yes</u>	Depth (inches): <u>17</u>	Wotland Uve	Irology Present? No
(includes capillary fringe)	oring well, aerial photos, previous inspec		

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>18</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16448470</u>	Long: <u>-123.16712220</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time or	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	)	Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $100$ x 2 = $200$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 200 (B)
2.				Column Totals: <u>100</u> (A) <u>200</u> (B)
3.				$P_{rouslones}$ index = $P/A = 2.00$
4.				Prevalence Index = $B/A = 2.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2 = 2 - Dominance Test > 50\%$
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq 3.0^{-1}$ $\underline{-}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
······································				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	•	•		· · · · · · · · · · · · · · · · · · ·

	Mati				eatures		firm the absence of	i marcator	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-15</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
1Tupo: C-	Concontration D	-Doplation	n, RM=Reduced Ma	atrix CS-1	Covered o	Costod	and Crains <sup>2</sup> Lo	cation: DI -	=Pore Lining, M=Matrix
-Type. C-	Concentration, D	-Depletion	i, Kivi-Keuuceu ivia	atrix, C3–0		Coaleu S			
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators	s for Problematic Hydric Soils <sup>3</sup> :
<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	Muck (A10)
<u> </u>	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very	/ Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick Dark Surface (A12)X Redox Dark Surface (F6)						<sup>3</sup> Indicators of hydrophytic vegetation and			
	Mucky Mineral (			•	ark Surface			wetland hydrology must be present, unless disturbed or problematic.	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		aisturbei	d of problematic.
	e Layer (if presen	t):							
Туре:									- 11 Due + 2 Marc
Depth (in	ches): <u>0</u>							Hydric So	oil Present? <u>Yes</u>
Remarks:									
l									

Surface Water (A1)Water-Stained Leaves (B9)			Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Sol	ls (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? No	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	Wotland Hyp	Irology Present? Yes
(includes capillary fringe)		tions), if availa	

Project/Site: Port Westward Renewable Diesel Refinery Cite	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>19</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16679000</u>	Long: <u>-123.16670700</u>	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	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

led Area within a Wetland? <u>Yes</u>

vederation – ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 25 m <sup>2</sup> )				Percent of Dominant Species
1. Populus balsamifera	<u>100</u>	Yes	FAC	That Are OBL, FACW, or FAC:     100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$ FACW species0x 2 =0
5.				· – –
Total Cover = <u>100</u>				
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				
1. <u>Poa palustris</u>	<u>5</u>	<u>Yes</u>	FAC	
2.				Column Totals: <u>105</u> (A) <u>315</u> (B)
3.				Prevalence Index = $B/A = 3.00$
4.				Prevalence index = $B/A = 3.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq$ 3.0 <sup>-1</sup> 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>5</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>95</u>				Hydrophytic Vegetation Present? Yes
Remarks:				

	<u>Mati</u>		•		eatures		in the absence o	·	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Rema	irks
(inches)									
<u>0-3</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
3-18	<u>10YR 2/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
17	Concentration D	Devlation	DNA Deduced Ma		Coursed of	Castad	and Crains 21 a	ation DL Dava	Lining DA Matrix
Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: PL=Pore	Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for F	Problematic Hydric Soils <sup>3</sup> :
Histos	ol (A1)		Sa	ndy Redo	x (S5)			2 cm Mucl	< (A10)
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red Paren	t Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shall	ow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Exp	olain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark S	x Dark Surface (F6) <sup>3</sup> Indicators of hydrophytic vegetation and				
Sandy	Mucky Mineral (	S1)	De	Depleted Dark Surface (F7) wetland hydrology must be preserved					
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or p	roblematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric Soil Pre	esent? <u>Yes</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
<u>X</u> High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Livi	ng Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled S	oils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(I	.RR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? No	Depth (inches): <u>0</u>		
Water Table Present? Yes	Depth (inches): <u>9</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>4</u>	Wotland Hy	trology Procent? Voc
includes capillary fringe)		wetianu Hyt	drology Present? Yes

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>20</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16840620</u>	Long: <u>-123.16359980</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1C	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

•	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: 0)	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
<u> </u>				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
Total Cover = <u>0</u>				FAC species $100 \times 3 = 300$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Poa palustris</u>	<u>50</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Alopecurus pratensis</u>	<u>50</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>300</u> (
3.				Drevelance Index D/A 2.00
4.				Prevalence Index = $B/A = 3.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporti
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				<ul> <li>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain</li> </ul>
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				
- •				

	Mati	rix		Redox F	- eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-6</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam	
6-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam	
1-		<b>D</b> 1 11				0 1 10		
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)			
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								1

Surface Water (A1)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)				
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)			
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)			
Water Marks (B1)	Aquatic Invertebrates (B13)	Aquatic Invertebrates (B13)				
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)				
Drift Deposits (B3)	Shallow Aquitard (D3)					
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	Presence of Reduced Iron (C4)				
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils	s (C6)	 Raised Ant Mounds (D6)( <b>LRR A</b> )			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRF	RA)	Frost-Heave Hummocks (D7)			
Inundation Visible on Aerial Imagery (E	<li>37)Other (Explain in Remarks)</li>					
Sparsely Vegetated Concave Surface (B	38)					
Field Observations:			l			
Surface Water Present? No	Depth (inches):					
Water Table Present? <u>No</u>	Depth (inches):					
Saturation Present? <u>No</u>	Depth (inches):	Motland Live	Irology Present? Yes			
includes capillary fringe)		wetianu nyt	inology Present? Tes			

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>21</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16798160</u>	Long: <u>-123.16200180</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

vederation – ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{100}{2}$ x 2 = $\frac{200}{2}$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>80</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 200 (E
2. Juncus balticus	<u>20</u>	<u>Yes</u>	FACW	Column Totals: <u>100</u> (A) <u>200</u> (E
3.				Prevalence Index = $B/A = 2.00$
4.				Prevalence index – B/A – $2.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				
-				

	Mati	rix		Redox F	- eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-6</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam	
6-18	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	<sup>r</sup> Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)			
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and
<u>    S</u> andy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? Yes
Remarks:								1

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)				
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)			
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Shallow Aquitard (D3)			
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present? <u>No</u>	Depth (inches):				
Water Table Present? <u>No</u>	Depth (inches):				
Saturation Present? Yes	Depth (inches): <u>15</u>				
(includes capillary fringe)		wetland Hyd	ydrology Present? <u>Yes</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 21a
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16797530</u>	Long: <u>-123.16198790</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

Cole ration – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{1}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{20}{10}$ x 2 = $\frac{40}{10}$
Total Cover = <u>0</u>				FAC species $\underline{80}$ x 3 = $\underline{240}$
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Poa palustris</u>	<u>80</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Juncus balticus	<u>10</u>	No	FACW	Column Totals: <u>100</u> (A) <u>280</u>
3. Phalaris arundinacea	<u>10</u>	<u>No</u>	FACW	Prevalence Index = $B/A = 2.80$
4.				Prevalence muex – $B/A = \frac{2.80}{2.80}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				$\underline{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide support
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explai
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic
2.				
Total Cover = <u>0</u>				
W David Consult in Lineth Chartmann O				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mati	rix		<u>Redox F</u>	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-11</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>					
19-26	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
<u>11-19</u>	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>					
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 ci	m Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	itrix (S6)			Rec	d Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	<u>2)</u>	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicat	tors of hydrophytic vegetation and
Sandy	Mucky Mineral (	S1)	De	epleted Da	ark Surface	e (F7)			d hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, a	and 4B)	Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (E	313)	Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (	(C1)	Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres a	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Irc		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in	n Tilled Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plar	nts (D1)( <b>LRR A</b> )	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Image	ery (B7)Other (Explain in Remar	ks)	
Sparsely Vegetated Concave Surfa	ice (B8)		
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):	Wetland Hy	drology Present? No
includes capillary fringe)		wetianu nyo	

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>22</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Transmission</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16810600</u>	Long: <u>-123.16187800</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil , or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

vederation – ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{90}{10}$ x 2 = $\frac{180}{20}$
Total Cover = <u>0</u>				FAC species $10$ x 3 = $30$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>90</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 210 (B)
2. <u>Poa palustris</u>	<u>5</u>	<u>No</u>	FAC	Column Totals: <u>100</u> (A) <u>210</u> (B)
3. <u>Rumex crispus</u>	<u>5</u>	<u>No</u>	FAC	Prevalence Index = $B/A = 2.10$
4.				Prevalence index – $B/A = 2.10$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				$\frac{X}{X}$ 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{X}$ 3 Trevalence index is 23.0 $\underline{A}$ - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture		•		· · · ·
- ·				

	Matrix Redox Features										
0-8 8-18       10YR 4/3 10YR 4/2       100 95       10YR 4/6       0 5       C       RC       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soil         -Histic Epipedon (A2)       _Stripped Matrix (S6)		Remarks		Texture	Loc <sup>2</sup>	Type <sup>1</sup>	%	Color (moist)	%	Color (moist)	Depth
8-18       10YR 4/2       95       10YR 4/6       5       C       RC       Silty Clay Loam         1 <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											. ,
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils										<u>10YR 4/3</u>	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils				Silty Clay Loam	<u>RC</u>	<u>C</u>	<u>5</u>	<u>10YR 4/6</u>	<u>95</u>	<u>10YR 4/2</u>	8-18
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils											
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils		Deve Linizer M. Mateix							Devilation	Concentration D	17
Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation wetland hydrology must be present, or disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):      Type:		=Pore Lining, M=Matrix	Scation: Pl	and Grains. <sup>2</sup> L	Coated S	Lovered o	atrix, CS=	n, RIVI=Reduced IVI	Depletion	Concentration, D	-Type: C=
Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, or disturbed or problematic.         Restrictive Layer (if present):       Type:	s <sup>3</sup> :	rs for Problematic Hydric Soils <sup>3</sup> :	Indicato			noted.)	therwise i	all LRRs, unless o	plicable to	il Indicators: (Ap	Hydric So
Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1)       Very Shallow Dark Surface (TF12)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       X Depleted Matrix (F3)       Other (Explain in Remarks)         Thick Dark Surface (A12)       Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       wetland hydrology must be present, udisturbed or problematic.         Restrictive Layer (if present):       Type:       Pepth (inches): 0       Hydric Soil Present? Yes		n Muck (A10)	2 ci			x (S5)	ndy Redo	Sa		sol (A1)	Histos
Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, u        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:		Red Parent Material (TF2)							Histic		
Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)        Thick Dark Surface (A12)      Redox Dark Surface (F6)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)         Restrictive Layer (if present):      Redox Depressions (F8)         Type:	)	ry Shallow Dark Surface (TF12)	Ve	ept MLRA 1)	(F1) ( <b>exc</b>	ky Minera	amy Muc	Lc		Histic (A3)	Black
Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 Indicators of hydrophytic vegetation        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, wetland hydr		er (Explain in Remarks)	Oth		(F2)	ed Matrix	amy Gley	Lc		ogen Sulfide (A4)	Hydro
Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, wetland hydrology must be present						atrix (F3)	pleted M	1) <u>X</u> De	urface (A1	ted Below Dark S	Deple
					6)	Surface (F	edox Dark	Re	2)	Dark Surface (A12	Thick
Restrictive Layer (if present):     Hydric Soil Present? Yes       Depth (inches): 0     Hydric Soil Present? Yes	unless	wetland hydrology must be present, unless			e (F7)	ark Surface	epleted Da	D(	S1)	/ Mucky Mineral (	Sandy
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>		ed or problematic.	disturb		3)	essions (F	edox Depr	Re	54)	/ Gleyed Matrix (S	Sandy
Depth (inches): 0 Hydric Soil Present? Yes		Restrictive Layer (if present):									
											Type:
Remarks:		Soil Present? <u>Yes</u>	Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>								
											Remarks:

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	s (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>			
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>			
Saturation Present? <u>Yes</u>	Depth (inches): <u>13</u>	Wotland Uve	kalogy Bracont? Vac	
includes capillary fringe)	Irology Present? Yes			

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>22a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16810500</u>	Long: <u>-123.16189600</u>	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, ex	plain in Remarks.)	
Are Vegetation X, Soil , or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: _0_)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:         100         (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{20}{10}$ x 2 = $\frac{40}{210}$
Total Cover = <u>0</u>				FAC species $\frac{70}{10}$ x 3 = $\frac{210}{10}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $10$ x 4 = $40$ UPL species $0$ x 5 = $0$
1. <u>Phalaris arundinacea</u>	<u>20</u>	Yes	FACW	
2. <u>Poa palustris</u>	<u>60</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>290</u> (B)
3. <u>Rumex crispus</u>	<u>10</u>	<u>No</u>	FAC	Prevalence Index = $B/A = 2.90$
4. Matricaria discoidea	<u>10</u>	<u>No</u>	<u>FACU</u>	Prevalence index – B/A – $2.90$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)			1	<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	 Mati	rix	•	Redox F	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-11</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		
11-19	<u>10YR 4/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>19-24</u>	<u>10YR 4/2</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>		
<sup>1</sup> Type: C=	Concentration D	=Depletio	n, RM=Reduced Ma	atrix CS=(	overed or	· Coated S	and Grains <sup>2</sup> I o	cation · P	L=Pore Lining, M=Matrix
						coated			<u> </u>
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :									
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 ci	m Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Rec	d Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Depleted Below Dark Surface (A11)Depleted Matrix (F3)									
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)			tors of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			d hydrology must be present, unless
<u>    S</u> andy	/ Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		aisturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (inches): 0 Hydric Soil Present? No						Soil Present? <u>No</u>			
Remarks:									

	, monitoring well, aerial photos, previo	,	on <u> </u>
Saturation Present? <u>Yes</u> includes capillary fringe)	Depth (inches): $20$	Wetland Hvo	drology Present? No
Surface Water Present? <u>No</u> Water Table Present? No	Depth (inches): <u>0</u> Depth (inches): 0		
ield Observations:			
Sparsely Vegetated Concave Surfac	e (B8)		
Inundation Visible on Aerial Image	ry (B7)Other (Explain in Remark	s)	
Surface Soil Cracks (B6)	Stunted or Stressed Plant	rs (D1)( <b>LRR A</b> )	Frost-Heave Hummocks (D7)
Iron Deposits (B5)	Recent Iron Reduction in	Tilled Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Algal Mat or Crust (B4)	Presence of Reduced Iror	n (C4)	FAC-Neutral Test (D5)
Drift Deposits (B3)	Oxidized Rhizospheres al	ong Living Roots (C3)	Shallow Aquitard (D3)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C	21)	Geomorphic Position (D2)
Water Marks (B1)	Aquatic Invertebrates (B1	.3)	Saturation Visible on Aerial Imagery (C9)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
High Water Table (A2)	(except MLRA 1,2,4A, a	nd 4B)	Drainage Patterns (B10)
Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		

Project/Site: Port Westward Renewable Diesel Refinery Cit	ty/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>23</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16930240</u>	Long: <u>-123.16170010</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	?	Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of:Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $100$ x 2 = $200$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2.				Column Totals: <u>100</u> (A) <u>200</u> (B)
3.				
4.				Prevalence Index = $B/A = 2.00$
5.				
6.				Hydrophytic Vegetation Indicators: 1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Rapid Test for Hydrophytic Vegetation
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 5 - Prevalence index is $\leq$ 5.0- $\underline{-}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	·	•	•	·

