Percheron
Boardman, Morrow County, Oregon
Wetland and Waters Delineation Report

Date: May 2022

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Study Area: Morrow County Assessor's Map Section 28 03N 24E, Portion of Tax Lot 100
Boardman, Oregon

AKS Job Number: 8858-04

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Table of Contents

Tables

Appendices

Introduction

This report was prepared by AKS Engineering and Forestry, LLC (AKS) in accordance with Oregon Administrative Rules (OAR) 141-090-0030 and OAR-141-090-0035 (1-17) and describes the results of a wetland and waters delineation conducted on a portion of Tax Lot 100 of Morrow County Assessor's Map Section 28 03N 24E which is located north of Tower Road and north of Carty Reservoir in Boardman, Morrow County, Oregon (Figures 1 and 2 in Appendix A; referred to as the study area). The study area is approximately 275 acres and is shown in Figures 1 and 2 in Appendix A.

The on-site boundary of one palustrine emergent/palustrine forested (PEM/PFO) wetland (referred to as Wetland A) was delineated by AKS in the study area. Additionally, one intermittent drainage (referred to as Intermittent Water 1) was delineated extending from a series of four culverts under Tower Road north to Wetland A. Wetland A and Intermittent Water 1 are likely jurisdictional to the Oregon Department of State Lands (DSL).

Previous state approved wetland and water delineations mapped in or adjacent to the study area were reviewed to identify information that may be helpful in making a wetland determination, per OAR 141-090-0035(f). A wetland delineation was conducted by Ecology and Environment, Inc. (E&E) in 2009 to the southwest of Tower Road. Upon the request of DSL in 2010, additional field surveys were conducted in 2012 and a 2013 Addendum was provided by E&E. The 2013 E&E Addendum received concurrence from DSL under WD2010-0023 on December 24, 2013 (Appendix B), which determined 15 wetlands and four waterways present. Under the E&E study, an intermittent portion of Sixmile Canyon Drainage was identified continuing off-site to the northeast under Tower Road within the study area.

A. Landscape Setting and Land Use

The site is located within the Umatilla Plateau ecoregion, LRR B Columbia/Snake River Plateau Region in the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region Version 2.0 (USACE, 2008). The study area consists of an undeveloped, shrub-steppe habitat consisting of rolling plains dominant in big sagebrush (*Artemisia tridentata, NOL)*, bitterbrush (Purshia tridentata, NOL), green rabbitbrush (*Chrysothamnus viscidiflorus*, NOL), rubber rabbitbrush (*Ericameria nauseosa*, NOL), cheat grass (*Bromus tectorum*, NOL) and Russian Thistle (*Salsoa tragus,* FACU). A slightly lower elevational, transitional upland zone surrounding Wetland A (shown as the green area surrounding Wetland A and Intermittent Water 1 on aerial imagery) is dominated by burningbush (*Bassia scoparia*, FAC) and dead big sagebrush with lesser amounts of swainson pea (*Sphaerophysa salsula*, FACU), Amaranthus species (*Amaranthus spp.*, assumed FACU), lambsquarters (*Chenopodium species,* assumed FAC), prickly Russian thistle (*Salsola tragus*, FACU), catnip (*Nepeta cataria*, FACU), (*Onopordum acanthium*, NOL) and yellow star-thistle (*Centaurea solstitialis*, NOL).

Tower Road enters and exits the study area in the northwest corner and then parallels the study area's southern boundary. Land use surrounding the study area consists of agricultural and cultivated crop fields to the north and west, with undeveloped shrub-steppe plains to the east. The Carty Reservoir and Portland General Electric (PGE) associated generation station facilities are located approximately 5,000 feet to the south and southeast of the study area. The Boardman Naval Weapons Systems Training Facility is located approximately five miles to the east.

The study area is located within the Poverty Ridge-Sixmile Canyon watershed (ORWAP, 2022) and is characterized by open grassland plains and rolling hills. The study area is generally flat (slopes less than 5

percent) with undulating topography and an elevation of approximately 600 feet. Poverty Ridge boarders the study area to the east at approximately 650 feet in elevation (Figure 1, Appendix A) with a broad, gradual slope (slopes less than 30%) to the west towards the study area. Topography on the site generally slopes to the north, towards Sixmile Canyon and the Columbia River.

According to the Natural Resources Conservation Service (NRCS) Morrow County Area Soil Survey Map (Figure 3 in Appendix A), the following soil units are mapped within the study area:

- Koehler loamy fine sand, (Unit 26B) 2 to 5 percent slopes; Non-Hydric
- Koehler loamy fine sand, (Unit 26C) 5 to 12 percent slopes; Non-Hydric
- Royal silt loam, (Unit 53A) 0 to 3 percent slopes; Non-Hydric
- Sagehill fine sandy loam hummocky, (Unit 55B) 2 to 5 percent slopes; Non-Hydric
- Sagehill fine sandy loam hummocky, (Unit 55C) 5 to 12 percent slopes; Non-Hydric
- Taunton fine sandy loam, (Unit 58B) 2 to 5 percent slopes; Non-Hydric
- Taunton fine sandy loam, (Unit 58C) 5 to 12 percent slopes; Non-Hydric
- Quincy loamy fine sand, (Unit 40C) 2 to 12 percent slopes; Non-Hydric

B. Site Alterations

Historical aerial imagery was obtained from Google Earth dating from May 1994 until April 2021 and is included in Appendix C. The study area has remained relatively unchanged since 1994. Animal trails meander through the northern portion of the study area and are visible on aerial images. According to the April 2021 aerial image, potential inundation signatures were present within the vicinity of Wetland A delineated under this study and in an area just to the north, which was determined to be upland. To deduce the source of hydrology, past weather records were analyzed and human activities in the surrounding area were investigated. Precipitation prior to this event recorded no rainfall within six weeks of the April 2021 aerial imagery according to the AcGIS Boardman WETS Station. Coordination with Portland General Electric's Carty Generating Station Unit 1 determined no discharge from Carty Reservoir contributes to the flow regime of Intermittent Water 1. It is AKS' best professional judgement that inundation observed at the time of this aerial was an aberrant event from adjacent agricultural irrigation runoff.

Additionally, potential signatures of saturation are present in the northwest corner of the site starting in July 2001 until January 2021. Signatures are likely a result of irrigation from the adjacent agricultural crop circles to the north and west of the study area. No channel or drainage patterns were observed during AKS field investigations and this area was determined to be upland. There appears to have been no recent site alterations that would affect wetlands and waters on the site.

C. Precipitation Data and Analysis

Observed precipitation data were obtained from the National Oceanic and Atmospheric Administration's (NOAA) Applied Climate Information System (ACIS) Boardman, Oregon weather station. The closest Climate Analysis for Wetlands Tables (WETS) station to the project site is the Boardman station. The growing season (at 50 percent probability that the temperature is 28 degrees F or higher) is between April 2 and October 28, according to the WETS data. The October 14th, 2021 site visit was conducted within the later portion of the growing season and the March 31, 2022 site visit was conducted close to the beginning

of the WETS growing season and woody bud break was observed during the site visit—indicating the start of the growing season.

According to the Boardman weather station, the site received no rainfall the day of the October 14, 2021 site visit and 0.14 inches was received within the two weeks prior. Observed water year-to-date (starting October 1, 2021) was 0.14 inches. As depicted in Table 1 below, monthly observed precipitation was within normal range preceding the site visit according to the WETS data. However, the site visit was conducted following a hot and dry summer.

According to the Boardman weather station, no rainfall was received the day of the March 31, 2022 site visit and 0.05 inches of rainfall was received within the two weeks prior. According to the WETS data, monthly observed precipitation was wetter than normal preceding the site visit as depicted in Table 2 below. Observed water year-to-date (starting October 1, 2021) was 12.99 inches, which is 6.99 inches above normal. A reference site located several miles to the north of the study area was visited by AKS around the time of March 2022 site visit. Primary indicators of wetland hydrology were observed on the site as was used as a reference for wetland hydrology indicators within the study area.