	Mati	rix		Redox I	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-9</u>	<u>10YR 3/2</u>	<u>98</u>	<u>10YR 4/6</u>	<u>2</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
9-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
1Tuno: C-	Concontration D	-Doplatio	n, RM=Reduced Ma	atrix CS-1	Covered o	Costod	and Crains <sup>2</sup> La	cation: PL=Pore Lining, M=Matrix	
-Type. C-	Concentration, D	-Depietioi	I, RIVI-Reduced IVI	atrix, C3–0		Coaleu S		cation. PL-Pore Lining, M-Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
<u> </u>	Histic Epipedon (A2)Stripped Matrix (S6)					Red Parent Material (TF2)			
Black	Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1)						ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)					
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)			
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)			
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)			
Drift Deposits (B3)	X_Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)			
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	. ,	 FAC-Neutral Test (D5)			
Iron Deposits (B5)	 Recent Iron Reduction in Tilled Soi	ls (C6)	Raised Ant Mounds (D6)(LRR A)			
Surface Soil Cracks (B6)		Frost-Heave Hummocks (D7)				
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)					
Sparsely Vegetated Concave Surface (B8)						
Field Observations:			1			
Surface Water Present? <u>No</u>	Depth (inches):					
Water Table Present? <u>No</u>	Depth (inches):					
Saturation Present? Yes	Depth (inches): <u>16</u>	14/				
(includes capillary fringe)	(includes capillary fringe) Wetland Hy					

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 23a
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16929910</u>	Long: <u>-123.16171280</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	)	Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers 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?	<u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

· · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $90$ x 2 = $180$
Total Cover = <u>0</u>				FAC species $10$ x 3 = $30$ FACU species 0 x 4 = 0
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>90</u>	Yes	FACW	
2. <u>Poa palustris</u>	<u>10</u>	<u>No</u>	FAC	Column Totals: <u>100</u> (A) <u>210</u> (B)
3.				Prevalence Index = B/A = 2.10
4.				Prevalence index – $B/A - 2.10$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
······ <u>·</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	1			···· <b>·</b>

	Mati				eatures		initiation absence o		- ,		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks		
(inches)				•							
<u>0-3</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		gravel		
3-17	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>	6		Silty Clay Loam		gravel		
<u>17-24</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	M	Silty Clay Loam				
<sup>1</sup> Type: C=	Concentration D	=Depletio	l n, RM=Reduced Ma	atrix CS=(	overed or	· Coated S	and Grains <sup>2</sup> Lo	cation · P	L=Pore Lining, M=Matrix		
						coated			-		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :		
Histos	sol (A1)		<u> </u> Sa	Sandy Redox (S5)					2 cm Muck (A10)		
Histic	Epipedon (A2)		<u></u> St	ripped Ma	atrix (S6)			Red Parent Material (TF2)			
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)			
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)		
·	ted Below Dark S	•	·	pleted M	. ,						
	Dark Surface (A12				Surface (F	•		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless			
	Mucky Mineral (			•	ark Surface						
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		aisturb	ed or problematic.		
	e Layer (if presen	t):									
Type:											
Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>		
Remarks:											

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Recent Iron Reduction in Tilled Soils (C6)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? Yes	Depth (inches): <u>20</u>	Motond Lbu		
(includes capillary fringe)	Irology Present? <u>No</u>			

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>24</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, conver	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16993600</u>	Long: <u>-123.16139800</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	)	Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any ansv	vers 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:		

Coll ration – Ose scientific fiames of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>25 m<sup>2</sup></u> )				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Rubus armeniacus</u>	<u>60</u>	<u>Yes</u>	FAC	Prevalence Index worksheet:
2.				
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $30 \times 2 = 60$
Total Cover = <u>60</u>				FAC species $120$ x 3 = $360$ FACU species 0 x 4 = 0
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>30</u>	Yes	FACW	Column Totals: 150 (A) 420 (B)
2. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	(B)
3. <u>Ranunculus repens</u>	<u>30</u>	Yes	FAC	Prevalence Index = $B/A = 2.80$
4.				Prevalence index – B/A – $2.80$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>90</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
_				
% Bare Ground in Herb Stratum: <u>10</u>				Hydrophytic Vegetation Present? Yes
Remarks:				

	<u>Mat</u>		•		eatures		in the absence o	·	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-7</u>	<u>10YR 3/2</u>	<u>0</u>		<u>0</u>			Silty Clay Loam		
7-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
1Tuno: C-	Concontration D	-Doplation	n, RM=Reduced Ma	striv CS-(	Covered o	Costod	and Grains 21 o	cation: PL=Pore Lining, M=Matrix	
-Type: C=	Concentration, D	=Depletion	i, Rivi=Reduced Ivia	atrix, CS=C	Lovered of	Coaled S		cation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)	(A1)Sandy Redox (S5)						2 cm Muck (A10)	
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>    X  </u> Ree	dox Dark S	Surface (Fe	5)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>	
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)	Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	ils (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B7	)Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8	)			
Field Observations:				
Surface Water Present? No	Depth (inches): <u>0</u>			
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>			
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>	Wetland Live		
(includes capillary fringe)	drology Present? Yes			

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 24a
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16992700</u>	Long: <u>-123.16138400</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	)	Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

Cover	Species?	Status	Number of Dominant Species
			That Are OBL, FACW, or FAC: <u>3</u> (A)
			Total Number of Dominant
			Species Across All Strata: <u>3</u> (B)
			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
<u>50</u>	<u>Yes</u>	FAC	Prevalence Index worksheet:
			FACW species $50$ x 2 = $100$ FAC species $100$ x 3 = $300$
			FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$
<u>50</u>	<u>Yes</u>		Column Totals: 150 (A) 400 (B)
<u>50</u>	<u>Yes</u>	FAC	$\frac{150}{150}$ (A) $\frac{400}{150}$ (B)
			Prevalence Index = $B/A = 2.67$
			Prevalence index – $B/A = 2.07$
			Hydrophytic Vegetation Indicators:
			1 –Rapid Test for Hydrophytic Vegetation
			$X_2$ 2 – Dominance Test >50%
			X 3 - Prevalence Index is $\leq 3.0^{1}$
			4 - Morphological Adaptions <sup>1</sup> (Provide supporting
			data in Remarks or on a separate sheet)
			5 – Wetland Non-Vascular Plants <sup>1</sup>
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
			<sup>1</sup> Indicators of hydric soil and wetland hydrology
			must be present, unless disturbed or problematic.
			Hydrophytic Vegetation Present? <u>Yes</u>
	1	1	Tryarophytic vegetation riesent: 105
	<u>50</u> <u>50</u> <u>50</u>	<u>50 Yes</u>	<u>50 Yes FACW</u>

SOIL

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

Depth (inches)       Color (moist)       %       Color (moist)       %       Type <sup>1</sup> Loc <sup>2</sup> Texture       Remarks         0-10       10YR 3/3       97       10YR 4/4       3       C       M       Silty Clay Loam       Silty Clay Loam         16-25       10YR 3/2       95       10YR 4/4       5       C       M       Silty Clay Loam       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :         —Histic Epipedon (A2)       _Stripped Matrix (S6)      2 cm Muck (A10)        Histic A3      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Dark Surface (F7)      3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.         Restrictive Layer (if present):       Type:      Redox Dark Surface (F7)      Sindy Gleyed Matrix (S4)      Redox Depressions (F8)         Restrictive Layer (if present):       D		 Mati	r <u>ix</u>	•	<u>Redox I</u>	-eatures				
0-10 10-16 10YR 3/3       10YR 4/4 9Z       10YR 4/4 10YR 4/4       3 2 5       C C       M M       Sandy Clay Loam Silty Clay Loam         16-25       10YR 3/2       95       10YR 4/4       5       C       M       Silty Clay Loam Silty Clay Loam         1f-25       10YR 3/2       95       10YR 4/4       5       C       M       Silty Clay Loam Silty Clay Loam         1*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       *Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :         Histic Epipedon (A2)      Sandy Redox (S5)      2 cm Muck (A10)         Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Pepleted Matrix (F2)      Other (Explain in Remarks)         Depleted Below Dark Surface (A11)      Depleted Matrix (F3)	Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
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         ^1Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	. ,									
16-25       10YR 3/2       95       10YR 4/4       5       C       M       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (55)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (56)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A11)      Depleted Matrix (F3)										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 <sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:      Hydric Soil Present? No         Depth (inches): <u>0</u>	<u>16-25</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 <sup>1</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:      Hydric Soil Present? No         Depth (inches): <u>0</u>										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
	<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix
Histic Epipedon (A2)Stripped Matrix (S6)Red Parent Material (TF2)Black Histic (A3)Loamy Mucky Mineral (F1) (except MLRA 1)Very Shallow Dark Surface (TF12)Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Other (Explain in Remarks)Depleted Below Dark Surface (A11)Depleted Matrix (F3)GrandsThick Dark Surface (A12)Redox Dark Surface (F6)3Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematicSandy Gleyed Matrix (S4)Redox Depressions (F8)GrandsRestrictive Layer (if present): Type: Depth (inches): 0Hydric Soil Present? No	Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1)	<u> </u>	sol (A1)		Sa	ndy Redo	x (S5)			2 ci	m Muck (A10)
	<u> </u>	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Rec	l Parent Material (TF2)
Depleted Below Dark Surface (A11)      Depleted Matrix (F3)	Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Thick Dark Surface (A12)      Redox Dark Surface (F6)       3 Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, unless disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
	Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indica	tors of hydrophytic vegetation and
Restrictive Layer (if present):     Type:       Depth (inches): 0     Hydric Soil Present? No	<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>No</u>	<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Depth (inches): 0 Hydric Soil Present? No	Restrictiv	e Layer (if presen	t):							
	Type:									
Remarks:	Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>
	Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	(except MLRA 1,2,4A, and 4B)		
Saturation (A3)	Salt Crust (B11)	Salt Crust (B11)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Livi	ng Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled S	oils (C6)	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(I	LRR A)	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery	(B7)Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface	(B8)			
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>			
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>			
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>	Wotland Hy	drology Present? No	
(includes capillary fringe)	Tology Present: NO			

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 25
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	<, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17037930</u>	Long: <u>-123.17839180</u>	Datum: WGS84
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:		
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	1	Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{1}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:100100(A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $100 \times 2 = 200$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals:100(A)200(B)
2.				Column Totals: <u>100</u> (A) <u>200</u> (B
3.				Prevalence Index = B/A = 2.00
4.				Prevalence index – $B/A = 2.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test > 50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				<ul> <li>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</li> </ul>
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
···· ··· <u>·</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	1			<u> </u>

	Mati	rix	•		eatures		firm the absence of	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-9</u>	<u>10YR 2/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Undria Co	il Indicators (An	alicable to	all LRRs, unless ot	horwise	otod )			Indicators for Problematic Hydric Soils <sup>3</sup> :
-			-		•			,
	sol (A1)			ndy Redo	. ,			2 cm Muck (A10)
	Epipedon (A2)			ripped Ma				Red Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)			
Thick	Dark Surface (A12	<u>2)</u>	<u>X</u> Re	dox Dark	Surface (Fe	5)		<sup>3</sup> Indicators of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								I

an Reduction in Tilled Soils (C6)      Raised Ant Mounds (D6)(LRR A)         ar Stressed Plants (D1)(LRR A)      Frost-Heave Hummocks (D7)         plain in Remarks)      Frost-Heave Hummocks (D7)         8          9          Wetland Hydrology Present? Yes         I photos, previous inspections), if available:
Prost-Heave Hummocks (D7)
r Stressed Plants (D1)( <b>LRR A</b> )Frost-Heave Hummocks (D7)
r Stressed Plants (D1)(LRR A)Frost-Heave Hummocks (D7)
r Stressed Plants (D1)(LRR A)Frost-Heave Hummocks (D7)
r Stressed Plants (D1)(LRR A)Frost-Heave Hummocks (D7)
r Stressed Plants (D1)(LRR A)Frost-Heave Hummocks (D7)
an Reduction in Tilled Soils (C6) Raised Ant Mounds (D6)(IRR A)
of Reduced Iron (C4) FAC-Neutral Test (D5)
Rhizospheres along Living Roots (C3)Shallow Aquitard (D3)
Sulfide Odor (C1) Geomorphic Position (D2)
overtebrates (B13) Saturation Visible on Aerial Imagery (C9)
(B11) Dry-Season Water Table (C2)
ained Leaves (B9)Water-Stained Leaves (B9)(MLRA 1,2,4A,4B MLRA 1,2,4A, and 4B) Drainage Patterns (B10)
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Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>25a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 37		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17037010</u>	Long: <u>-123.17841930</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	)	Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $20$ x 2 = $40$
Total Cover = <u>0</u>				FAC species $\frac{80}{2}$ x 3 = $\frac{240}{2}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>20</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Lolium perenne	<u>30</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>280</u> (B)
3. <u>Dipsacus fullonum</u>	<u>20</u>	Yes	FAC	
4. <u>Poa palustris</u>	<u>30</u>	Yes	FAC	Prevalence Index = $B/A = 2.80$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 – Rapid Test for Hydrophytic Vegetation
8.				$X_2$ 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u> </u>				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	·	•	•	· · · · · · · · · · · · · · · · · · ·

	 Mati		•		eatures		in the absence of		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-11</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		some gravel
11-15	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>15-26</u>	<u>10YR 2/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>		
1Type: C-	Concontration D	-Doplatio	n, RM=Reduced Ma	atrix CS-(	Covorad o	Costod S	and Grains <sup>2</sup> I or	cation: P	 L=Pore Lining, M=Matrix
-Type. C-	Concentration, D	-Depietioi	i, Rivi-Reduced ivia	atrix, C3–0		Coaleu S			
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Histos	Histosol (A1)Sandy Redox (S5)						<u>2</u> ci	2 cm Muck (A10)	
<u> </u>	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Depleted Below Dark Surface (A11)Depleted Matrix (F3)									
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			d hydrology must be present, unless
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Туре:									
Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>
Remarks:								•	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4	B)	Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along	Living Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4	1)	FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tille	ed Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D	1)(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7	<li>Other (Explain in Remarks)</li>		
Sparsely Vegetated Concave Surface (B8	3)		
ield Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Vater Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>Yes</u>	Depth (inches): <u>20</u>	Wetland Hy	drology Present? No
includes capillary fringe)		wetiand myt	alongy Present: NO

Project/Site: Port Westward Renewable Diesel Refinery City/	County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: Next Energy Group, Inc. State: OR			Sampling Point: <u>26</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N</u>	R4W Section 37		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex, n	ione): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	at: <u>46.17386760</u>	Long: <u>-123.18356620</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: lacoda silt loam, protected NWI classification: n	ione		
Are climatic/hydrologic conditions on the site typical for this time of ye	ear? Yes(if no, exp	olain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:   100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{70}{20}$ x 2 = $\frac{140}{20}$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$
1. Phalaris arundinacea	<u>70</u>	<u>Yes</u>	FACW	
2. Lolium perenne	<u>30</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>230</u> (E
3.				Prevalence Index = $B/A = 2.30$
4.				$\frac{1}{2.50}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test > 50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportir
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				······································
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				
_				Hydrophytic Vegetation Present? Yes
Remarks:				

Profile Des	Mati		epth needed to do		eatures	or or con	firm the absence of	indicato	JIS.)
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-15</u>	<u>10YR 3/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
<sup>1</sup> Type: C=	Concentration D	=Depletion	n, RM=Reduced Ma	atrix CS=(	overed or	Coated S	and Grains <sup>2</sup> Lo	cation · P	L=Pore Lining, M=Matrix
		•				coated 5			-
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 c	m Muck (A10)
Histic	Epipedon (A2)		<u></u> Sti	ripped Ma	atrix (S6)			Red	d Parent Material (TF2)
	Histic (A3)			,	•		ept MLRA 1)		ry Shallow Dark Surface (TF12)
	ogen Sulfide (A4)				ed Matrix	(F2)		Oth	ner (Explain in Remarks)
·	Depleted Below Dark Surface (A11)Depleted Matrix (F3)								
	Dark Surface (A12	-			Surface (Fe	'		<sup>3</sup> Indicators of hydrophytic vegetation and	
	/ Mucky Mineral (	-		•	ark Surface				d hydrology must be present, unless ed or problematic.
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		uistuib	
	e Layer (if presen	t):							
Type:								Undrig	Soil Present? Yes
Depth (in	ches): <u>U</u>							пуштс	Son Present: 185
Remarks:									

Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, m	Depth (inches): <u>0</u> onitoring well, aerial photos, previous inspec		drology Present? <u>Yes</u> ble:	
Surface Water Present? <u>No</u> Water Table Present? <u>Yes</u>	Depth (inches): Depth (inches): <u>5</u>			
Sparsely Vegetated Concave Surface (E Field Observations:	58)			
Inundation Visible on Aerial Imagery (E				
Surface Soil Cracks (B6)		Stunted or Stressed Plants (D1)(LRR A)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Recent Iron Reduction in Tilled Soils (C6)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
<u>X</u> High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	(except MLRA 1,2,4A, and 4B)		
Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			

Project/Site: Port Westward Renewable Diesel Refinery City/	/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>26a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T81</u>	N R4W Section 37		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex,	none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17386130</u>	Long: <u>-123.18357800</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: r	none		
Are climatic/hydrologic conditions on the site typical for this time of y	year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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?	<u>No</u>	Is the Sampled Area within a Wetland? No
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $10$ x 2 = $20$
Total Cover = <u>0</u>				FAC species $\underline{90}$ x 3 = $\underline{270}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>10</u>	<u>No</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 290 (B)
2. Lolium perenne	<u>50</u>	Yes	FAC	Column Totals: <u>100</u> (A) <u>290</u> (B)
3. <u>Poa pratensis</u>	<u>30</u>	<u>Yes</u>	FAC	$D_{rouslongs}$ index = $D/A = 2.00$
4. <u>Dipsacus fullonum</u>	<u>10</u>	<u>No</u>	<u>FAC</u>	Prevalence Index = $B/A = 2.90$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _0_)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	1			· · · · · · · · · · · · · · · · · · ·

	Mati	rix		Redox F	eatures						
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks		
(inches)											
<u>0-15</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		<u>some gravel</u>		
15-26	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	M	Silty Clay Loam				
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix		
Hydric So	il Indicators: (Anr	licable to	all LRRs, unless ot	horwiso r	oted )			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :		
-			-		-			1	•		
	sol (A1)			ndy Redo	. ,			2 cm Muck (A10)			
	Epipedon (A2)			ipped Ma		(54) (			d Parent Material (TF2)		
	Histic (A3)				•		ept MLRA 1)		ry Shallow Dark Surface (TF12)		
	gen Sulfide (A4)	c (			ed Matrix	(F2)		Oth	ner (Explain in Remarks)		
·	ted Below Dark S	-		pleted M		- 1		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.			
	Dark Surface (A12	•			Surface (F						
	Mucky Mineral (			•	irk Surface	. ,					
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		uistuib			
	e Layer (if presen	t):									
Туре:								1 h a dada			
Depth (in	ches): <u>0</u>							Hyaric	Soil Present? <u>No</u>		
Remarks:											

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)	
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)		
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)( <b>LRR A</b> )		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? <u>Yes</u>	Depth (inches): <u>20</u>	Wotland Uve	Irology Brocont? No	
includes capillary fringe)	wetianu nyt	drology Present? <u>No</u> able:		

Project/Site: Port Westward Renewable Diesel Refinery City	//County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 27
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8</u>	3N R4W Section 37		
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex,	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: 46.17741500	Long: <u>-123.18617600</u>	Datum: <u>WGS84</u>
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, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

Cover <u>40</u>	Species? <u>Yes</u>	Status FAC	Number of Dominant SpeciesThat Are OBL, FACW, or FAC:5 (A)
<u>40</u>	<u>Yes</u>	FAC	That Are OBLEACW or EAC: $5(A)$
			$\frac{11}{5} (A)$
			Total Number of Dominant
			Species Across All Strata: <u>5</u> (B)
			Demonst of Deminent Creation
			Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
			Prevalence Index worksheet:
			Total % Cover of: Multiply by:
			OBL species $\underline{0}$ x 1 = $\underline{0}$
			FACW species $\underline{0}$ x 2 = $\underline{0}$
			FAC species $160 \times 3 = 480$
			FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$
<u>40</u>	<u>Yes</u>	FAC	
<u>40</u>	<u>Yes</u>		Column Totals: <u>160</u> (A) <u>480</u> (
<u>20</u>	<u>Yes</u>	FAC	Prevalence Index = $B/A = 3.00$
			Prevalence index – $B/A = \frac{3.00}{2}$
			Hydrophytic Vegetation Indicators:
			1 –Rapid Test for Hydrophytic Vegetation
			X = 2 - Dominance Test >50%
			X 3 - Prevalence Index is $\leq 3.0^{1}$
			4 - Morphological Adaptions <sup>1</sup> (Provide support
			data in Remarks or on a separate sheet)
			5 – Wetland Non-Vascular Plants <sup>1</sup>
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
			<sup>1</sup> Indicators of hydric soil and wetland hydrology
20	Yes	FAC	must be present, unless disturbed or problematic
			, ,
			Hydrophytic Vegetation Present? Yes
-	<u>40</u> <u>40</u> <u>20</u> <u>20</u>	40         Yes           20         Yes	40     Yes     FAC       20     Yes     FAC

	 Mati	rix	•	Redox F	eatures				•
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-4</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		
4-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	<u>Silty Clay Loam</u>		
<sup>1</sup> Type: C-	Concentration D	-Depletion	n, RM=Reduced Ma	atrix CS-(	Covered or	Costed S	and Grains <sup>2</sup> 1 o	cation: Pl	=Pore Lining, M=Matrix
						coated 5			с,
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicator	rs for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cn	n Muck (A10)
Histic	Epipedon (A2)		Str	ripped Ma	itrix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	er (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (F	5)			ors of hydrophytic vegetation and
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			I hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		aisturbe	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric S	Soil Present? <u>Yes</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)			
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Livin	Shallow Aquitard (D3)			
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Raised Ant Mounds (D6)(LRR A)			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	Frost-Heave Hummocks (D7)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>				
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>				
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>	Wotland Uv	Irology Brocont? Voc		
(includes capillary fringe)		wetianu nyt	drology Present? <u>Yes</u> able:		

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>27a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8</u>	3N R4W Section 37		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17740700</u>	Long: <u>-123.18615700</u>	Datum: <u>WGS84</u>
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, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers in Remarks.)

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

Hydrophytic Vegetation Present?	Y <u>es</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

Absolute %	Dominant	Indicator	Dominance Test worksheet:
			Number of Dominant Species
<u>10</u>	Yes	FAC	That Are OBL, FACW, or FAC: $\underline{4}$ (A)
			Total Number of Dominant
			Species Across All Strata: <u>4</u> (B)
			Percent of Dominant Species
			That Are OBL, FACW, or FAC: <u>100</u> (A/B)
			Prevalence Index worksheet:
			<u>Total % Cover of:</u> <u>Multiply by:</u>
			OBL species $\underline{0}$ x 1 = $\underline{0}$
			FACW species $\underline{0}$ x 2 = $\underline{0}$
			FAC species $\underline{115}$ x 3 = $\underline{345}$
			FACU species $\underline{0}$ x 4 = $\underline{0}$
<u>50</u>	<u>Yes</u>	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
<u>50</u>	Yes	FAC	Column Totals: <u>115</u> (A) <u>345</u> (B)
			Prevalence Index = $B/A = 3.00$
			Hydrophytic Vegetation Indicators:
			1 –Rapid Test for Hydrophytic Vegetation
			X 2 – Dominance Test >50%
			<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
			4 - Morphological Adaptions <sup>1</sup> (Provide supporting
			data in Remarks or on a separate sheet)
			5 – Wetland Non-Vascular Plants <sup>1</sup>
			Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
+			<sup>1</sup> Indicators of hydric soil and wetland hydrology
5	Yes	FAC	must be present, unless disturbed or problematic.
<u> </u>	<u></u>		
		1	
			Hydrophytic Vegetation Present? Yes
			Hydrophytic Vegetation Present? Yes
			Hydrophytic Vegetation Present? Yes
-	Cover <u>10</u>	Cover 10Species? Yes10Yes50Yes50YesYesYes	Cover     Species?     Status       10     Yes     FAC       50     Yes     FAC       9     Yes     Yes

	 Mati		•		eatures		initiation absence of	· · · · · · <b>,</b>				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks				
(inches)												
<u>0-7</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam					
7-17	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>					
<u>17-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam					
1Tunau C-	Concentration D	-Doplation	DNA-Dodwood NA	atrix CC-(	Covered or	Costod	and Crains 21 a	ation: DI-Dara Lining	NA-NAstriv			
-Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=C	Lovered of	Coated S	and Grains. <sup>2</sup> LO	ation: PL=Pore Lining,	IVI=IVIATIX			
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicators for Problem	natic Hydric Soils <sup>3</sup> :			
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)				
Histic	Epipedon (A2)		Sti	ripped Ma	trix (S6)			Red Parent Mater	ial (TF2)			
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dar	k Surface (TF12)			
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in F	Remarks)			
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)							
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and				
	Mucky Mineral (	-		•	irk Surface			wetland hydrology mu	•			
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problema	atic.			
	e Layer (if presen	t):										
Type:												
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>N</u>	<u>No</u>			
Remarks:												

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)		
Drift Deposits (B3)	Shallow Aquitard (D3)				
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)			
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils	 Recent Iron Reduction in Tilled Soils (C6)			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRF	Stunted or Stressed Plants (D1)(LRR A)			
Inundation Visible on Aerial Imagery (B	<li>Other (Explain in Remarks)</li>				
Sparsely Vegetated Concave Surface (B	38)				
Field Observations:					
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>				
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>				
Saturation Present? <u>No</u>	Depth (inches): <u>0</u>				
(includes capillary fringe)		Wetland Hyd	/drology Present? <u>No</u>		

Project/Site: Port Westward Renewable Diesel Refinery Cit	xy/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>28</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 21		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, conver	x, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16419740</u>	Long: <u>-123.18059780</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	PEM1A	
Are climatic/hydrologic conditions on the site typical for this time o	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation <u>X</u> , Soil <u>X</u> , or Hydrology <u>X</u> significantly disturbed?		Are "Normal Circumstances	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks: irrigated mint field		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{1}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $20$ x 2 = $40$
Total Cover = <u>0</u>				FAC species $\underline{60}$ x 3 = $\underline{180}$
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $0$ $x \ 5 = \ 0$
1. Phalaris arundinacea	<u>10</u>	<u>No</u>	FACW	·
2. Mentha x piperita	<u>10</u>	<u>No</u>	FACW	Column Totals: <u>80</u> (A) <u>220</u> (B)
3. <u>Ranunculus repens</u>	<u>10</u>	<u>No</u>	FAC	Provolonce Index = P/A = 2.75
4. <u>Schedonorus arundinacea</u>	<u>50</u>	<u>Yes</u>	<u>FAC</u>	Prevalence Index = $B/A = 2.75$
5.				Lludronhutic Vegetation Indicators
6.				Hydrophytic Vegetation Indicators: 1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test > 50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>80</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u>				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				
—				Hydrophytic Vegetation Present? <u>Yes</u>
Remarks:				

Protile De	• •		epth needed to de			tor or con	firm the absence o	t indicators	5.)
	Mati			<u>Redox I</u>	-eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-4</u>	<u>10YR 3/3</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
4-15	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
<u>15-25</u>	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
1Tupo: C-	Concontration D	-Doplatio	n, RM=Reduced Ma	atrix CS-1	Covered or	Costod	and Grains <sup>2</sup> Lo	cation: DI -	Pore Lining, M=Matrix
-Type: C=	Concentration, D	=Depletion	i, Rivi=Reduced Ivia	atrix, CS=0	Lovered of	Coaled			Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histos	Histosol (A1)Sandy Redox (S5)					2 cm Muck (A10)			
Histic	Epipedon (A2)	Stripped Matrix (S6)					Red F	Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very	Shallow Dark Surface (TF12)
Hydro						Othe	r (Explain in Remarks)		
Depleted Below Dark Surface (A11)Depleted Matrix (F3)									
·	Depicted Matrix (15) Thick Dark Surface (A12)Z Redox Dark Surface (F6)							<sup>3</sup> Indicato	rs of hydrophytic vegetation and
	/ Mucky Mineral (	-			ark Surface	•			hydrology must be present, unless
	/ Gleyed Matrix (S	-		•	essions (F8				l or problematic.
	, .	-		dox Depi		~)			
Type:	e Layer (if presen	τ):							
	abaa), O							Hydric Sc	bil Present? Yes
Depth (in	· _							inyune se	<u> </u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Livi	ng Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)		Soils (C6)	Raised Ant Mounds (D6)( <b>LRR A</b> )
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(	LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (	B7)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (	B8)		
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):	Wotland Uv	drology Present? Yes
(includes capillary fringe)	Tology Present: Tes		

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>04/12/2019</u>	
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: 29	
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	<, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16430860</u>	Long: <u>-123.16805290</u>	Datum: <u>WGS84</u>	
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? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{50}{100}$ x 2 = $\frac{100}{100}$
Total Cover = <u>0</u>				FAC species $\frac{70}{2}$ x 3 = $\frac{210}{2}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Cirsium arvense</u>	<u>50</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Phalaris arundinacea</u>	<u>40</u>	Yes	FACW	Column Totals: <u>120</u> (A) <u>310</u> (B)
3. Cardamine occidentalis	10	Yes	FACW	Developer Index D/A 2 50
4.				Prevalence Index = $B/A = 2.58$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50% X 3 - Prevalence Index is ≤ $3.0^1$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _4_)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. <u>Rubus armeniacus</u>	20	Yes	FAC	must be present, unless disturbed or problematic.
2.				······
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:				