Tables 1 and 2 show antecedent rainfall according for the WETS Boardman station for the three months prior to the October 2021 and March 2022 site visits (raw data included in Appendix D):

Table 1: Precipitation Data Prior to the October 14, 2021 Site Visit

Prior Months	Observed Precipitation (Inches)	Average WETS Precipitation (Inches)	30% Chance Will Have		Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply Previous Two Columns
			Less Than	More Than				
Sept. 2021	0.59	0.37	0.10	0.36	Wet	3	3	9
Aug. 2021	0.02	0.27	0.07	0.24	Dry	1	2	2
July 2021	0.00	0.18	0.00	0.17	Normal	2	1	2
							Sum	**13**
								normal
Rainfall of prior period was: **drier** than normal (sum is 6-9), **normal** (sum is 10-14), **wetter** than normal (sum is 15-18)								

Table 2: Precipitation Data Prior to the March 31, 2022 Site Visit

Prior Months	Observed Precipitation (Inches)	Average WETS Precipitation (Inches)	30% Chance Will Have		Condition Dry, Wet, Normal	Condition Value (1=dry, 2=normal, 3=wet)	Month Weight	Multiply Previous Two Columns
			Less Than	More Than				
March 2022	1.10	0.68	0.43	0.82	Wetter	3	3	9
Feb. 2022	0.56	0.88	0.48	1.06	Normal	2	2	4
Jan. 2022	0.96	1.20	0.74	1.46	Normal	2	1	2
							Sum	**15**
								wetter
Rainfall of prior period was: **drier** than normal (sum is 6-9), **normal** (sum is 10-14), **wetter** than normal (sum is 15-18)								

D. Methods

Field work was conducted on October 14, 2021 by AKS Natural Resource Specialists Sonya Templeton and Margret Harburg to delineate potentially jurisdictional wetlands and waters within the study area. A follow up site visit was conducted on March 31, 2022 by AKS Natural Resource Specialists Sonya Templeton and Margret Harburg and Senior Wetland Scientist Stacey Reed, PWS to confirm the extent of wetland and water boundaries during the annual groundwater recharge and early portion of the growing season. During the field investigations, AKS staff traversed the entire study area to assess existing conditions. Since there were no hydric soils mapped on the site, data plots were documented in the lowest elevational areas as well as areas with a hydrophytic vegetation community.

Soils, vegetation, and hydrology indicators were recorded at 18 sample plots on standardized wetland determination data forms (Appendix E) to document site conditions. The extent of wetland and water boundaries are shown on attached Figure 5-5A. Representative ground level site photographs are included in Appendix F. References cited and literature used are listed at the end of this report.

The methodology used to determine the presence of wetlands followed the *Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Version 2.0)* (Wakeley et al. 2008). The *National Wetland Plant List 2018* (USACE 2018) was used to assign wetland indicator status for the appropriate region. The delineation of the Ordinary High Water Mark (OHWM) followed the *Corps of Engineers Field Guide to the Identification of the Ordinary High Water Mark (OHWM) in the Arid West Region of the Western United States Manual (*Lichvar et al. 2008). Indicators used to determine the on-site OHWM of Intermittent Water 1 included a change in vegetation species, a break in slope from the active floodplain to the low terrace, and a presence of the bed and bank.

The methodology used to determine stream flow duration of Intermittent Water 1 followed the US Environmental Protection Agency (EPA)*, Region 10 (Document number EPA 910-R-11-002, Nov 2011) Streamflow Duration Assessment Method (SDAM) for Oregon. The User Manual for a Beta Streamflow Druation Assessment Method for the Arid West of the United States* (*Version 1.0*) (Mazor et al. 2021) was referenced as an aid in the determination of the flow regime. The Oregon SDAM Field Assessment form for Intermittent Water 1 is included in Appendix G.

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

Wetland A

Wetland A is a PFO/PEM wetland located in the southeastern portion of the study area within a low topographic depression. An intermittent drainage flows north into the southern boundary of Wetland A. No channel was observed flowing through or continuing north of the wetland; therefore, Wetland A lacks a surface water outlet. The main source of hydrology consists of direct precipitation and secondarily from subsurface flow and surface runoff from the adjacent upland that collects in the wetland from irrigation or from a period of heavy rain. Wetland A has an inlet channel, seasonal inundation, and a collection basin area greater than 2 feet deep; therefore, belongs to Depressional Closed Nonpermanent (DCNP) HGM subclassification.

During both the October 14, 2021 and March 31, 2022 site visits, Wetland A was dominated by Russian olive trees (*Elaeagnus angustifolia*, FAC) in the PFO portions of the wetland and perennial Chairmaker's bulrush (*Schoenoplectus americanus*, OBL) with lesser amounts of common reed (*Phragmites australis*,

FACW), rough cocklebur (*Xanthium strumarium*, FAC) and twoscale saltbush (*Atriplex heterosperma*, FAC) in the PEM portions of the wetland. Slight differences in vegetation were observed between the fall and spring visits. During the October 14, 2021 site visit, some late blooming annual populations were observed such as rough cocklebur (*Panicum capillare*, FAC) that had finished their life cycle and were no longer present in the spring. During the March 31, 2022, site visit western goldentop (*Euthamia occidentalis*, FACW) was observed sprouting at Plot 15 that was not present during the fall visit. Common panic grass is characterized by a late blooming, annual lifecycle duration (NRCS, 2022).

Soils observed in the wetland were of low chroma (chroma of 2 or less) displaying distinct or prominent redoximorphic features meeting hydric soil indicator Redox Dark Surface (F6) or Sandy Redox (S5). Soils also displayed a depleted matrix meeting hydric soil indicator F3. No groundwater table or soil saturation was observed within the upper 12 inches of the soil surface at all wetland plots (Plots 6, 7, 9, 11, and 13) during both site visits; however, Plot 13 was saturated at 16 inches during the March 31, 2022 site visit. All wetland plots displayed primary indicators of hydrology including Non-riverine Water Marks (B1). Water marks on trees and shrubs within the wetland was observed at approximately 3 feet. All wetland plots were documented in the potential inundation signature visible on the April 2021 aerial.

The wetland boundary was defined based on an approximate 3 to 5-foot change in topography on average. The northern portion of the wetland was defined by an approximate 20-foot change in topography. There was also a change in the composition of the vegetation community (FAC to FACW) in the wetland to a non-hydrophytic community in the upland. The change in the vegetation community coincides with a change in the landform from a concave, lower elevation in the wetland to a convex, higher elevation in the adjacent upland. The adjacent upland area lacked hydric soils and hydrology indicators as documented at paired upland Plots 8, 10, 12, and 14.

Upland

The adjacent upland surrounding Wetland A is characterized by a low terrace situated approximately 3 to 5 feet higher in elevation on average that gives way to a higher elevation shrub steppe habitat in the surrounding landscape. The low terrace setting is depicted by the lighter green area shown on Google Earth aerials. During both the October 14, 2021 and March 31, 2022 site visits, the upland area adjacent to Wetland A as documented by paired upland Plots 8, 10, 12, and 14, was dominated by burningbush (FAC) and twoscale saltbush (FAC) with lesser amounts of swainson pea (FACU), Amaranthus species (FACU), lambsquarters (assumed FAC), prickly Russian thistle (FACU), catnip (FACU), Scotch cottonthistle (NOL) and yellow star-thistle (NOL). Slight differences in vegetation were observed between the fall and spring visits. During the October 14, 2021 site visit, there were some species observed in the upland area that had finished their life cycle by the spring visit such as: spider flower species (*Cleomella spp.*, NOL), clasping pepperwort (*Lepidium perfoliatum*, FACU), and prickly lettuce (*Lactuca serriola*, FACU). During the March 31, 2022, site visit there was additional tall tumblemustard (*Sisymbrium altissimum*, FACU) and bare ground. A few yellow fritillaries (*fritillaria pudica*, NOL) were observed blooming in the higher elevation upland area. All upland plots lacked hydric soils and indicators of wetland hydrology.