	<u>Mati</u>		eptil needed to do		eatures				,		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks		
(inches)											
<u>0-8</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>							
8-18	<u>10YR 3/1</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>							
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains.	<sup>2</sup> Location: P	L=Pore Lining, M=Matrix		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :		
Histos	sol (A1)		Sa	ndy Redo	x (S5)			<u>2</u> c	m Muck (A10)		
Histic	Epipedon (A2)		Str	Stripped Matrix (S6)				Re	Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ery Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)					Other (Explain in Remarks)					
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)						
Thick	Dark Surface (A12	2)	<u>    X  </u> Ree	X Redox Dark Surface (F6) <sup>3</sup> Indicators of hydrophytic vegetation and			tors of hydrophytic vegetation and				
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.		
Restrictiv	e Layer (if presen	t):									
Type:											
Depth (in	ches): <u>0</u>							Hydric	Soil Present? Yes		
Remarks:								1			

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	ils (C6)	Raised Ant Mounds (D6)( <b>LRR A</b> )
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	RR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>14</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>9</u>	Wotland Uv	Irology Present? Yes
includes capillary fringe)	inology Present? Tes		

Project/Site: Port Westward Renewable Diesel Refinery City		Sampling Date: <u>04/12/2019</u>		
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>30</u>	
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	(, none): <u>concave</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16427940</u>	Long: <u>-123.17127860</u>	Datum: <u>WGS84</u>	
Soil Map Unit Name: <u>Wauna silt loam, protected</u> NWI classification: <u>PEM1C</u>				
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? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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?	<u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks: hay field/pasture		

Tree Stratum (Plot size: <u>0</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species
1.	cover	Species:	Status	That Are OBL, FACW, or FAC: $\underline{1}$ (A)
2.				
3. 4.				Total Number of DominantSpecies Across All Strata:11(B)
4. Total Cover = <u>0</u>				Species Across Air Strata. $\underline{\mathbf{I}}$ (b)
Sapling/Shrub Stratum (Plot size: _0_ )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				$\begin{array}{c c} \underline{\text{Total \% Cover of:}} \\ \hline \text{OBL species} & \underline{0} \\ \hline \text{x 1} = \underline{0} \\ \end{array}$
4. 5.				FACW species $\underline{0}$ x 2 = $\underline{0}$
5. Total Cover = <u>0</u>				FAC species $100 \times 3 = 300$
Herb Stratum (Plot size: 4 m <sup>2</sup> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Schedonorus arundinacea</u>	<u>90</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Ranunculus repens	10	No	FAC	Column Totals: <u>100</u> (A) <u>300</u> (B)
3.				Prevalence Index = $B/A = 3.00$
4.				Prevalence index – $B/A = \frac{5.00}{2}$
5.				Hydrophytic Vegetation Indicators:
6. 7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet) 5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
				<u> </u>
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? <u>Yes</u>
Remarks:	•	•		<u> </u>

Profile De	•		lepth needed to de			tor or con	firm the absence o	of indicators.)
	Mati		0		-eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-16</u>	<u>10YR 3/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration. D	=Depletion	n, RM=Reduced Mi	atrix. CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	ocation: PL=Pore Lining, M=Matrix
,,	,	•				oo ateu e		-
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
Histosol (A1)Sandy Redox (S5)				2 cm Muck (A10)				
Histic Epipedon (A2)Stripped Matrix (S6)					Red Parent Material (TF2)			
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1)					Very Shallow Dark Surface (TF12)			
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)					Other (Explain in Remarks)			
Deple	eted Below Dark S	urface (A1		pleted M				
					<sup>3</sup> Indicators of hydrophytic vegetation and			
Net bark surface (R12)Net ob bark surface (R0)					wetland hydrology must be present, unless			
	Sandy Mucky Mineral (31)Depieted Dark Surface (r7)				disturbed or problematic.			
-				dox Depi		-		
	e Layer (if presen	t):						
Type:	ah a a). O							Hydric Soil Present? Yes
Depth (in	ches): <u>0</u>							
Remarks:								

Surface Water (A1)	Water-Stained Leaves (B9)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)		
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Sol	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? Yes	Depth (inches): <u>18</u>	14/		
includes capillary fringe) Wetland Hy			drology Present? <u>Yes</u>	

Project/Site: Port Westward Renewable Diesel Refinery Cite	y/County: <u>Columbia</u>		Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>31</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>Ta</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16975770</u>	Long: <u>-123.16056050</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Udipsamments, nearly level, protected	NWI classification:	none	
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> )				Percent of Dominant Species
1. <u>Rubus armeniacus</u>	<u>20</u>	Yes	FAC	That Are OBL, FACW, or FAC: <u>75</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{80}{10}$ x 2 = $\frac{160}{100}$
Total Cover = <u>20</u>				FAC species $\frac{40}{2}$ x 3 = $\frac{120}{2}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>80</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Cirsium arvense</u>	<u>20</u>	Yes	FAC	Column Totals: <u>120</u> (A) <u>280</u> (B)
3.				
4.				Prevalence Index = $B/A = 2.33$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 – Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet)
Total Cover = <u>100</u>				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _4_)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	10	Yes	Fac	must be present, unless disturbed or problematic.
2.		<u></u>		
Total Cover = <u>10</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	1	1	L	<u></u>

Depth (inches)       Color (moist)       %       Color (moist)       %       Type <sup>1</sup> Loc <sup>2</sup> Texture       Remarks         0:14       10YR 3/2       95       10YR 4/6       5       C       RC       Silty Clay Loam       Remarks         1*Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	FIONE De	Mati				eatures		firm the absence o	i illuicators.j	
0-14       10YR 3/2       95       10YR 4/6       5       C       RC       Silty Clay Loam         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       ''Location: PL=Pore Lining, M=Matrix         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       ''Location: PL=Pore Lining, M=Matrix         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       ''Location: PL=Pore Lining, M=Matrix         ''Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains.       ''Location: PL=Pore Lining, M=Matrix         ''Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)	Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Rer	narks
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F6)	(inches)									
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       XRedox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	<u>0-14</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 c m Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       X_Redox Dark Surface (F6)       ³Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:       Hydric Soil Present? Yes         Depth (inches): <u>0</u>										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       XRedox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       XRedox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       XRedox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A12)       X Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       Hydric Soil Present? Yes         Methylic Soil Present? Yes       Hydric Soil Present? Yes       Hydric Soil Present? Yes										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A12)       X Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A12)       X Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:										
Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)	<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Po	re Lining, M=Matrix
	Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise	noted.)			Indicators fo	r Problematic Hydric Soils <sup>3</sup> :
Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)      Depleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)       X_Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unled disturbed or problematic.        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, unled disturbed or problematic.         Restrictive Layer (if present):       Type:	Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Mu	uck (A10)
	Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red Pare	ent Material (TF2)
	Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Sh	allow Dark Surface (TF12)
	Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (E	xplain in Remarks)
Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, unled disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (Fe	5)			
Restrictive Layer (if present):     Hydric Soil Present? Yes       Depth (inches): 0     Hydric Soil Present? Yes	Sandy	v Mucky Mineral (	S1)	De	Depleted Dark Surface (F7)					•
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Sandy	v Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or	problematic.
Depth (inches): 0     Hydric Soil Present? Yes	Restrictiv	e Layer (if presen	t):							
	Type:									
Remarks:	Depth (in	ches): <u>0</u>							Hydric Soil F	Present? Yes
	Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)			
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)			
Drift Deposits (B3)	X_Oxidized Rhizospheres along Living	Shallow Aquitard (D3)			
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)		
Iron Deposits (B5)	 Recent Iron Reduction in Tilled So	Raised Ant Mounds (D6)( <b>LRR A</b> )			
Surface Soil Cracks (B6)		Frost-Heave Hummocks (D7)			
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B8)					
Field Observations:					
Surface Water Present? <u>No</u>	Depth (inches):				
Water Table Present? <u>No</u>	Depth (inches):				
Saturation Present? Yes	Depth (inches): <u>14</u>	14/			
(includes capillary fringe)		Wetland Hyd	drology Present? Yes		

Project/Site: Port Westward Renewable Diesel Refinery City/Co	ounty: <u>Columbia</u>		Sampling Date: <u>11/14/2019</u>
Applicant/Owner: Next Energy Group, Inc. State: OR			Sampling Point: <u>32</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N F</u>	R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex, no	one): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat	t: <u>46.16901250</u>	Long: <u>-123.15901710</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Crims silt loam, protected NWI classification: PEI	<u>M1C</u>		
Are climatic/hydrologic conditions on the site typical for this time of year	ar? Yes(if no, exp	olain in Remarks.)	
Are Vegetation, Soil, or Hydrologysignificantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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?	<u>Yes</u>	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of:Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $100$ x 2 = $200$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2.				Column Totals: <u>100</u> (A) <u>200</u> (B)
3.				
4.				Prevalence Index = $B/A = 2.00$
5.				
6.				Hydrophytic Vegetation Indicators: 1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Rapid Test for Hydrophytic Vegetation
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 5 - Prevalence index is $\leq$ 5.0- $\underline{-}$ 4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	·	•	•	·

	Mati				Features		firm the absence o	, marcators.y	
Depth (inches)	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
<u>0-16</u>	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	M	Silty Clay Loam		
<sup>1</sup> Type: C=	Concentration, D	=Depletion	n, RM=Reduced Ma	atrix, CS=	Covered o	Coated S	Sand Grains. <sup>2</sup> Lc	ocation: PL=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histo	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		St	Stripped Matrix (S6)				Red Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deple	eted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	/ Mucky Mineral (	S1)	De	pleted D	ark Surface	e (F7)		wetland hydrology must be present, unless	
Sandy	y Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictiv	e Layer (if presen	it):							
Туре:									
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>	
Remarks:								•	

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)	Geomorphic Position (D2)	
Drift Deposits (B3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			l
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>Yes</u>	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	\A/atland Llug	helen: Dresent? Vec
includes capillary fringe)	wettand Hyd	drology Present? <u>Yes</u> ble:	

Project/Site: Port Westward Renewable Diesel Refinery City/Con	unty: <u>Columbia</u>	Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>		Sampling Point: <u>33</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R4</u>	<u>4W Section 38</u>	
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex, nor	ne): <u>none</u> Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat:	: <u>46.16431830</u> Long: <u>-123.15154960</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Crims silt loam, protected NWI classification: PEN	<u>/1A</u>	
Are climatic/hydrologic conditions on the site typical for this time of year	r? Yes(if no, explain in Remarks.)	
Are Vegetation <u>X</u> , Soil, or Hydrology significantly disturbed?	Are "Normal Circumsta	ances" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?	(if needed, explain any	y 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:		

Section – Ose scientific names of plants.	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				<u>Total % Cover of:</u> <u>Multiply by:</u>
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $40$ x 2 = $80$
Total Cover = <u>0</u>				FAC species $55$ x 3 = $165$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $5$ x 4 = $20$ UPL species 0 x 5 = 0
1. Juncus balticus	<u>20</u>	<u>Yes</u>	FACW	
2. Phalaris arundinacea	<u>20</u>	Yes	FACW	Column Totals: <u>100</u> (A) <u>265</u> (B)
3. <u>Schedonorus arundinacea</u>	<u>50</u>	<u>Yes</u>	FAC	Prevalence Index = B/A = 2.65
4. <u>Daucas carota</u>	<u>5</u>	<u>No</u>	<u>FACU</u>	Prevalence muex = $B/A = 2.05$
5. <u>Cirsium arvense</u>	<u>5</u>	<u>No</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators:
6.				
7.				1 –Rapid Test for Hydrophytic Vegetation           X         2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _0_)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u>1.</u> ,				must be present, unless disturbed or problematic.
2.				
Total Cover =0				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: grazed pasture				

	Mati	rix		Redox F	eatures			
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-3</u>	<u>10YR 4/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam	
3-17	<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam	
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 cm Muck (A10)
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)			
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								1

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	oils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(L	RR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>Yes</u>	Depth (inches): <u>16</u>		
Saturation Present? Yes	Depth (inches): <u>11</u>	Mada and David	
(includes capillary fringe)		wetland Hyd	Irology Present? Yes

Project/Site: Port Westward Renewable Diesel Refinery Cit	y/County: <u>Columbia</u>		Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>34</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16368120</u>	Long: <u>-123.14971620</u>	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	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	1	Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>1</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>1</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{100}{2}$ x 2 = $\frac{200}{2}$
Total Cover = <u>0</u>				FAC species $\underline{0}$ x 3 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. Phalaris arundinacea	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: 100 (A) 200 (B)
2.				Column Totals: <u>100</u> (A) <u>200</u> (B)
3.				Provolonoo Indox - P/A = 2.00
4.				Prevalence Index = $B/A = 2.00$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X = 2 - Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				,, ,
Total Cover =0				
_				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:	·	-		

	Matr	<u>IX</u>		Redox H	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
(inches)									
<u>0-5</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
5-15	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix	
Hydric Soi	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	oted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :	
Histos	ol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
Histic	Epipedon (A2)		Str	Stripped Matrix (S6)				Red Parent Material (TF2)	
Black	Histic (A3)		Lo	Loamy Mucky Mineral (F1) (except MLRA 1)			ept MLRA 1)	Very Shallow Dark Surface (TF12)	
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Deplet	epleted Below Dark Surface (A11)Depleted Matrix (F3)								
Thick	Dark Surface (A12	2)	X_Redox Dark Surface (F6)				<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy	Mucky Mineral (	S1)	De	pleted Da	irk Surface	(F7)		wetland hydrology must be present, unless	
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.	
Restrictive	e Layer (if presen	t):							
Type:	,	-							
Depth (inc	ches): <u>0</u>			Hydric Soil Present? <u>Yes</u>			Hydric Soil Present? <u>Yes</u>		
Remarks:								1	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Sol	ls (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	RA)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	Motored Live	
(includes capillary fringe)	drology Present? Yes		

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>34a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 38		
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16369360</u>	Long: <u>-123.14971460</u>	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, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?		Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)

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

Hydrophytic Vegetation Present	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>66</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{70}{20}$ x 2 = $\frac{140}{20}$
Total Cover = <u>0</u>				FAC species $\frac{30}{22}$ x 3 = $\frac{90}{22}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $20 \times 4 = 80$
1. Phalaris arundinacea	<u>70</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Daucus carota	<u>20</u> 10	Yes	FACU	Column Totals: <u>120</u> (A) <u>310</u> (B)
3. Lolium perenne	<u>10</u>	No	FAC	Developer Index D/A 2 50
4.				Prevalence Index = $B/A = 2.58$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_{\rm x}$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>4</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. <u>Rubus armeniacus</u>	20	Yes	FAC	must be present, unless disturbed or problematic.
2.				······································
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				
				Hydrophytic Vegetation Present? Yes
Remarks:				

	Mat				eatures		in the absence of		,	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-11</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam			
11-19	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
<u>19-26</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam			
17 0		<b>D</b> 1 .:				0 1 10				
Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=C	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: P	L=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	trix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Mucl	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)	
Hydro	ogen Sulfide (A4)		Lo	amy Gleye	ed Matrix	(F2)		Oth	ner (Explain in Remarks)	
Deple	ted Below Dark S	ed Below Dark Surface (A11)Depleted Matrix (F3)								
Thick	Dark Surface (A12	2)	Redox Dark Surface (F6)					<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy	v Mucky Mineral (	S1)	De	pleted Da	irk Surface	e (F7)		wetland hydrology must be present, unless		
Sandy	v Gleyed Matrix (S	4)	Re	dox Depre	essions (F8	3)		disturb	ed or problematic.	
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>	
Remarks:								•		

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)			
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)	
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)	
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)	
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Recent Iron Reduction in Tilled Soils (C6)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Stunted or Stressed Plants (D1)(LRR A)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:			1	
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? Yes	Depth (inches): <u>21</u>	Motond Lbu		
(includes capillary fringe)	wettand Hyd	drology Present? <u>No</u>		

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>11/14/2019</u>	
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>35</u>	
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 21			
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>		
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16876990</u>	Long: <u>-123.17849630</u>	Datum: <u>WGS84</u>	
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? <u>Yes</u>	
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers in Remarks.)	