Plots 1 and 2 were documented in the potential inundation signature just north of Wetland A visible on the April 2021 aerial. There is an approximate 20 feet tall land bridge (with one Juniper species on top [*Juniperus spp.*, assumed FACU or drier]) separating the potential inundation signatures from one another (Photos D and H, Appendix F). The vegetation associated with Plots 1 and 2 were dominant in Scotch cottonthistle (NOL), and twoscale saltbrush (FAC). No channel or defined bed and bank was observed

north or south of this area. Plots 1 and 2 characterize a slightly low topographic area, however this area lacked evidence of recent surface water ponding and is not located within NRCS mapped hydric soils. Plots 1 and 2 both lacked hydric soils and indicators of wetland hydrology; therefore, this area was determined to be upland.

Plots 3 and 4 were documented near the northernmost boundary of the study area in the lowest elevations. Both plots were dominant in Russian thistle (FACU) and cheatgrass (NOL) and subdominant in tall tumblemustard (FACU). There were animal trails throughout the area (likely deer) that are visible on aerial photos. No channel or defined bed and bank were observed in the vicinity of Plots 3 and 4. Both plots lacked hydric soils and indicators of wetland hydrology and were therefore determined to be upland.

Plot 5 was taken in a low topographic location that was approximately 1.5 feet lower in elevation than the surrounding area. The plot was dominant in yellow star-thistle (NOL) and tumblemustard (FACU). Plot 5 lacked hydric soils and indicators of wetland hydrology and was therefore determined to be upland. No defined bed and bank or OHWM were observed. There was no defined channel observed connecting to Wetland A or to the north of the plot.

Plot 17 was documented in the northwestern corner of the study area to document the conditions on either side of a culvert crossing beneath Tower Road. The plot was taken in the lowest topographic area, approximately 15 feet from the culvert opening. No defined bed and bank or OHWM were observed on either side of Tower Road. Tumblemustard (FACU), big sagebrush (NOL), and bitterbrush (NOL) were observed in the surrounding vicinity. The plant community at Plot 17 was dominant in Chairmaker's bulrush (OBL) and western goldentop (FACW). These species require prolonged periods of saturated soils for germination. Both species appeared to be dead with no evidence of new growth during both the October 2021 and March 2022 site visits. A reference site that was visited by AKS located several miles to the north of the study area contained both species, in which new growth was observed within conditions that contained saturated soils. Plot 17 lacked hydric soils and primary indicators of wetland hydrology. Therefore, this area was determined to be upland.

Non-Wetland Waters

Intermittent Water 1

Intermittent Water 1 enters the study area from the southeast and connects to the southern boundary of Wetland A and does not continue north beyond the wetland. The channel bed was vegetated with Russian olive trees (FAC) and twoscale saltbush (FAC) with scattered Chairmaker's bulrush (OBL) and common reed (FACW) which were observed near the culvert openings under Tower Road. The slope of the stream reach is approximately 3 percent or less with undulating topography. Based on this data, the streamflow is considered intermittent. The EPA defines an intermittent stream as a channel that contains water for only part of the year, that may lack biological and hydrological characteristics, with greatly variable flow including stormwater runoff.

Intermittent Water 1 is situated in a shallow floodplain surrounded by a low terrace within a greater shrub steppe landscape. The channel is on average 50 feet wide. No surface water flow or recent evidence of surface water flow such as a salt crust, sediment deposit or soil cracking was present during both the October 2021 and March 2022 site visits. A shallow low-flow channel was observed that was approximately 1- to 3-feet-wide, with 4- to 6-inch-tall banks. The channel substrate was composed of a

loamy sand with duff from the Russian olive trees. Plots 15, 16, and 18 were taken in the channel to document the general conditions and all lacked hydric soil and indicators of wetland hydrology.

The riparian area within the low terrace was dominated by burningbush (FAC) and twoscale saltbush (FAC) with lesser amounts of swainson pea (FACU), Amaranthus species (FACU), lambsquarters (assumed FAC), prickly Russian thistle (FACU), catnip (FACU), Scotch cottonthistle (NOL) and yellow star-thistle (NOL).

G. Deviation from NWI

The study area is not mapped on an Oregon Department of State Lands (DSL) approved Local Wetland Inventory (LWI) map. The National Wetland inventory (NWI) map for this area indicates one freshwater emergent wetland in the vicinity of Wetland A delineated under this study (Figure 5 in Appendix A). AKS agrees with the general location of the documented wetland however, it has been mapped significantly larger under this study. Additionally, AKS mapped an intermittent stream flowing north from Tower Road to Wetland A.

H. Mapping Method

AKS mapped Plots 1 through 18, Wetland A boundary, and extent of Intermittent Water 1 using a handheld Trimble Geo 7X GPS unit with submeter accuracy. The wetland and waters delineation map are included as Figure 5 and 5A in Appendix A.

I. Additional Information

Wetland A delineated in the study area is a naturally occurring wetland and is likely to be determined jurisdictional to DSL. Intermittent Water 1 has an intermittent flow regime and is likely to be determined jurisdictional to DSL. According to the current DSL Essential Salmonid Habitat (ESH) map Intermittent Water 1 is not designated as an ESH stream within the study area. According to Pacific States Marine Fisheries Commission (PSMFC) StreamNet, Intermittent Water 1 within the study area is not mapped as a native fish-bearing stream.

Wetland A delineated in the study area is isolated and is likely to be determined non-jurisdictional to the USACE. Wetland A does not have a direct hydrologic, chemical, or biological connection to the Columbia River (a traditional navigable water), lacking a significant nexus. Therefore, Wetland A would likely not be considered a water of the United States under the Clean Water Act Section 404.

J. Summary of Results and Conclusions

Sufficient information and technical requirements to aid in making a jurisdictional determination have been provided in this report. Table 2 below provides a summary of this information, including: the on-site sizes of the features, hydrologic connections to other nearby waters, the hydrogeomorphic (HGM) wetland classification or flow regime, and our prediction of whether each feature would likely be determined jurisdictional by DSL.

Table 2: Summary of Study Results and Conclusions

Potentially Jurisdictional Feature	Latitude/ Longitude	Size	HGM/ Flow Regime	Connection to Other Waters/Wetlands	Predicted Jurisdiction
Wetland A	45.708042, -119.815957	1.73 acres	PEM	None	DSL
Intermittent Water 1	45.705420, -119.818117	0.88 acres	Intermittent	Wetland A	DSL