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

Hydrophytic Vegetation Present	t? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>3</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{100}{20}$ x 2 = $\frac{200}{20}$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species 0 x 5 = 0
1. Mentha x piperita	<u>30</u>	Yes	FACW	
2. <u>Phalaris arundinacea</u>	<u>60</u>	Yes	FACW	Column Totals: <u>130</u> (A) <u>290</u> (B
3. Juncus balticus	<u>10</u>	<u>No</u>	FACW	Prevalence Index = $B/A = 2.23$
4.				Prevalence index – $B/A - 2.25$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportir
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Mandulling Chartery (Distring (A))				
Woody Vine Stratum (Plot size: <u>4</u> )	20	Voc	FAC	<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. <u>Rubus armeniacus</u>	<u>30</u>	<u>Yes</u>	<u>FAC</u>	must be present, unless disturbed or problematic.
2. Total Cover = 20				
Total Cover = <u>30</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks: irrigated mint field		<u>I</u>	<u>I</u>	Tryatophytic vegetation riesent: 163
nemarka. in gateu mint netu				

Matrix Redox Features										
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks		
(inches)										
<u>0-7</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam			
7-17	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix		
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicators for Problematic Hydric Soils <sup>3</sup> :		
Histo	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Str	ipped Ma	trix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	X Re	dox Dark :	Surface (Fe	5)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
	/ Mucky Mineral (		De	pleted Da	irk Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.		
Restrictiv	e Layer (if presen	t):								
Type:										
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>		
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	Raised Ant Mounds (D6)(LRR A)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	Frost-Heave Hummocks (D7)	
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? Yes	Depth (inches): <u>15</u>		
(includes capillary fringe)		wetland Hyd	Irology Present? <u>Yes</u>

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>04/12/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>36</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 21		
Landform (hillslope, terrace, etc.): Flats Local relief (concave, convex	, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16946800</u>	Long: <u>-123.17943300</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Lacoda silt loam, protected NWI classification:	PEM1C		
Are climatic/hydrologic conditions on the site typical for this time of	f year? Yes(if no, ex	plain in Remarks.)	
Are Vegetation X, Soil , or Hydrology significantly disturbed?		Are "Normal Circumstances"	" present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	vers 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:		

Tree Stratum (Plot size: <u>0</u> )	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet: Number of Dominant Species
1.	cover	Species:	Status	That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3. 4.				Total Number of Dominant
4. Total Cover =0				Species Across All Strata: <u>2</u> (B)
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> )				Percent of Dominant Species
1. Rubus armeniacus	<u>50</u>	Yes	FAC	That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.	_			Prevalence Index worksheet:
3.				$\begin{array}{c c} \hline \text{Total \% Cover of:} & Multiply by: \\ \hline \text{OBL species} & \underline{0} & x \ 1 = \underline{0} \end{array}$
4. 5.				FACW species $100 \times 2 = 200$
5. Total Cover =50				FAC species $50 \times 3 = 150$
Herb Stratum (Plot size: 4 m <sup>2</sup> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2.				Column Totals: <u>150</u> (A) <u>350</u> (B)
3.				Prevalence Index = $B/A = 2.33$
4 5				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50% X 3 - Prevalence Index is $\leq 3.0^1$
9.				$\underline{X}$ 3 - Prevalence index is $\leq 3.0^{4}$ $\underline{A}$ - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11. Total Cover =100				5 – Wetland Non-Vascular Plants <sup>1</sup>
10tal cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: <u>0</u> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1.				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? <u>Yes</u>
Remarks:	•			· · · · · · · · · · · · · · · · · · ·

SOIL

	<u>Matr</u>				eatures		firm the absence of		,	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-5</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam			
5-13	<u>10YR 3/2</u>	<u>93</u>	<u>10YR 4/6</u>	<u>7</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam			
<u>13-24</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration D	=Depletior	n, RM=Reduced Ma	atrix CS=(	overed o	Coated S	and Grains <sup>2</sup> I o	cation: P	L=Pore Lining, M=Matrix	
						coated 5			-	
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise ı	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 c	m Muck (A10)	
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)		
Deple	ted Below Dark Su	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	<u>    X  </u> Re	dox Dark	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and		
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless		
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.	
Restrictiv	e Layer (if presen	t):								
Туре:										
Depth (ind	ches): <u>0</u>							Hydric	Soil Present? Yes	
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)				
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)		
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)		
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)		
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soil	s (C6)	Raised Ant Mounds (D6)(LRR A)		
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	RA)	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B	7)Other (Explain in Remarks)				
Sparsely Vegetated Concave Surface (B	8)				
Field Observations:			1		
Surface Water Present? <u>No</u>	Depth (inches):				
Water Table Present? <u>No</u>	Depth (inches):				
Saturation Present? <u>No</u>	Depth (inches):				
(includes capillary fringe)		Wetland Hyd	drology Present? <u>Yes</u>		

· · ·	y/County: <u>Columbia</u>		Sampling Date: <u>04/12/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>36a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 21		
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex	k, none): <u>none</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.16947900</u>	Long: <u>-123.17943800</u>	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	f year? <u>Yes</u> (if no, ex	plain in Remarks.)	
Are Vegetation, Soil, or Hydrology significantly disturbed?	•	Are "Normal Circumstances"	' present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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?	<u>No</u>	Is the Sampled Area within a Wetland? No
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>2</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>25 m<sup>2</sup></u> )				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1. <u>Rubus armeniacus</u>	<u>50</u>	Yes	FAC	Prevalence Index worksheet:
2.				
3.				
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$ FACW species100x 2 =200
5.				FACW species $100$ x 2 = $200$ FAC species $50$ x 3 = $150$
Total Cover = <u>50</u>				
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$ UPL species $\underline{0}$ x 5 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>100</u>	Yes	FACW	Column Totals: $150$ (A) $350$ (B)
2.				$\frac{150}{150}$ (A) $\frac{550}{150}$ (B)
3.				Prevalence Index = $B/A = 2.33$
4.				$\frac{1}{2.33}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: 0)				<sup>1</sup> Indicators of hydric soil and wetland hydrology
<u> </u>				must be present, unless disturbed or problematic.
2.				
Total Cover = <u>0</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? <u>Yes</u>
Remarks:	<b>I</b>	<u>I</u>	<u>I</u>	Tranophytic vegetation meschic: 163
וומותס.				

	 Mati	rix	•	Redox F	eatures				-	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)				_						
<u>0-9</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam			
9-20	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>	-		Silty Clay Loam			
<u>20-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/4</u>	<u>3</u>	<u>C</u>	<u>M</u>	Silty Clay Loam			
<sup>1</sup> Type: C=	Concentration D	=Depletio	n, RM=Reduced Ma	atrix CS=(	overed o	r Coated S	and Grains <sup>2</sup> I o	cation: PL	=Pore Lining, M=Matrix	
						courcus				
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		<u> </u> Sa	ndy Redo	x (S5)			2 cm Muck (A10)		
Histic	Epipedon (A2)		Sti	ripped Ma	itrix (S6)			Red Parent Material (TF2)		
Black	Histic (A3)		Lo	amy Muc	ky Mineral	l (F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)		
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	d or problematic.	
Restrictiv	e Layer (if presen	t):								
Туре:										
Depth (in	ches): <u>0</u>							Hydric S	oil Present? <u>No</u>	
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Liv	ring Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled	Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)	(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imager	(B7)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface	e (B8)		
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):	Matley al Dru	
(includes capillary fringe)		wetland Hyd	drology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia	Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>	Sampling Point: <u>37</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R4W Section 16</u>	
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>0</u>
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16689600	Long: <u>-123.17601800</u> Datum: <u>WGS84</u>
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, ex	plain 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: 0)	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC: <u>3</u> (A)	
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata: <u>3</u> (B)	
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)	
2.				Prevalence Index worksheet:	
3.				Total % Cover of: Multiply by:	
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$	
5.				FACW species $100 \times 2 = 200$	
Total Cover = <u>0</u>				FAC species $20$ x 3 = $60$	
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$	
1. <u>Mentha x piperita</u>	<u>20</u>	Yes	FACW		
2. <u>Phalaris arundinacea</u>	<u>80</u>	Yes	FACW	Column Totals: <u>120</u> (A) <u>260</u> (I	3)
3.				$P_{rousloneo}$ index = $P/A = 2.17$	
4.				Prevalence Index = $B/A = 2.17$	
5.				Hydrophytic Vegetation Indicators:	—
6.				1 –Rapid Test for Hydrophytic Vegetation	
7.				$X_2$ 2 – Dominance Test >50%	
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$	
9.					
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supportidata in Remarks or on a separate sheet)	١g
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>	
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain	)
					'
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology	
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or problematic.	ľ
2.	20		<u></u>		
Total Cover =20					
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes	ľ
Remarks: irrigated mint field	1	L	1	<u></u>	
					ľ
					ľ
% Bare Ground in Herb Stratum: <u>0</u> Remarks: irrigated mint field				Hydrophytic Vegetation Present? <u>Yes</u>	

	Mati	rix		Redox F	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	R	lemarks
(inches)									
<u>0-5</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
5-18	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
1						<u> </u>			
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=F	Pore Lining, M=Matrix
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators	for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm I	Muck (A10)
Histic	Epipedon (A2)		Str	ipped Ma	itrix (S6)			Red P	arent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very	Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other	(Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Ree	dox Dark S	Surface (F	5)			s of hydrophytic vegetation and
<u>    S</u> andy	v Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			ydrology must be present, unless
<u>    S</u> andy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed	or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric So	il Present? <u>Yes</u>
Remarks:								1	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4E	3)	Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along L	iving Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tillec	l Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1	)(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7	<ul> <li>Other (Explain in Remarks)</li> </ul>		
Sparsely Vegetated Concave Surface (B8	3)		
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches): <u>0</u>		
Water Table Present? Yes	Depth (inches): <u>16</u>		
Saturation Present? Yes	Depth (inches): <u>11</u>	Matley al Dru	
(includes capillary fringe)		wetland Hyd	drology Present? <u>Yes</u>

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia	Sampling Date: <u>11/14/2019</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>	Sampling Point: <u>38</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R4W Section 21</u>	
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>0</u>
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16560930	Long: <u>-123.17429860</u> Datum: <u>WGS84</u>
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, ex	xplain 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
Tree Stratum (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>2</u> (A)
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata:	<u>2</u> (B)
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
2.				Prevalence Index worksheet:	
3.				<u>Total % Cover of:</u> Multiply by	-
4.				OBL species <u>0</u> x 1 =	<u>0</u>
5.				FACW species $100$ x 2 =	<u>200</u>
Total Cover = <u>0</u>				FAC species $\frac{20}{2}$ x 3 =	<u>60</u>
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $0$ x 4 =	0
1. <u>Phalaris arundinacea</u>	<u>100</u>	Yes	FACW	UPL species $\underline{0}$ x 5 =	<u>0</u>
2.				Column Totals: <u>120</u> (A)	<u>260</u> (B)
3.					
4.				Prevalence Index = $B/A = 2.17$	
5.				·····	
6.				Hydrophytic Vegetation Indicators:	
7.				1 –Rapid Test for Hydrophytic Ve	getation
8.				X 2 – Dominance Test >50%	
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$	
10.				4 - Morphological Adaptions <sup>1</sup> (Pro	ovide supporting
11.				data in Remarks or on a separate sheet) 5 – Wetland Non-Vascular Plants <sup>2</sup>	1
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetat	
					lon- (Explain)
Woody Vine Stratum (Plot size: 4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland	hydrology
1. Rubus armeniacus	<u>20</u>	Yes	FAC	must be present, unless disturbed or	
2.	20	105	1740	must be present, unless disturbed of	problematic.
Z. Total Cover =20					
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes	
Remarks: irrigated mint field	1	1	1		2

SOIL

	Matr	rix	•	Redox I	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-7</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
7-14	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	<u>RC</u>	Silty Clay Loam		
<u>14-24</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam		
17	Concentration D	Devlation					and Casima 21 a		
Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: P	L=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 c	m Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Rec	d Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Otł	ner (Explain in Remarks)
Deple	ted Below Dark Su	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (Fe	5)			tors of hydrophytic vegetation and
Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)			d hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric	Soil Present? Yes
Remarks:								•	

Surface Water (A1)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	<u>X</u> Oxidized Rhizospheres along Living	Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soil	s (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	RA)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B	7)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B	8)		
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):		
(includes capillary fringe)	Wetland Hyd	Irology Present? Yes	

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia	Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>	Sampling Point: <u>39</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R4W Section 21</u>	
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>0</u>
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422400	Long: <u>-123.18284800</u> Datum: <u>WGS84</u>
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, ex	xplain in Remarks.)
Are Vegetation X, Soil X, or Hydrologysignificantly 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:	
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>3</u> (A)
2.					
3.				Total Number of Dominant	
4.				Species Across All Strata:	<u>3</u> (B)
Total Cover = <u>0</u>					
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species	
1.				That Are OBL, FACW, or FAC:	<u>100</u> (A/B)
2.				Prevalence Index worksheet:	
3.				<u>Total % Cover of:</u> Multiply by	-
4.				OBL species $\underline{0}$ x 1 =	<u>0</u>
5.				FACW species $\frac{60}{10}$ x 2 =	<u>120</u>
Total Cover = <u>0</u>				FAC species $50 \times 3 =$	<u>150</u>
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $0 \times 4 =$	<u>0</u>
1. <u>Mentha x piperita</u>	<u>10</u>	No	FACW	UPL species $\underline{0}$ x 5 =	<u>0</u>
2. <u>Phalaris arundinacea</u>	<u>50</u>	Yes	FACW	Column Totals: <u>110</u> (A)	<u>270</u> (B)
3. <u>Cirsium arvense</u>	<u>30</u>	Yes	FAC	Drawslaw as hadres D/A - 2.45	
4.				Prevalence Index = $B/A = 2.45$	
5.					
6.				Hydrophytic Vegetation Indicators:	actation
7.				<ul> <li>1 –Rapid Test for Hydrophytic Ve</li> <li>X 2 – Dominance Test &gt;50%</li> </ul>	getation
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$	
9.					
10.				4 - Morphological Adaptions <sup>1</sup> (Production data in Remarks or on a separate sheet)	ovide supporting
11.				5 – Wetland Non-Vascular Plants	1
Total Cover = <u>90</u>				Problematic Hydrophytic Vegeta	
Woody Vine Stratum (Plot size: 4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland	hydrology
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or	
2.	20	105	140	must be present, unless disturbed of	problematic.
Total Cover =20					
10tal cover - <u>20</u>					
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes	c
Remarks: irrigated mint field	<b>I</b>	1	1	Tryarophytic vegetation Fresent: 16	<u>.</u>
הפווומו הז. וו ווצמופט וווווג וופוט					