K. Required Disclaimer

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

L. List of Preparers

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Fieldwork and Report QA/QC


AKS

Literature Cited and Referenced

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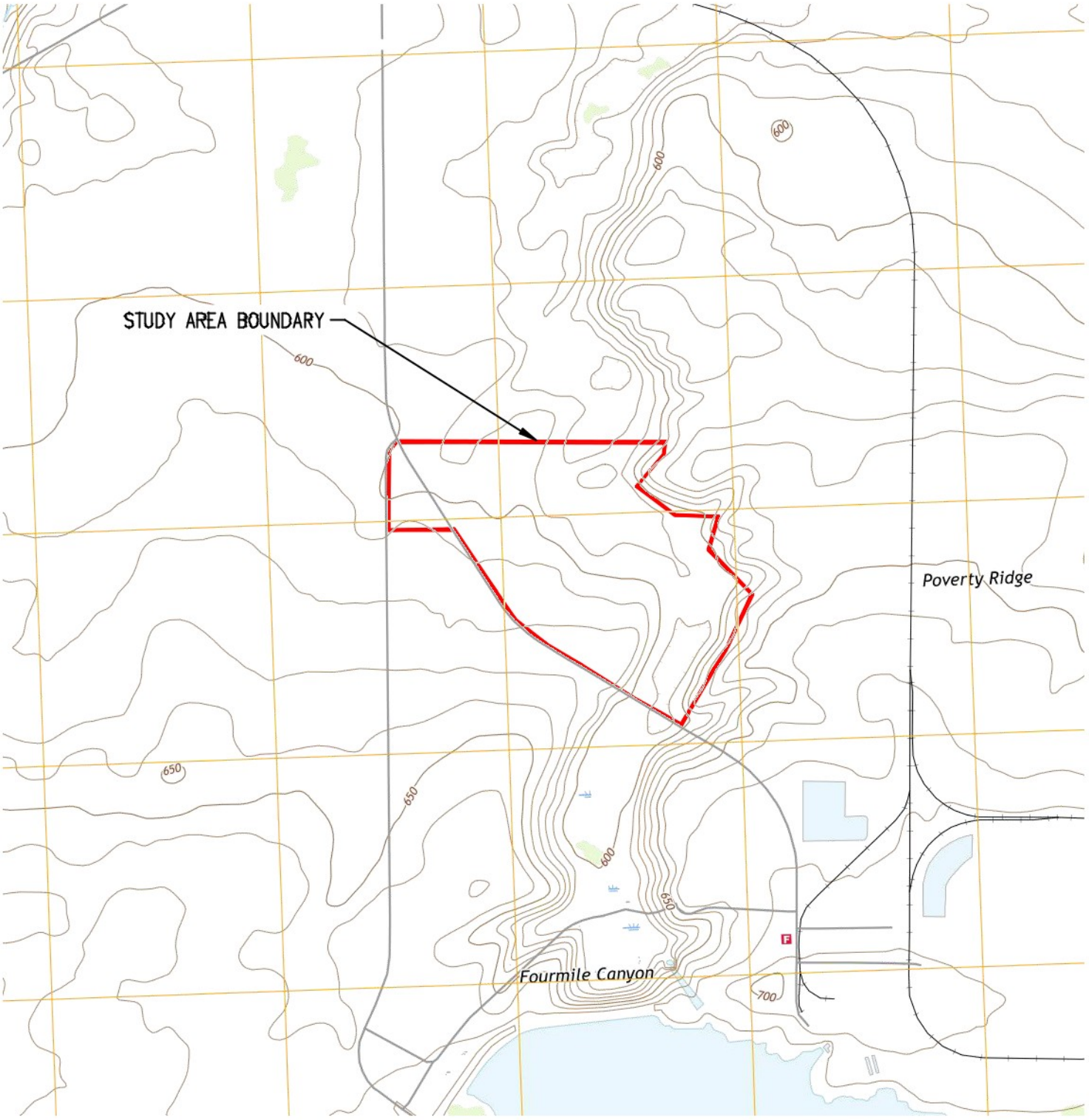
Appendix A: Maps



N

USGS 7.5' TOPOGRAPHIC SERIES QUADRANGLE:
DALREED BUTTE, OR (2020)

DATE: 04/07/2022

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

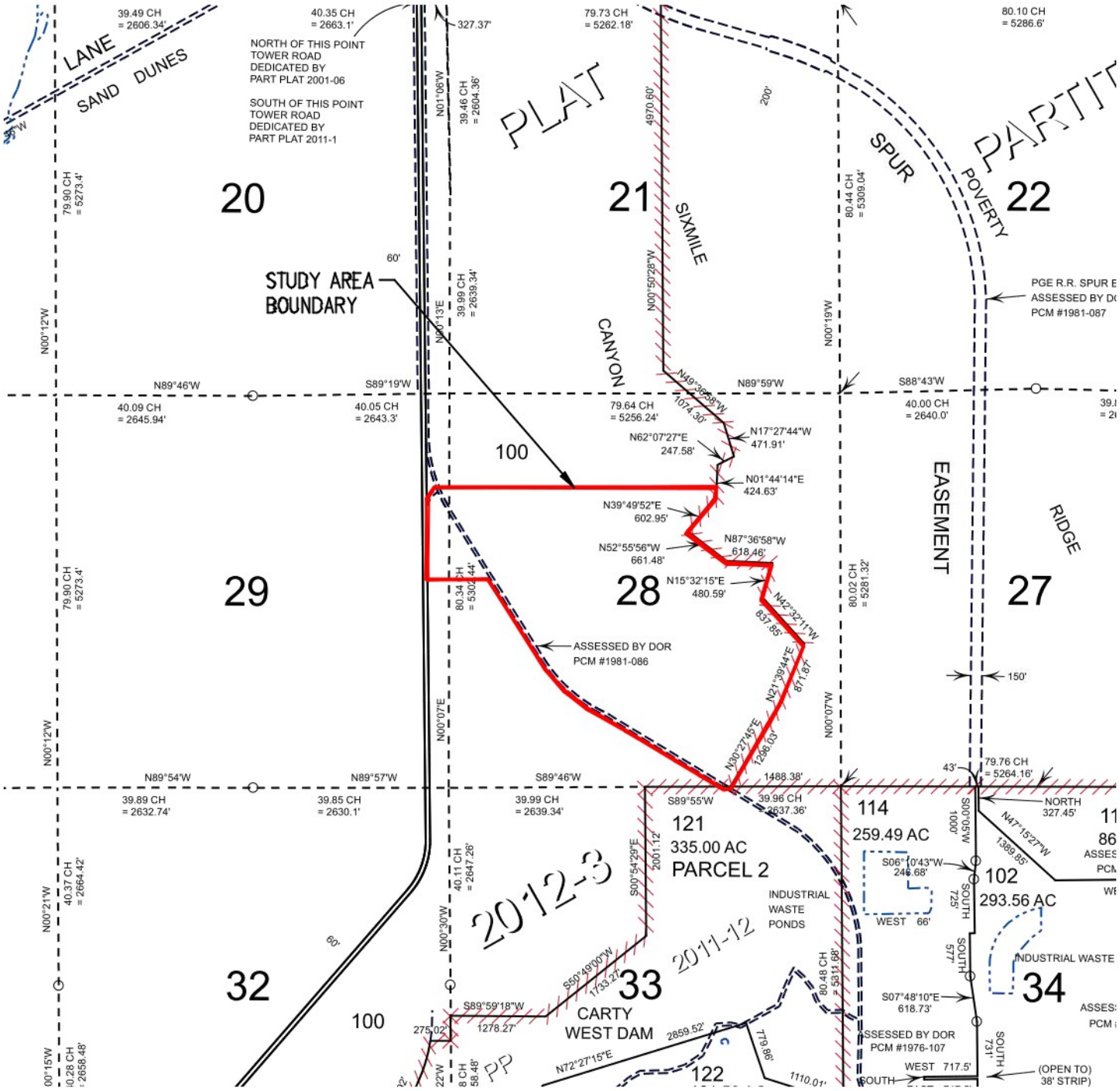
USGS VICINITY MAP
PERCHERON WETLAND AND WATER DELINEATION REPORT

FIGURE 1

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB: 8858-04

DWG: 8858-04 BACKGROUND FIGURES | FIGURE 1



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MORROW COUNTY
POTION OF TAX LOT 100
TAX MAP 3N 24E 28 W.M.

DATE: 04/07/2022

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

TAX MAP (MAP 3N 24E 28 W.M.)
PERCHERON WETLAND AND WATER DELINEATION REPORT

FIGURE 2

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB: 8858-04

DWG: 8858-04 BACKGROUND FIGURES | FIGURE 2

MAP UNIT SYMBOL	MAP UNIT NAME
26B	KOEHLER LOAMY FINE SAND, 2–5% SLOPES; NON–HYDRIC
26C	KOEHLER LOAMY FINE SAND, 5–12% SLOPES; NON–HYDRIC
53A	ROYAL SILT LOAM, 0–3% SLOPES; NON–HYDRIC
55B	SAGEHILL FINE SANDY LOAM HUMMOCKY, 2–5% SLOPES; NON–HYDRIC
55C	SAGEHILL FINE SANDY LOAM HUMMOCKY, 5–12% SLOPES; NON–HYDRIC
58B	TAUNTON FINE SANDY LOAM, 2–5% SLOPES; NON–HYDRIC
58C	TAUNTON FINE SANDY LOAM, 5–12% SLOPES; NON–HYDRIC
40C	QUINCY LOAMY FINE SAND, 2–12% SLOPES; NON–HYDRIC

N

SCALE: 1"=1000 FEET

1000 0 200 500 1000

ORIGINAL PAGE SIZE: 8.5" x 11"

NRCS WEB SOIL SURVEY FOR
MORROW COUNTY

DATE: 04/07/2022

NRCS SOIL SURVEY MAP
PERCHERON WETLAND AND WATER DELINEATION REPORT

FIGURE 3

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB: 8858-04

US FISH & WILDLIFE SERVICE
NATIONAL WETLANDS INVENTORY

N

SCALE: 1"= 2000 FEET

2000 0 400 1000 2000

ORIGINAL PAGE SIZE: 8.5" x 11"

DATE: 04/07/2022

NATIONAL WETLANDS INVENTORY MAP PERCHERON WETLAND AND WATER DELINEATION REPORT	FIGURE 4
AKS ENGINEERING & FORESTRY, LLC 12965 SW HERMAN RD, STE 100 TUALATIN, OR 97062 503.563.6151 WWW.AKS-ENG.COM	DRWN: RAS CHKD: SKT AKS JOB: 8858-04

DWG: 8858-04 BACKGROUND FIGURES | FIGURE 4

TAX LOT 100
MAP 03N 24E

EXISTING
26" CMP
CULVERT

PLOT 17

PLOT 3

PLOT 4

STUDY AREA BOUNDARY

ANIMAL TRAIL

TAX LOT 100
MAP 03N 24E

TAX LOT 112
MAP 03N 24E

TAX LOT 100
MAP 03N 24E

SEE FIGURE 5A

PLOT 1

PLOT 2

PLOT 5

PLOT 8

PLOT 7

PLOT 9

PLOT 10

PLOT 6

PLOT 14

PLOT 13

WETLAND A BOUNDARY

PLOT 11

PLOT 12

INTERMITTENT
WATER 1 OHWM

PLOT 18

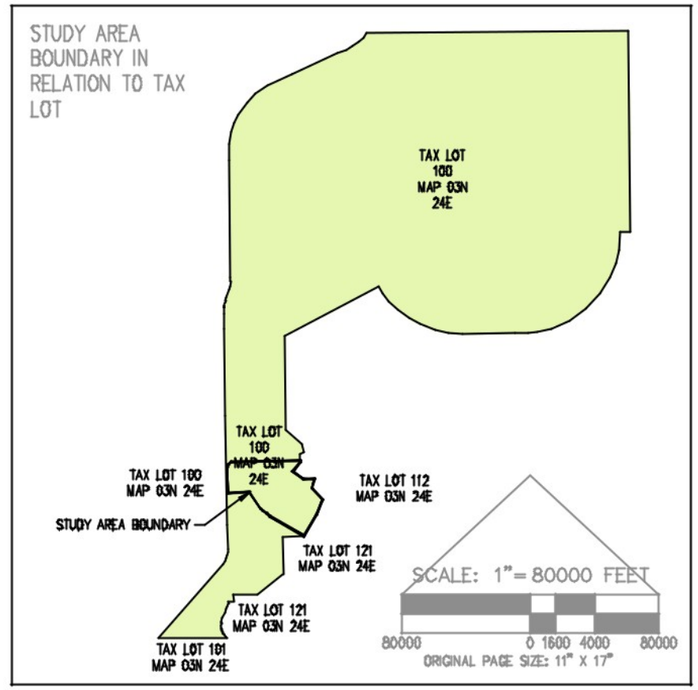
TAX LOT 100
MAP 03N 24E

PLOT 15

PLOT 16

GOOGLE EARTH AERIAL IMAGERY
APRIL 2021

STUDY AREA
BOUNDARY IN
RELATION TO TAX
LOT



LEGEND:

TOTAL ON-SITE WETLAND A PEM/PFO
DEPRESSIONAL AREA:
75,480 SF± (1.73 ACRES)

TOTAL ON-SITE INTERMITTENT WATER 1 AREA:
38,141 SF± (0.88 ACRES) (171 LF±)

A PHOTO POINT LOCATION AND ORIENTATION

WETLAND AND WATER BOUNDARIES AND PLOT LOCATIONS SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 31, 2022 AND WERE LOCATED USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUBMETER ACCURACY.

UNABLE TO OBTAIN NOAA LIDAR DUE TO PROXIMITY TO THE BOARDMAN NAVEL WEAPONS SYSTEMS TRAINING FACILITY. STUDY AREA BOUNDARY DERIVED FROM GIS TAX LOTS AND DIGITIZED POST-FIELD IN AUTOCAD, ACCURACY ±5.

N

SCALE: 1"= 500 FEET
500
0 100 250
500
ORIGINAL PAGE SIZE: 17" x 11"

DATE: 04/19/2022

WETLAND AND WATER DELINEATION OVERVIEW MAP

FIGURE
5

PERCHERON WETLAND AND WATER DELINEATION REPORT

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB:
8858-04

DWG: 8858-04 WDR EXCOND | FIGURE 5

MATCHLINE SEE LEFT

ANIMAL TRAIL

D

G

PLOT 1

PLOT 2

E

PLOT 5

F

H

TAX LOT 100
MAP 03N 24E

PLOT 8

PLOT 7

J

L

PLOT 6

PLOT 9

PLOT 14

PLOT 13

PLOT 10

WETLAND A BOUNDARY

PLOT 11

PLOT 12

TAX LOT 112
MAP 03N 24E

STUDY AREA BOUNDARY

MATCHLINE SEE RIGHT

PLOT 18

N

INTERMITTENT
WATER 1 OHWM

O

PLOT 16

PLOT 15

TAX LOT 100
MAP 03N 24E

4 EXISTING 72"
CMP CULVERTS

INTERMITTENT
WATER 1
CONTINUES OFF-SITE

DSL FILE NO.
WD2010-0023

STUDY
AREA
BOUNDARY

LEGEND:

GOOGLE EARTH AERIAL IMAGERY
APRIL 2021

TOTAL ON-SITE WETLAND A PEM/PFO DEPRESSIONAL AREA:
75,480 SF± (1.73 ACRES)

A

TOTAL ON-SITE INTERMITTENT WATER 1 AREA:
38,141 SF± (0.88 ACRES) (171 LF±)

PHOTO POINT LOCATION AND ORIENTATION

WETLAND AND WATER BOUNDARIES AND PLOT LOCATIONS SHOWN WERE DELINEATED BY AKS ENGINEERING & FORESTRY, LLC ON MARCH 31, 2022 AND WERE LOCATED USING A TRIMBLE GEO 7X HANDHELD GPS RECEIVER WITH SUBMETER ACCURACY.

UNABLE TO OBTAIN NOAA LIDAR DUE TO PROXIMITY TO THE BOARDMAN NAVEL WEAPONS SYSTEMS TRAINING FACILITY. STUDY AREA BOUNDARY DERIVED FROM GIS TAX LOTS AND DIGITIZED POST-FIELD IN AUTOCAD, ACCURACY ±5.

N

SCALE: 1"=100 FEET

100 0 20 50 100

ORIGINAL PAGE SIZE: 17" x 11"

WETLAND AND WATER DELINEATION MAP

DATE: 04/19/2022

PERCHERON WETLAND AND WATER DELINEATION REPORT

FIGURE 5A

AKS ENGINEERING & FORESTRY, LLC
12965 SW HERMAN RD, STE 100
TUALATIN, OR 97062
503.563.6151 WWW.AKS-ENG.COM

DRWN: RAS
CHKD: SKT
AKS JOB: 8858-04

DWG: 8858-04 WDR EXCOND | FIGURE 5A

Appendix B: DSL Wetland Delineation Concurrence Letter (WD2010-0023)

Oregon
John A. Kitzhaber, MD, Governor

Department of State Lands
775 Summer Street NE, Suite 100
Salem, OR 97301-1279
(503) 986-5200
FAX (503) 378-4844
www.oregonstatelands.us

December 24, 2013

Portland General Electric Company
Attn: Mike Livingston & Lenna Cope
121 SW Salmon Street, 3WTC-BR05
Portland, Oregon 97204

Re: Wetland Delineation Report for Morrow and Gilliam Counties; T02N R22E, R23E, & R24E; T03N R21E, 22E, 23E & 24E; portions of multiple Tax Lots – see attached Table F, revised; WD #2010-0023

Dear Mr. Livingston & Ms. Cope:

The Department of State Lands has reviewed the wetland delineation report prepared by Ecology and Environment, Inc. for the study area referenced above. Please see the attached maps and revised Table F for the study area locations. Based upon the information presented in the report, and additional information submitted upon request, we concur with the wetland and waterway boundaries as mapped in revised Figures 5.1 – 5.5 & corresponding detail maps (11 total in set), attached. Please replace all copies of the preliminary wetland maps with these final Department-approved maps. Within the study area, 15 wetlands (totaling approximately 7.279 acres) and four waterways were identified. The wetlands, Willow Creek, stream SS-002-001 and a portion of Sixmile Canyon Drainage are subject to the permit requirements of the state Removal-Fill Law. Under current regulations, a state permit is required for cumulative fill or annual excavation of 50 cubic yards or more in the wetland or below the ordinary high water line (OHWL) of a waterway (or the 2 year recurrence interval flood elevation if OHWL cannot be determined).