	 Mati		•		eatures		in the absence o		
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-6</u>	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
6-18	<u>10YR 3/1</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	<u>Silty Clay Loam</u>		
1									
<sup>1</sup> Typo: C-	Concontration D	-Doplotio	n, RM=Reduced Ma	ntriv CS-(	Covered or	Costod	and Grains <sup>2</sup> Lo	cation: PI -	Pore Lining, M=Matrix
-Type. C-	-concentration, D	-Depietioi	i, Rivi-Reduced ivia	atrix, C3–0		Coaleu S			
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicators	s for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	Muck (A10)
Histic	Epipedon (A2)		Sti	ripped Ma	atrix (S6)			Red F	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Very	<pre> v Shallow Dark Surface (TF12) </pre>
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	r (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	<u>X</u> Re	dox Dark	Surface (F	5)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	v Mucky Mineral (	S1)	De	pleted Da	ark Surface	(F7)			hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed	d or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric So	oil Present? <u>Yes</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6)		Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? No	Depth (inches): <u>0</u>		
Water Table Present? Yes	Depth (inches): <u>15</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>10</u>	Wotland Uve	Irology Brocont? Voc
includes capillary fringe)		wetianu nyt	Irology Present? <u>Yes</u>

Project/Site: Port Westward Renewable Diesel Refinery City/County: Columbia	Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>	Sampling Point: <u>39a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R4W Section 21</u>	
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex, none): <u>none</u>	Slope (%): <u>0</u>
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat: 46.16422700	Long: <u>-123.18286200</u> Datum: <u>WGS84</u>
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, ex	plain in Remarks.)
Are Vegetation X, Soil X, or Hydrologysignificantly 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:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				Demonstra ( Demoisson ( Constitute
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B
2.				Prevalence Index worksheet: Total % Cover of: Multiply by:
3.				$\begin{array}{c c} \underline{\text{Total } \% \text{ Cover of:}} & \underline{\text{Multiply by:}} \\ \text{OBL species} & \underline{0} & \text{x } 1 = \underline{0} \end{array}$
4.				FACW species $50$ x 2 = $100$
5.				FAC species $70$ x 3 = $210$
Total Cover = <u>0</u>			-	FACU species $\underline{0}$ x 4 = $\underline{0}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				UPL species $\underline{0}$ x 5 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>50</u>	<u>Yes</u>	FACW	Column Totals: $\underline{120}$ (A) $\underline{310}$
2. <u>Cirsium arvense</u>	<u>20</u> 20	Yes Yes	FAC	
<ol> <li><u>Lolium perenne</u></li> <li>4.</li> </ol>	20	<u>Yes</u>	FAC	Prevalence Index = $B/A = 2.58$
5				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^1$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide support
11.				data in Remarks or on a separate sheet)
Total Cover = <u>90</u>				<ul> <li>5 – Wetland Non-Vascular Plants<sup>1</sup></li> <li>Problematic Hydrophytic Vegetation<sup>1</sup> (Explai</li> </ul>
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	30	Yes	FAC	must be present, unless disturbed or problematic
2.	50	<u></u>	110	
Total Cover =30				
				Hydrophytic Vegetation Present? Yes
% Bare Ground in Herb Stratum: <u>0</u>				

	Mati	rix		<u>Redox I</u>	eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-10</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Sandy Clay Loam		
10-19	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>19-25</u>	<u>10YR 3/2</u>	<u>97</u>	<u>10YR 4/6</u>	<u>3</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
1									
<sup>1</sup> Type: C=	Concentration, D	=Depletio	n, RM=Reduced Ma	atrix, CS=0	Covered o	r Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	licable to	all LRRs, unless ot	herwise r	noted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 ci	n Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Rec	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Minera	l (F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	epleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	Mucky Mineral (	S1)	De	epleted Da	ark Surface	e (F7)			d hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (ind	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>
Remarks:								1	

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)	FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soils (C6)		Raised Ant Mounds (D6)( <b>LRR A</b> )
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LRR A)		Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Other (Explain in Remarks)	
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			
Surface Water Present? No	Depth (inches): <u>0</u>		
Water Table Present? <u>No</u>	Depth (inches): <u>0</u>		
Saturation Present? <u>Yes</u>	Depth (inches): <u>20</u>	Wotland Hud	release Brecont 2 No
includes capillary fringe)		ions), if availa	Irology Present? <u>No</u>

Project/Site: Port Westward Renewable Diesel Refinery City	y/County: <u>Columbia</u>		Sampling Date: <u>11/29/2018</u>
Applicant/Owner: <u>Next Energy Group, Inc.</u> State: <u>OR</u>			Sampling Point: <u>40</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8</u>	8N R4W Section 21		
Landform (hillslope, terrace, etc.): <u>Flats</u> Local relief (concave, convex,	, none): <u>concave</u>	Slope (%): <u>0</u>	
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17015100</u>	Long: <u>-123.17823200</u>	Datum: <u>WGS84</u>
Soil Map Unit Name: Lacoda silt loam, protected NWI classification:	<u>none</u>		
Are climatic/hydrologic conditions on the site typical for this time of	year? Yes(if no, exp	olain in Remarks.)	
Are Vegetation, Soil, or Hydrologysignificantly disturbed?		Are "Normal Circumstances"	present? <u>Yes</u>
Are Vegetation, Soil, or Hydrology naturally problematic?		(if needed, explain any answ	ers 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? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\frac{100}{10}$ x 2 = $\frac{200}{20}$
Total Cover = <u>0</u>				FAC species $10 \times 3 = 30$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ \underline{0}$ UPL species $\underline{0}$ $x \ 5 = \ \underline{0}$
1. <u>Phalarais arundinacea</u>	<u>100</u>	<u>Yes</u>	FACW	
2.				Column Totals: <u>110</u> (A) <u>230</u> (1
3.				Prevalence Index = B/A = 2.09
4.				Prevalence index – $B/A = \frac{2.09}{2.09}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				$X_2$ 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporti
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. <u>Rubus armeniacus</u>	<u>10</u>	Yes	FAC	must be present, unless disturbed or problematic.
2.				
Total Cover = <u>10</u>				
% Bare Ground in Herb Stratum: <u>0</u>				
				Hydrophytic Vegetation Present? Yes
Remarks:				

	Mat				eatures					
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks	
(inches)										
<u>0-9</u>	<u>10YR 2/2</u>	<u>100</u>		<u>0</u>			<u>Silty Clay Loam</u>			
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered or	Coated S	and Grains. <sup>2</sup> Lc	ocation: P	L=Pore Lining, M=Matrix	
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	noted.)			Indicato	ors for Problematic Hydric Soils <sup>3</sup> :	
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 c	m Muck (A10)	
Histic	Epipedon (A2)		Str	ipped Ma	atrix (S6)			Re	d Parent Material (TF2)	
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ve	ry Shallow Dark Surface (TF12)	
<u>X</u> Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Otl	ner (Explain in Remarks)	
Deple	ted Below Dark S	urface (A1	1)De	pleted M	atrix (F3)					
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation and wetland hydrology must be present, unless		
<u>    S</u> andy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)				
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.	
Restrictiv	e Layer (if presen	it):								
Type:										
Depth (ind	ches): <u>0</u>							Hydric	Soil Present? Yes	
Remarks:										

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
X_High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
X_Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	<u>X</u> Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Living	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled Soi	ls (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LR	RA)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
Field Observations:			1
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? Yes	Depth (inches): <u>5</u>		
Saturation Present? Yes	Depth (inches): <u>0</u>	14/	
(includes capillary fringe)		wetland Hyd	drology Present? <u>Yes</u>

Project/Site: Port Westward Renewable Diesel Refinery City/Co	ounty: <u>Columbia</u> Sampling Date: <u>11/29/2018</u>
Applicant/Owner: Next Energy Group, Inc. State: OR	Sampling Point: <u>40a</u>
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T8N R</u>	R4W Section 16
Landform (hillslope, terrace, etc.): FlatsLocal relief (concave, convex, no	one): <u>concave</u> Slope (%): <u>0</u>
Subregion (LRR): Northwest Forests & Coast (LRR A) Lat	t: <u>46.17015500</u> Long: <u>-123.17821800</u> Datum: <u>WGS84</u>
Soil Map Unit Name: Lacoda silt loam, protected NWI classification: nor	ine
Are climatic/hydrologic conditions on the site typical for this time of yea	ar? 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	? <u>Yes</u>	
Hydric Soil Present?	<u>No</u>	
Wetland Hydrology Present?	<u>No</u>	Is the Sampled Area within a Wetland? <u>No</u>
Remarks:		

· · · · · · · · · · · · · · · · · · ·	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:     100     (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{60}$ x 2 = $\underline{120}$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $30$ x 4 = $120$ UPL species $0$ x 5 = $0$
1. <u>Phalaris arundinacea</u>	<u>60</u>	Yes	FACW	
2. <u>Sisymbrium altissimum</u>	<u>30</u>	<u>No</u>	FACU	Column Totals: <u>120</u> (A) <u>330</u> (B)
3. Lolium perenne	<u>10</u>	<u>No</u>	FAC	Prevalence Index = $B/A = 2.75$
4.				$\frac{1}{2.75}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 - Wetland Non-Vascular Plants1
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or problematic.
2.	_			
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:		1	1	Transpirate Vegetation Tresent: 105
nemarks.				

	Mati	rix	-	<u>Redox I</u>	- eatures				
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-8</u>	<u>10YR 3/3</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
8-16	<u>10YR 3/2</u>	<u>100</u>		<u>0</u>			Silty Clay Loam		
<u>16-25</u>	<u>10YR 3/2</u>	<u>95</u>	<u>10YR 4/6</u>	<u>5</u>	<u>C</u>	M	<u>Silty Clay Loam</u>		
1-		<b>D</b> 1 11				0 1 10			
Type: C=	Concentration, D	=Depletioi	n, RM=Reduced Ma	atrix, CS=0	Lovered of	Coated S	and Grains. <sup>2</sup> LO	cation: PL	=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicator	s for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm	n Muck (A10)
Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red	Parent Material (TF2)
Black	Histic (A3)		Lo	amy Muc	ky Mineral	(F1) ( <b>exc</b>	ept MLRA 1)	Ver	y Shallow Dark Surface (TF12)
Hydro	gen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Othe	er (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1)De	epleted M	atrix (F3)				
Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)			ors of hydrophytic vegetation and
<u>    S</u> andy	Mucky Mineral (	S1)	De	epleted Da	ark Surface	e (F7)			hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbe	d or problematic.
Restrictiv	e Layer (if presen	t):							
Type:									
Depth (in	ches): <u>0</u>							Hydric S	oil Present? <u>No</u>
Remarks:								I	
-									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Liv	ving Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled	Soils (C6)	Raised Ant Mounds (D6)(LRR A)
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)	(LRR A)	Frost-Heave Hummocks (D7)
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface (B8)			
ield Observations:			
urface Water Present? No	Depth (inches):		
Vater Table Present? <u>Yes</u>	Depth (inches): <u>21</u>		
aturation Present? <u>Yes</u>	Depth (inches): <u>15</u>	Wotland Uv	drology Present? No
includes capillary fringe)		wetianu nyo	arology Present? <u>NO</u>

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

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>4</u> (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>4</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC:   100 (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\frac{70}{20}$ x 1 = $\frac{70}{20}$
5.				FACW species $\frac{30}{20}$ x 2 = $\frac{60}{20}$
Total Cover = <u>0</u>				FAC species $20$ x 3 = $60$
<u>Herb Stratum</u> (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Scirpus microcarpus</u>	<u>70</u>	Yes	<u>OBL</u>	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Phalaris arundinacea</u>	<u>20</u>	Yes	FACW	Column Totals: <u>120</u> (A) <u>190</u> (B
3. Juncus balticus	10	Yes	FACW	Drevelance Index D/A 150
4.				Prevalence Index = $B/A = 1.58$
5.				Hydrophytic Vegetation Indicators:
6.				
7.				1 –Rapid Test for Hydrophytic Vegetation X2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{\times}$ 3 - Prevalence index is $\leq$ 5.0- 4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				<ul> <li>Problematic Hydrophytic Vegetation<sup>1</sup> (Explain)</li> </ul>
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	<u>20</u>	Yes	FAC	must be present, unless disturbed or problematic.
2.				, ,
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:		L	l	nyurophytic vegetation Present: Tes

Sandy Gleyed Matrix (S4)    Redox Depressions (F8)     disturbed or problematic.       Restrictive Layer (if present):		<u>Mat</u>	<u>rix</u>	•	Redox I	- eatures				
0-9 9-12 12-18       10YR 4/2 10YR 4/2 90       95 10YR 4/6       10 10 10YR 4/6       5 10 2       C M M       M Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> : 	Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks	
9-12 12-18       10YR 4/2 10YR 2/2       90 90       10YR 4/6 10YR 4/6       10       C C       M M       Silty Clay Loam Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	. ,									
12-18       10YR 2/2       90       10YR 4/6       10       C       M       Silty Clay Loam <sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :		<u>10YR 4/2</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>			Silty Clay Loam		
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix         Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :	9-12	<u>10YR 4/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	M	Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)      disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)      disturbed or problematic.         Restrictive Layer (if present):       Type:	<u>12-18</u>	<u>10YR 2/2</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	M	Silty Clay Loam		
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :        Histosol (A1)      Sandy Redox (S5)      2 cm Muck (A10)        Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Hydrogen Sulfide (A4)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Thick Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)      disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)      disturbed or problematic.         Restrictive Layer (if present):       Type:										
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)       Indicators for Problematic Hydric Soils <sup>3</sup> :										
	<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix	
Histic Epipedon (A2)      Stripped Matrix (S6)      Red Parent Material (TF2)        Black Histic (A3)      Loamy Mucky Mineral (F1) (except MLRA 1)      Very Shallow Dark Surface (TF12)        Hydrogen Sulfide (A4)      Loamy Gleyed Matrix (F2)      Other (Explain in Remarks)        Depleted Below Dark Surface (A11)       XDepleted Matrix (F3)      Other (Explain in Remarks)        Thick Dark Surface (A12)      Redox Dark Surface (F6)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unlest disturbed or problematic.        Sandy Mucky Mineral (S1)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):       Type:	Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise ı	noted.)			Indicators for Problematic Hydric Soils	3
Black Histic (A3)       Loamy Mucky Mineral (F1) (except MLRA 1)       Very Shallow Dark Surface (TF12)         Hydrogen Sulfide (A4)       Loamy Gleyed Matrix (F2)       Other (Explain in Remarks)         Depleted Below Dark Surface (A11)       X Depleted Matrix (F3)       3Indicators of hydrophytic vegetation and wetland hydrology must be present, unlest disturbed or problematic.         Sandy Mucky Mineral (S1)       Depleted Dark Surface (F7)       wetland hydrology must be present, unlest disturbed or problematic.         Restrictive Layer (if present):       Type:       Depth (inches): 0       Hydric Soil Present? Yes	Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 cm Muck (A10)	
	Histic	Epipedon (A2)		St	ripped Ma	atrix (S6)			Red Parent Material (TF2)	
	Black	Histic (A3)		Lo	amy Muc	ky Minera	(F1) ( <b>exc</b>	ept MLRA 1)	Very Shallow Dark Surface (TF12)	
	Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Other (Explain in Remarks)	
Sandy Mucky Mineral (S1)      Depleted Dark Surface (F7)       wetland hydrology must be present, unlest disturbed or problematic.        Sandy Gleyed Matrix (S4)      Redox Depressions (F8)       disturbed or problematic.         Restrictive Layer (if present):	Deple	ted Below Dark S	urface (A1	1) <u>X</u> De	pleted Ma	atrix (F3)				
Sandy Gleyed Matrix (S4)    Redox Depressions (F8)     disturbed or problematic.       Restrictive Layer (if present):	Thick	Dark Surface (A12	2)	Re	dox Dark	Surface (F	6)		<sup>3</sup> Indicators of hydrophytic vegetation	and
Restrictive Layer (if present):     Type:       Depth (inches): 0     Hydric Soil Present? Yes	Sandy	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless disturbed or problematic.	
Type: Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)			
Depth (inches): <u>0</u> Hydric Soil Present? <u>Yes</u>	Restrictiv	e Layer (if presen	it):							
	Type:									
	Depth (in	ches): <u>0</u>							Hydric Soil Present? Yes	
Remarks:	Remarks:								1	