However, within the study area Eightmile Canyon Drainage and a portion of Sixmile Drainage were determined to have ephemeral flow and therefore, are not state jurisdictional. Please see the revised Table F and maps for details.

This concurrence is for purposes of the state Removal-Fill Law only. Federal or local permit requirements may apply as well. The Army Corps of Engineers will review the report and make a determination of jurisdiction for purposes of the Clean Water Act at the time that a permit application is submitted. We recommend that you attach a copy of this concurrence letter to both copies of any subsequent joint permit application to speed application review.

Please be advised that state law establishes a preference for avoidance of wetland impacts. Because measures to avoid and minimize wetland impacts may include reconfiguring parcel layout and size or development design, we recommend that you

work with Department staff on appropriate site design before completing the city or county land use approval process.

This concurrence is based on information provided to the agency. The jurisdictional determination is valid for five years from the date of this letter, unless new information necessitates a revision. Circumstances under which the Department may change a determination are found in OAR 141-090-0045 (available on our web site or upon request). In addition, laws enacted by the legislature and/or rules adopted by the Department may result in a change in jurisdiction; individuals and applicants are subject to the regulations that are in effect at the time of the removal-fill activity, or complete permit application. The applicant, landowner, or agent may submit a request for reconsideration of this determination in writing within six months of the date of this letter.

Thank you for having the site evaluated. Please phone me at 503-986-5297 if you have any questions.

Sincerely,

Jevra Brown
Wetland Specialist

Approved by

Kathy Verble, CPSS
Acting Wetlands Program Manager

Enclosures

ec: Clare Kenny, Ecology and Environment, Inc.
Morrow County Planning Department
Gilliam County Planning Department
Shelly Lynch, Corps of Engineers LaGrande office
Heidi Hartman, DSL Bend office
Sue Oliver & Duane Kilsdonk, OR Department of Energy, EFSC

DUANE KILSDONK ODOE COMPLIANCE OFFICER Duane.Kilsdonk@state.or.us
SUE OLIVER " " " Sue.Oliver@state.or.us

WETLAND DELINEATION / DETERMINATION REPORT COVER FORM

This form must be included with any wetland delineation report submitted to the Department of State Lands for review and approval. A wetland delineation report submittal is not "complete" unless the fully completed and signed report cover form and the required fee are submitted. Attach the form to the front of an unbound report and submit to: **Oregon Department of State Lands, 775 Summer Street NE, Suite 100, Salem, OR 97301-1279**
Mail a copy of the completed form with payment of the required report review fee to: **Oregon Department of State Lands, P.O. Box 4395, Unit 18, Portland, OR 97208-4395.**
For new credit card payment option, see DSL web site.

☒ Applicant ☐ Owner Name, Firm and Address: **Portland General Electric Company** **121 SW Salmon Street, 3WTC-BR05** **Portland, OR 97204**	Business phone # **503/464-8519** Mobile phone # (optional) FAX # **503-464-8527** E-mail: **ray.hendricks@pgn.com**
☒ Authorized Legal Agent, Name and Address: **Mike Livingston** **121 SW Salmon St** **Portland, OR 97204** Lenda.Cope@pgn.com Environmental Engineer	Business phone # **503-464-8127** FAX # **503-464-2863** Mobile phone # **503-849-3299** E-mail: **mike.livingston@pgn.com**

I either own the property described below or I have legal authority to allow access to the property. I authorize the Department to access the property for the purpose of confirming the information in the report, after prior notification to the primary contact.
Typed/Printed Name: **Mike Livingston** Signature: _____
Date: **2/15/2010** Special instructions regarding site access:

Project and Site Information (for latitude & longitude, use centroid of site or start & end points of linear project)

Project Name: **Carty Generating Station**	Latitude: **45 41'59.937"N** Longitude: **119 48' 49.39" W**
Proposed Use: **Combined-cycle natural gas power generating facility and associated 18-mile transmission line**	Tax Map # **Attached table lists all tax map numbers for the project.** Table F revised
Project Street Address (or other descriptive location): **Near the existing Boardman Plant - accessed from I-84 and Tower Road**	Township Range Section QQ Tax Lot (s) **Attached table lists tax lots.**
City: **near Boardman** County: **Morrow/Gilliam**	Waterway: River Mile: NWI Quad(s): **Arlington, Horn Butte, Dalreed Butte, Ella**

Wetland Delineation Information

Wetland Consultant Name, Firm and Address: **Lucas C. Meek** CLARE KENNY x4624 **Ecology and Environment, Inc.** **333 SW Fifth Ave, Suite 600, Portland, OR 97204**	Phone # **503/248-5600** x 4608 reception 7:30-4 Mobile phone # FAX # **503/248-5577** E-mail: **lmeek@ene.com** Cell ph # 360-907-0549

The information and conclusions on this form and in the attached report are true and correct to the best of my knowledge.
Consultant Signature: _____ Date: 2/15/10

Primary Contact for report review and site access is ☒ Consultant ☐ Applicant/Owner ☐ Authorized Agent 7.279

Wetland/Waters Present? ☒ Yes ☐ No | Study Area size: **2,400 acres** | Total Wetland Acreage: ~~4~~ acres (see Table F revised

Check Box Below if Applicable:

- ☐ R-F permit application submitted
- ☐ Mitigation bank site
- ☐ Wetland restoration/enhancement project (not mitigation)
- ☐ Industrial Land Certification Program Site

Fees:

- ☒ Fee payment submitted $ **363.00**
- ☐ Fee ($100) for resubmittal of rejected report

Name of Payor: **Eric White, E&E**

Other Information:

	Y	N	
Has previous delineation/application been made on parcel?	☐	☒	If known, previous DSL # **Unknown**
Does LWI, if any, show wetland or waters on parcel?	☐	☐	No LWI available

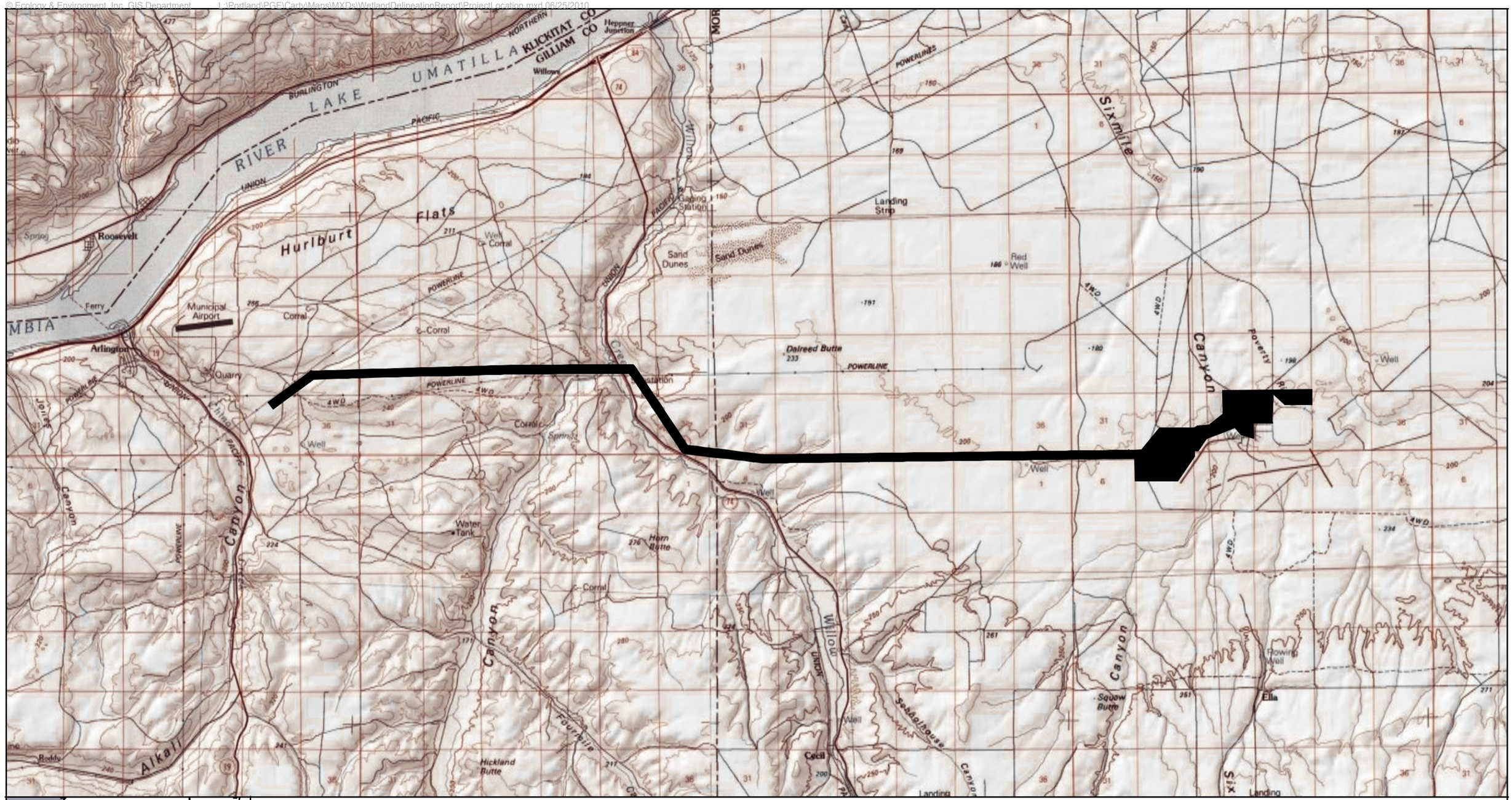
For Office Use Only

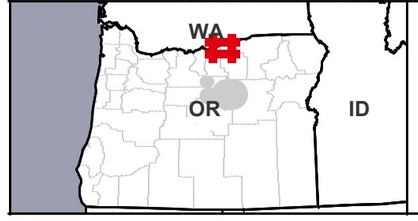
DSL Reviewer: JB Fee Paid Date: ___/___/___ DSL WD # 2010-0023
Date Delineation Received: 2/15/10 DSL Project # _____ DSL Site # _____
Scanned: ☒ Final Scan: ☐ DSL WN # _____ DSL App. # _____
Cover rec'd 2.15.10

Form Effective January 1, 2008

Table F: Tax Lot and Figure Number Guide for Delineated Features - revised

COUNTY	MAP NUMBER	TAX LOT	2013 ADDENDUM FIGURES	FINAL FIGURES	FEATURE ID	TOTAL ACRES	FINAL DSL DETERMI-NATION
MORROW	03N24E	102	--	--	(None)	--	
	03N24E	115	--	--	(None)	--	
	03N24E	114	--	--	(None)	--	
	02N24E	101	--	--	(None)	--	
	03N24E	101	--	--	(None)	--	
MORROW	02N24E	103	--	--	(None)	--	
MORROW	02N23E	100	S6, 11	5.3, 5.3.1	Wetland C	0.9	Yes
			S7, S12	5.3, 5.3.2	Wetland D	0.2	Yes
			S7, S10	5.3, 5.3.1	WW-002-009	0.1	Yes
			S7, S10	5.3, 5.3.1	WW-002-010	0.6	Yes
			S7, S10	5.3, 5.3.1	WW-002-011	0.3	Yes
			S7, S11	5.3, 5.3.1	WW-002-012	0.7	Yes
			S6	5.3, 5.3.1	SS-002-001	n/a	Yes
MORROW	03N24E	120	S1, S2, S10	5.1, 5.1.1	Wetland A	0.8	Yes
			S5, S11	5.1, 5.1.3	Wetland B	2.2	Yes
			S1, S2	5.1, 5.1.1	Wetland J	0.01	Yes
			S4, S12	5.1, 5.1.2	Wetland H-1	0.85	Yes
			S4, S12	5.1, 5.1.2	Wetland H-2	0.01	Yes
			S4, S12	5.1, 5.1.2	WW-002-001	0.005	Yes
			S1, S2, S11	5.1, 5.1.1	WW-002-002	0.3	Yes
			S1, S2, S10	5.1, 5.1.1	WW-002-007	0.3	Yes
			S4, S11	5.1, 5.1.2	WW-004-001	0.004	Yes
			S1, S2, S3, S4	5.1, 5.1.1, 5.1.2	Sixmile Canyon Drainage	n/a	Yes, Figure 5.1.1 No, Fig. 5.1.2, ephemeral
GILLIAM	03N22E	2100	--	--	(None)	--	
GILLIAM	03N21E	506	--	--	(None)	--	
GILLIAM	03N22E	700	S8	5.4, 5.4.1	Willow Creek	n/a	Yes
			S8	5.4, 5.4.1	Eightmile Canyon Drainage	n/a	No, ephemeral
GILLIAM	03N22E	701	--	--	(None)	--	
GILLIAM	03N22E	2800	--	--	(None)	--	
GILLIAM	03N21E	503	--	--	(None)	--	
GILLIAM	02N22E	100	S7, S12	5.3, 5.3.2	Wetland D	see above	Yes
GILLIAM	03N23E	100	S7, S12	5.3, 5.3.2	Wetland D	see above	Yes
GILLIAM	02N22E	200	--	--	(None)	--	
	03N22E	2202	--	--	(None)	--	
	03N22E	2201	--	--	(None)	--	
	03N22E	3601	--	--	(None)	--	
	02N22E	300	--	--	(None)	--	
	03N22E	2203	--	--	(None)	--	





Site Boundary

0 0.5 1 2 3 4 5 Miles

0 0.5 1 2 3 4 5 Kilometers

DSL WD2010-0023

Figure 1
Project Location
PGE Carty Generating Station
Application for Site Certificate

03n24-00120

03n24-00114

03n24-00101

03n24-00115

03n24

03n23-00100

02n23-00100

02n23-00100

02n24-00103

02n24-00101

02n24-00100

03n24-00102

Wetlands
A and J

Sixmile Canyon Drainage

Wetlands
H and H2

Wetland B

Carty Reservoir

0 0.25 0.5 1 1.5 2 Miles

Site Boundary

Access Road Corridor

Field Delineated Wetland Location

Stream Feature

Intersecting Tax Lot Boundary

Map Tax Lot # Labeled

3N22E000700

3N22E0002100

03n23-00100

3N22E0002800

3N21E000506

3N22E0003601

3N22E0002202

3N22E0002201

3N22E0002203

Eight Mile Canyon Creek

Willow Creek

3N22E000701

3N21E000503

Wetland D

Wetland C

2N22E000300

2N22E000200

2N22E000100

02n23-00100

19

74

Arlington

0 0.25 0.5 1 1.5 2 Miles

Site Boundary
Access Road Corridor

Intersecting Tax Lot Boundary

Map Tax Lot # Labeled

Sixmile Canyon Drainage

Wetland A Area

FIGURE 5.1.1

FIGURE 5.1.2

FIGURE 5.1.3

Wetland B

Wetland H2

Wetland H

Tower Rd.