Depth (inches): <u>10</u> pring well, aerial photos, previous insp		Irology Present? <u>Yes</u>
Depth (inches): <u>10</u>	Matland Live	Inclose Dresent? Voc
Douth (inches), 10		
Depth (inches): <u>16</u>		
Depth (inches):		
		Frost-Heave Hummocks (D7)
	oils (C6)	Raised Ant Mounds (D6)(LRR A)
		FAC-Neutral Test (D5)
	ng Roots (C3)	Shallow Aquitard (D3)
( )		Geomorphic Position (D2)
、 ,		Saturation Visible on Aerial Imagery (C9)
		Dry-Season Water Table (C2)
、 ,		Drainage Patterns (B10)
Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4
	(except MLRA 1,2,4A, and 4B) Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livi Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled S Stunted or Stressed Plants (D1)(I Other (Explain in Remarks) Depth (inches):	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)

Project/Site: <u>NEXT Energy Renewable Biodiesel</u> City/Counter	y: <u>Columbia</u>	Sampling Date: <u>09/30/2020</u>				
Applicant/Owner: <u>NEXT Energy</u> State: <u>OR</u>		Sampling Point: <u>41a</u>				
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	8N R4W Section 16					
Landform (hillslope, terrace, etc.): <u>Drainageway</u> Local relief (concave, convex, none): <u>concave</u> Slope (%): <u>0</u>						
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17095730</u> Long: <u>-123.17909670</u>	Datum: <u>WGS84</u>				
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 Circumsta	inces" present? <u>Yes</u>				
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? <u>No</u>
Remarks:		
kemarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{4}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>5</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: 0)				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>80</u> (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $30 \times 1 = 30$
5.				FACW species $\frac{30}{10}$ x 2 = $\frac{60}{100}$
Total Cover = <u>0</u>				FAC species $\frac{40}{22}$ x 3 = $\frac{120}{22}$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $20$ x 4 = $80$
1. Equisetum arvense	<u>20</u>	Yes	FAC	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. <u>Scirpus microcarpus</u>	<u>30</u>	Yes	OBL	Column Totals: <u>120</u> (A) <u>290</u> (B)
3. <u>Phalaris arundinacea</u>	<u>30</u>	Yes	FACW	
4. Polystichum munitum	<u>20</u>	Yes	FACU	Prevalence Index = $B/A = 2.42$
5.				
6.				Hydrophytic Vegetation Indicators:
7.				1 –Rapid Test for Hydrophytic Vegetation
8.				X 2 – Dominance Test >50%
9.				<u>X</u> 3 - Prevalence Index is $\leq 3.0^{1}$
10.				4 - Morphological Adaptions <sup>1</sup> (Provide supporting
11.				data in Remarks or on a separate sheet)
Total Cover = <u>100</u>				5 – Wetland Non-Vascular Plants <sup>1</sup>
				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or problematic.
2.				, ,
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hadarahati Martaking Processi 2 Mar
			I	Hydrophytic Vegetation Present? Yes
Remarks:				

Depth (inches) <u>0-15</u> 15-24	Color (moist) <u>10YR 4/3</u>	%	Color (moist)	%	<b>T</b>	•		
<u>0-15</u>	<u>10YR 4/3</u>			70	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
	<u>10YR 4/3</u>							
15-24		<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	M	Sandy Clay Loam	
13 27	<u>10YR 4/3</u>	<u>98</u>	<u>10YR 4/4</u>	<u>2</u>	<u>C</u>	<u>M</u>	<u>Silty Clay Loam</u>	
1- 0						<u> </u>		
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered of	r Coated S	and Grains. <sup>2</sup> Lo	cation: PL=Pore Lining, M=Matrix
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :								
Histos	Histosol (A1)Sandy Redox (S5)2 cm Muck (A10)						2 cm Muck (A10)	
Histic							Red Parent Material (TF2)	
							Very Shallow Dark Surface (TF12)	
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)							Other (Explain in Remarks)	
Depleted Below Dark Surface (A11)Depleted Matrix (F3)								
Thick Dark Surface (A12)Redox Dark Surface (F6)								<sup>3</sup> Indicators of hydrophytic vegetation and
<u>    Sandy</u>	Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (inc	ches): <u>0</u>							Hydric Soil Present? <u>No</u>
Remarks:								I.

Surface Water (A1)	Water-Stained Leaves (B9)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)		
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)	Drainage Patterns (B10)		
Saturation (A3)	Salt Crust (B11)	Dry-Season Water Table (C2)		
Water Marks (B1)	Aquatic Invertebrates (B13)	Saturation Visible on Aerial Imagery (C9)		
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)	
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)	
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)	
Iron Deposits (B5)	Recent Iron Reduction in Tilled So			
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LF	Frost-Heave Hummocks (D7)		
Inundation Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			
Sparsely Vegetated Concave Surface (B8)				
Field Observations:				
Surface Water Present? <u>No</u>	Depth (inches):			
Water Table Present? <u>No</u>	Depth (inches):			
Saturation Present? Yes	Depth (inches): <u>18</u>	Motored Live	deale and Decouver 20 Mar	
(includes capillary fringe)	wettand Hyd	Irology Present? <u>No</u>		

Project/Site: <u>NEXT Energy Renewable Biodiesel</u> City/Count	ty: <u>Columbia</u> Sampling Date: <u>09/30/2020</u>					
Applicant/Owner: <u>NEXT Energy</u> State: <u>OR</u>	Sampling Point: <u>42</u>					
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	T8N R4W Section 16					
Landform (hillslope, terrace, etc.): Drainageway Local relief (conca	ave, convex, none): <u>concave</u> Slope (%): <u>0</u>					
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17281700</u> Long: <u>-123.18192700</u> Datum: <u>WGS84</u>					
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? <u>Yes</u>					
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	? <u>Yes</u>	
Hydric Soil Present?	Yes	
Wetland Hydrology Present?	Yes	Is the Sampled Area within a Wetland? <u>Yes</u>
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $\underline{2}$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: <u>2</u> (B)
Total Cover = <u>0</u>				
Sapling/Shrub Stratum (Plot size: <u>0</u> )				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
1.				
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $90 \times 2 = 180$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ $x \ 4 = \ 0$ UPL species $\underline{0}$ $x \ 5 = \ 0$
1. <u>Phalaris arundinacea</u>	<u>80</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$ Column Totals: $\underline{120}$ (A) $\underline{270}$ (B)
2. Equisetum arvense	<u>10</u>	<u>No</u>	FAC	$\frac{120}{120}$ (A) $\frac{270}{120}$ (B)
3. Juncus balticus	10	No	FACW	Prevalence Index = $B/A = 2.25$
4.				$\frac{1}{2.25}$
5.				Hydrophytic Vegetation Indicators:
6.				1 –Rapid Test for Hydrophytic Vegetation
7.				X 2 – Dominance Test >50%
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				4 - Morphological Adaptions <sup>1</sup> (Provide supportin
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain
Woody Vine Stratum (Plot size: 4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or problematic.
2.				
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:			1	I Hydrophytic vegetation Present: Tes

	<u>Matı</u>				eatures		firm the absence o	
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture	Remarks
(inches)								
<u>0-9</u>	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 4/4</u>	<u>5</u>	<u>C</u>	M	Silty Clay Loam	
9-18	<u>10YR 5/1</u>	<u>90</u>	<u>10YR 4/6</u>	<u>10</u>	<u>C</u>	M	Silty Clay Loam	
<sup>1</sup> Type: C=Concentration, D=Depletion, RM=Reduced Matrix, CS=Covered or Coated Sand Grains. <sup>2</sup> Location: PL=Pore Lining, M=Matrix								
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils <sup>3</sup> :								
Histosol (A1)Sandy Redox (S5)2 cm Muck (A10)								
Histic Epipedon (A2) Stripped Matrix (S6) Red Parent Material (TF2)							Red Parent Material (TF2)	
Black Histic (A3) Loamy Mucky Mineral (F1) (except MLRA 1) Very Shallow Dark Surface (TF12)							Very Shallow Dark Surface (TF12)	
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)Other (Explain in Remarks)							Other (Explain in Remarks)	
Depleted Below Dark Surface (A11) X_Depleted Matrix (F3)								
Thick Dark Surface (A12)Redox Dark Surface (F6) 3Indicators of hydrophytic vegetation							<sup>3</sup> Indicators of hydrophytic vegetation and	
Sandy	/ Mucky Mineral (	S1)	De	pleted Da	ark Surface	e (F7)		wetland hydrology must be present, unless
Sandy	y Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturbed or problematic.
Restrictiv	e Layer (if presen	t):						
Type:								
Depth (in	ches): <u>0</u>							Hydric Soil Present? <u>Yes</u>
Remarks:								
Kemarks:								

Depth (inches): Depth (inches): <u>15</u> Depth (inches): 10		
Other (Explain in Remarks)		
Stunted or Stressed Plants (D1)	(LRR A)	Frost-Heave Hummocks (D7)
Recent Iron Reduction in Tilled	Soils (C6)	Raised Ant Mounds (D6)( <b>LRR A</b> )
Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Oxidized Rhizospheres along Li	ving Roots (C3)	Shallow Aquitard (D3)
Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Salt Crust (B11)		Dry-Season Water Table (C2)
(except MLRA 1,2,4A, and 4B	)	Water-Stained Leaves (B9)(MLRA 1,2,4A,4B) Drainage Patterns (B10)
	Salt Crust (B11) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Tilled Stunted or Stressed Plants (D1)	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)

Project/Site: <u>NEXT Energy Renewable Biodiesel</u> City/Count	ty: <u>Columbia</u> Sampling Date: <u>09/30</u> ,	/2020				
Applicant/Owner: <u>NEXT Energy</u> State: <u>OR</u>	Sampling Poin	t: <u>42a</u>				
Investigator(s): <u>Sue Brady</u> Section, Township, Range: <u>T</u>	T8N R4W Section 16					
Landform (hillslope, terrace, etc.): Drainageway Local relief (conca	ave, convex, none): <u>concave</u> Slope (%): <u>0</u>					
Subregion (LRR): Northwest Forests & Coast (LRR A)	Lat: <u>46.17282600</u> Long: <u>-123.18191500</u> Datum: <u>WGS84</u>					
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 Hydrologysignificantly disturbed?	? Are "Normal Circumstances" present? <u>Yes</u>					
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	? <u>Yes</u>	
Hydric Soil Present?	No	
Wetland Hydrology Present?	No	Is the Sampled Area within a Wetland? No
Remarks:		

	Absolute %	Dominant	Indicator	Dominance Test worksheet:
<u>Tree Stratum</u> (Plot size: <u>0</u> )	Cover	Species?	Status	Number of Dominant Species
1.				That Are OBL, FACW, or FAC: $4$ (A)
2.				
3.				Total Number of Dominant
4.				Species Across All Strata: $\underline{4}$ (B)
Total Cover = <u>0</u>				
<u>Sapling/Shrub Stratum</u> (Plot size: <u>0</u> )				Percent of Dominant Species
1.				That Are OBL, FACW, or FAC: <u>100</u> (A/B)
2.				Prevalence Index worksheet:
3.				Total % Cover of: Multiply by:
4.				OBL species $\underline{0}$ x 1 = $\underline{0}$
5.				FACW species $\underline{90}$ x 2 = $\underline{180}$
Total Cover = <u>0</u>				FAC species $30 \times 3 = 90$
Herb Stratum (Plot size: <u>4 m<sup>2</sup></u> )				FACU species $\underline{0}$ x 4 = $\underline{0}$
1. <u>Phalaris arundinacea</u>	<u>70</u>	<u>Yes</u>	FACW	UPL species $\underline{0}$ x 5 = $\underline{0}$
2. Equisetum arvense	<u>10</u>	Yes	FAC	Column Totals: <u>120</u> (A) <u>270</u> (B)
3. Juncus balticus	20	<u>Yes</u>	FACW	Provolonoo Indox = P/A = 2.25
4.				Prevalence Index = $B/A = 2.25$
5.				Hydrophytic Vegetation Indicators:
6.				
7.				<ul> <li>1 –Rapid Test for Hydrophytic Vegetation</li> <li>X 2 – Dominance Test &gt;50%</li> </ul>
8.				X 3 - Prevalence Index is $\leq 3.0^{1}$
9.				$\underline{X}$ 5 - Prevalence index is $\leq 5.0^{-1}$ $\underline{A}$ - Morphological Adaptions <sup>1</sup> (Provide supporting
10.				data in Remarks or on a separate sheet)
11.				5 – Wetland Non-Vascular Plants <sup>1</sup>
Total Cover = <u>100</u>				Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Woody Vine Stratum (Plot size: _4 m <sup>2</sup> )				<sup>1</sup> Indicators of hydric soil and wetland hydrology
1. Rubus armeniacus	20	Yes	FAC	must be present, unless disturbed or problematic.
2.				, , , , , , , , , , , , , , , , , , , ,
Total Cover = <u>20</u>				
% Bare Ground in Herb Stratum: <u>0</u>				Hydrophytic Vegetation Present? Yes
Remarks:		1		Tryarophytic vegetation resent: 103
וומותס.				

	<u>Mat</u>				eatures		initia di absence o	- maioate	,
Depth	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>	Texture		Remarks
(inches)									
<u>0-24</u>	<u>10YR 4/3</u>	<u>95</u>	<u>10YR 5/8</u>	<u>5</u>	<u>C</u>	<u>M</u>	Silty Clay Loam		
<sup>1</sup> Type: C=	Concentration, D	=Depletior	n, RM=Reduced Ma	atrix, CS=0	Covered o	<sup>r</sup> Coated S	and Grains. <sup>2</sup> Lo	cation: P	L=Pore Lining, M=Matrix
Hydric So	il Indicators: (App	olicable to	all LRRs, unless ot	herwise r	oted.)			Indicato	rs for Problematic Hydric Soils <sup>3</sup> :
Histos	sol (A1)		Sa	ndy Redo	x (S5)			2 ci	m Muck (A10)
Histic	Histic Epipedon (A2)Stripped Matrix (S6)								
	Histic (A3)			•••		(F1) ( <b>exc</b>	ept MLRA 1)		ry Shallow Dark Surface (TF12)
Hydro	ogen Sulfide (A4)		Lo	amy Gley	ed Matrix	(F2)		Oth	ner (Explain in Remarks)
Deple	ted Below Dark S	urface (A1	1) De	pleted M	atrix (F3)				
Thick Dark Surface (A12) Redox Dark Surface (F6)						<sup>3</sup> Indicators of hydrophytic vegetation and			
Sandy Mucky Mineral (S1)Depleted Dark Surface (F7)							wetland hydrology must be present, unless		
Sandy	Gleyed Matrix (S	4)	Re	dox Depr	essions (F8	3)		disturb	ed or problematic.
Restrictiv	e Layer (if presen	it):							
Type:									
Depth (in	ches): <u>0</u>							Hydric	Soil Present? <u>No</u>
Remarks:									

Surface Water (A1)	Water-Stained Leaves (B9)		Water-Stained Leaves (B9)(MLRA 1,2,4A,4B)
High Water Table (A2)	(except MLRA 1,2,4A, and 4B)		Drainage Patterns (B10)
Saturation (A3)	Salt Crust (B11)		Dry-Season Water Table (C2)
Water Marks (B1)	Aquatic Invertebrates (B13)		Saturation Visible on Aerial Imagery (C9)
Sediment Deposits (B2)	Hydrogen Sulfide Odor (C1)		Geomorphic Position (D2)
Drift Deposits (B3)	Oxidized Rhizospheres along Livin	g Roots (C3)	Shallow Aquitard (D3)
Algal Mat or Crust (B4)	Presence of Reduced Iron (C4)		FAC-Neutral Test (D5)
Iron Deposits (B5)	Recent Iron Reduction in Tilled So	Recent Iron Reduction in Tilled Soils (C6)	
Surface Soil Cracks (B6)	Stunted or Stressed Plants (D1)(LF	Stunted or Stressed Plants (D1)(LRR A)	
Inundation Visible on Aerial Imagery	(B7)Other (Explain in Remarks)		
Sparsely Vegetated Concave Surface	e (B8)		
Field Observations:			
Surface Water Present? <u>No</u>	Depth (inches):		
Water Table Present? <u>No</u>	Depth (inches):		
Saturation Present? <u>No</u>	Depth (inches):	Matland U.	drology Present? No
(includes capillary fringe)	monitoring well, aerial photos, previous inspec		arology present? <u>NO</u>

# APPENDIX C Site Photographs



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos01.indd, 10/27/20, 3:41 PM

anderson perry associates, inc.

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



**SITE PHOTOGRAPHS 1** 



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



X:/Projects/NextRenewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos02.indd, 10/27/20, 3:50 PM

anderson perry associates, inc.

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



**SITE PHOTOGRAPHS 2** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos03.indd, 10/27/20, 3:49 PM

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



**SITE PHOTOGRAPHS 3** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refiner/1199-727-224 WDR/NextRenewable PortWestward WDR Photos04. indd, 10/27/20, 3:55 PM

anderson perry associates, inc.

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



**SITE PHOTOGRAPHS 4** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos05.indd, 10/27/20, 3:54 PM

anderson perry associates, inc.

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



**SITE PHOTOGRAPHS 5** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos06.indd, 10/27/20, 3:58 PM

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



**SITE PHOTOGRAPHS 6** 



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.

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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.



## **SITE PHOTOGRAPHS 8**

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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.



**SITE PHOTOGRAPHS 9** 

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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refiner/1199-727-224 WDR/NextRenewable Port/Westward WDR Photos10.indd, 10/27/20, 4:12 PM

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

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

**SITE PHOTOGRAPHS 10** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos11.indd, 10/27/20, 4:16 PM

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



**SITE PHOTOGRAPHS 11** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos12.indd, 10/27/20, 4:18 PM

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



**SITE PHOTOGRAPHS 12** 



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



X:/Projects/NextRenewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos13.indd, 10/27/20, 4:20 PM

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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.



X:/Projects/NextRenewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos14. Indd, 10/27/20, 4:23 PM

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



**SITE PHOTOGRAPHS 14** 



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.



## **SITE PHOTOGRAPHS 15**

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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.



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



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



**SITE PHOTOGRAPHS 17** 



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



X:/Projects/Next Renewable Fuels, Inc/1199-727 Port Westward Renewable Diesel Refinery/1199-727-224 WDR/NextRenewable PortWestward WDR Photos18. indd, 10/27/20, 4:45 PM

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



**SITE PHOTOGRAPHS 18** 



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.

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



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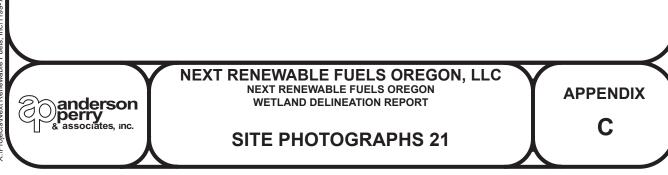
PHOTOGRAPH 40 - Wetland 3, Looking northwest at Plot 41 and 41a. Photograph taken by Sue Brady on September 30, 2020.



**SITE PHOTOGRAPHS 20** 



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

	Tem	peratur	e (°F)			Precipitation	(inches)		
Month	Avg daily	Avg daily	Avg daily	Avg		chance have	Avg number of days with	Average total snowfall	
	max	min	mean	1118	less than	more than	0.10 inch or more		
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	$28 \deg = 29$	$32 \deg = 30$			

		Temperature						
Probability	24 F or higher	28 F or higher	32 F or higher					
	Beginning and Ending Dates Growing Season Length							
50 percent *			4/17 to 10/28 194 days					
70 percent *			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	М	М	М	М
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	Т	0
2019-03-08	45	27	36.0	0	0	0.02	Т	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	Т	0.0

#### Climatological Data for CLATSKANIE, OR - April 2019

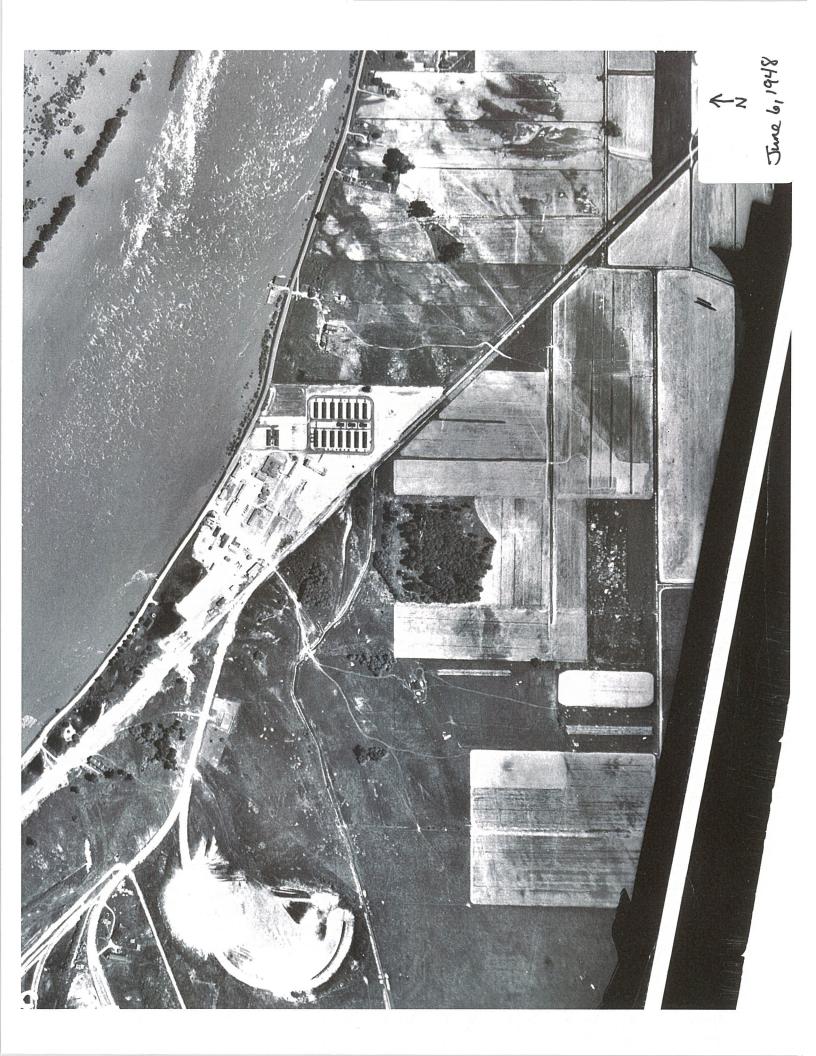
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Depth
2019-04-01	69	33	51.0	11	1	0.00	0.0	0
2019-04-02	67	46	56.5	17	7	0.05	0.0	0
2019-04-03	60	47	53.5	14	4	0.51	0.0	0
2019-04-04	59	41	50.0	10	0	0.03	0.0	0
2019-04-05	59	44	51.5	12	2	0.19	0.0	0
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

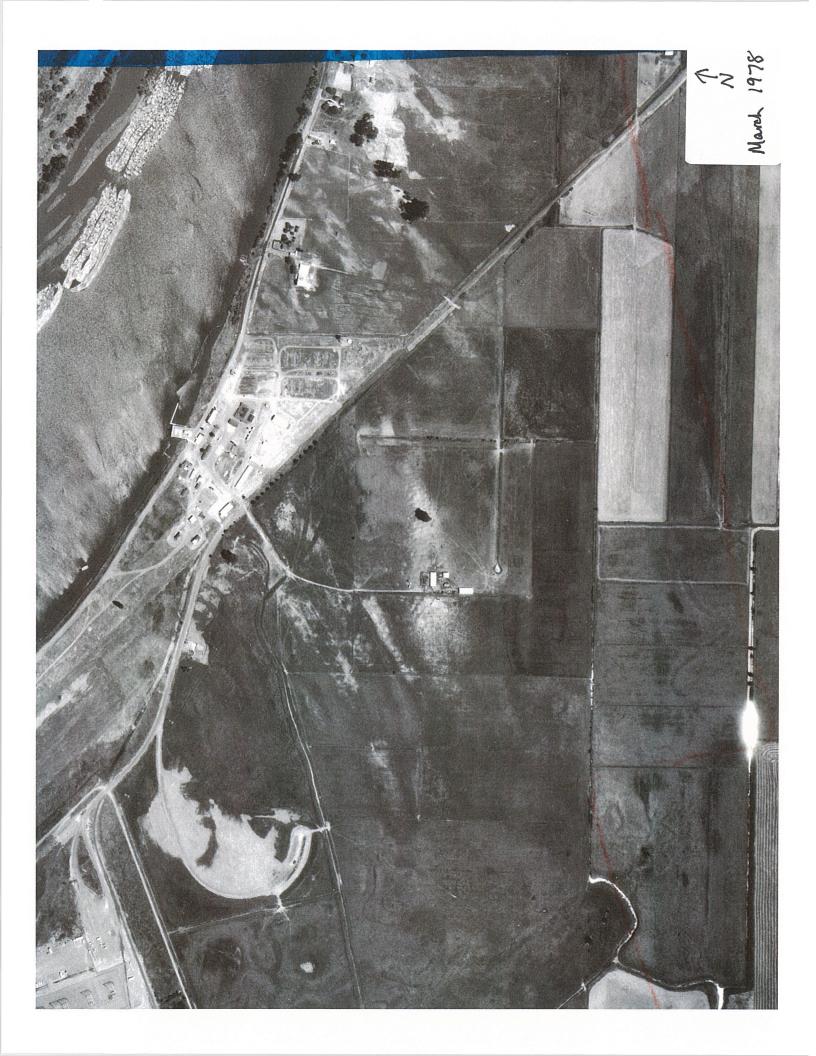
Date	Max Temperature	Min Temperature	Avg Temperature	GDD Base 40	GDD Base 50	Precipitation	Snowfall	Snow Dept
2020-09-01	73	49	61.0	21	11	0.00	0.0	0
2020-09-02	83	55	69.0	29	19	0.00	0.0	0
2020-09-03	81	51	66.0	26	16	0.00	0.0	0
2020-09-04	91	55	73.0	33	23	0.00	0.0	0
2020-09-05	72	56	64.0	24	14	0.00	0.0	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



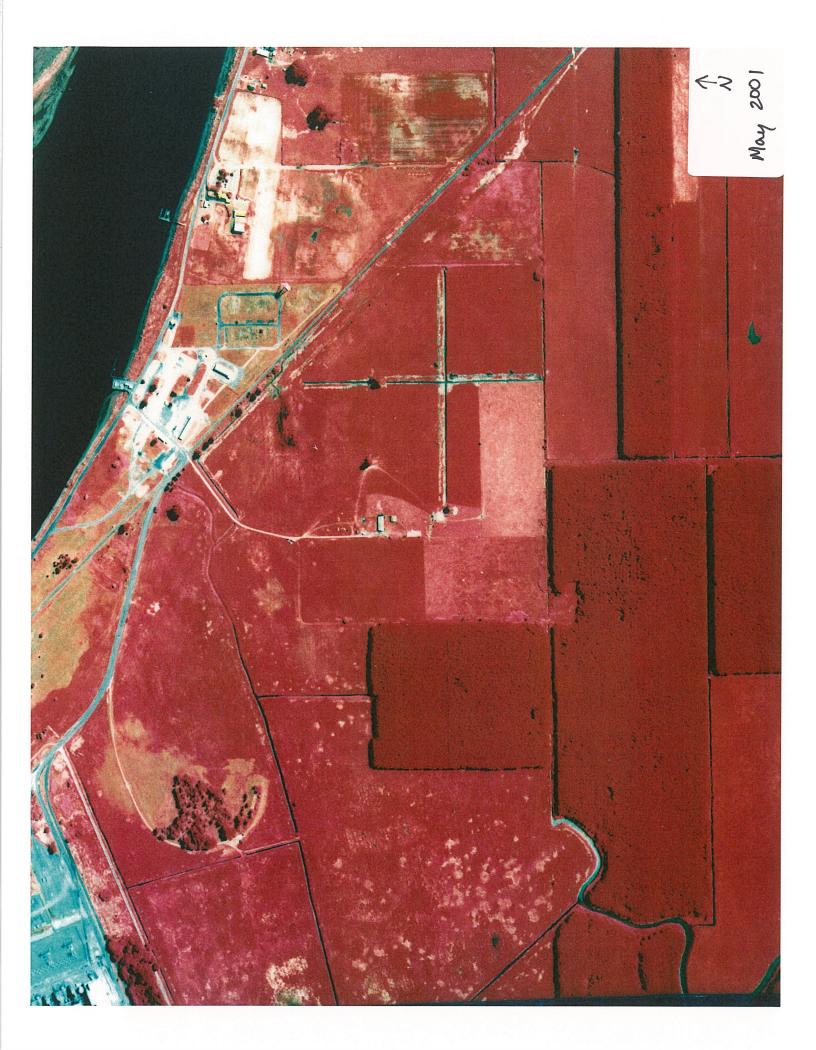












# **APPENDIX E** Literature Citations and References

#### **Literature Citations and References**

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