03n24-00112

03n24-00101

03n24-00115

03n24-00116

03n24-00120

03n24-00113

03n24-00104

03n24-00102

03n24-00114

03n24-00117

02n24-00106

02n24-00100

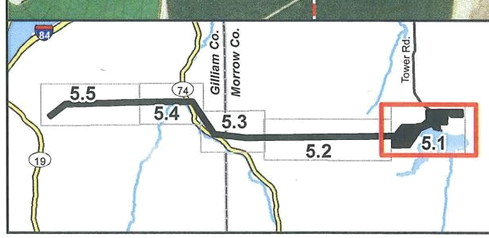
02n24-00107

02n24-00103

02n24-00101

02n24-00102

02n24-00105



N

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

- Site Boundary
- Proposed Energy Facility Area
- Temporary Construction Area
- Proposed Grassland Switchyard
- Tax Lots
- Access Road
- Field Delineated Wetland
- Stream Features

DSL WD # 2010-0023 10f11

Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.1
Wetland and Watebodies Map Tile Overview, including Tax Lot Boundaries
PGE Carty Generating Station
December 2013

Sixmile Canyon Drainage (Drainage extends beyond study area to the NE and SW)

W03
0277 - W
0278 - S

U01
0337 - SE
0339 - NE

W01
1203 - S
1204 - E
1206 - SW
1207 - N

03n24-00114

U03
0247 - E
0276 - S

Sixmile Canyon Drainage maximum width at OHWM is 15 feet

W02
0364 - S
0365 - SE

Wetland A

W A-1
A-3 - S

A-4 - NW

W A-2

U A-1
A-2 - NW

U A-2

A-1 - NE

RP-002-050
0340 - N

Wetland J

U J-1
J-1 - W

W J-1
J-2 - E

03n24-00120

U03
0362 - N
0363 - S

W02
None

U02
0279 - N
0280 - NW

W02
0318 - N

W01

U04
0356 - SW
0357 - W

W04
1208 - W
1210 - N

XW-002-008
0348 - E
0349 - S
0350 - SW
0351 - N

W03
0325 - N
0328 - E

WW-002-007

U01
0317 - N

WW-002-002

XW-001-005
0305 - SW

U03
0327 - E
0328 - E

U01
0285 - SW
0286 - S

XW-002-003
0293 - NW
0294 - W

RP-002-019
0312 - NW
0313 - NW/N
0314 - N
0315 - NE

Sixmile Canyon Drainage (Drainage extends beyond study area to the NE and SW)

W01
0281 - S
0282 - SE
0284 - W

XW-002-002
0287 - S
0288 - S
0289 - E
0290 - W

Geographic Reference Location
(45.702529, -119.815928)

XW-002-001
0267 - SE
0268 - E
0269 - NE

N

0 125 250 500 Feet

1 inch = 200 feet

Site Boundary
Access Road
Tax Lots

2012 / 2013 E&E Field Data
Wetlands
Photo Location
Point marks transition to intermittent flow (to NE) THIS REACH

Soil Points
Upland
Wetland
Delineated Water Features
OHWM = 15' MAX WIDTH SIXMILE CANYON

2009 E&E Field Data
Soil Sample
Upland
Wetland

Field Data Accurate to +/- 1 meter

DSL WD # 2010-0023 20f11

Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.1.1: Wetland A Area

PGE Carty Generating Station

December 2013

RP-004-019
0198 - N
0199 - E
0200 - S
0201 - W

WW-002-001

Feature extends beyond study area

006
0196 - NW
0197 - SE

005
0194 - N
0195 - S

Sixmile Canyon Drainage

WW-004-001

004
0182 - NW
0183 - S

003
0180 - N
0181 - S

Geographic Reference Location
(45.697765, -119.819067)

0367 - W
0368 - W
0369 - SW

002
0178 - N
0179 - S

001
0177 - S

Wetland H-2

H-2

H-2

H1-1 - S
H1-2
H1-3

H2-1 - NE
H2-2 - N

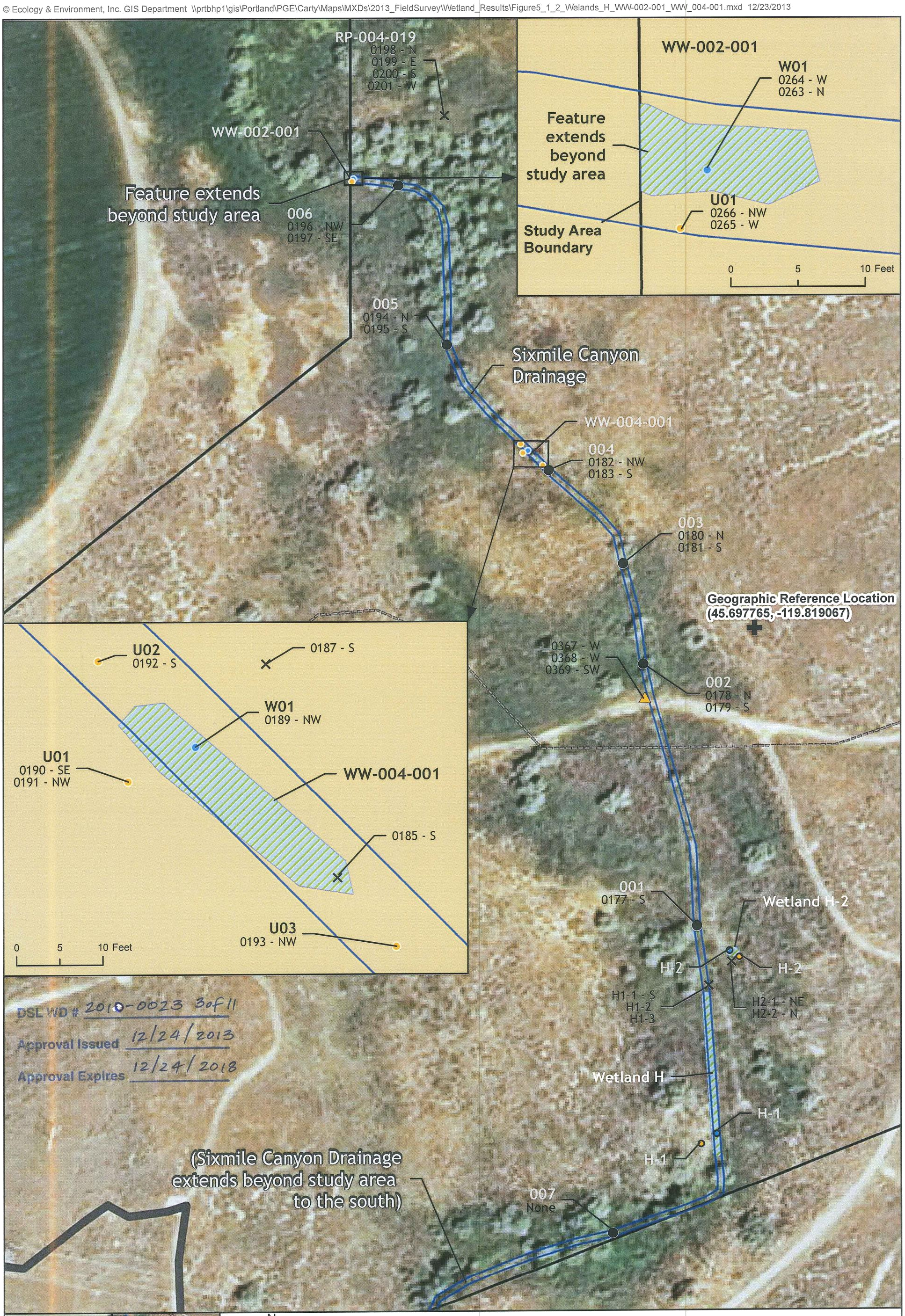
Wetland H

H-1

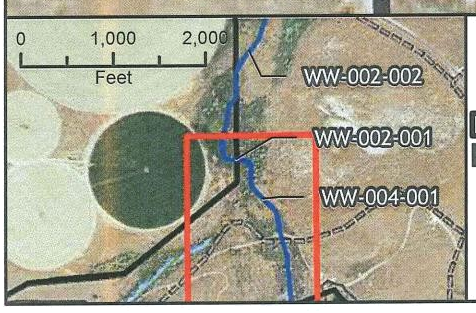
H-1

007
None

(Sixmile Canyon Drainage extends beyond study area to the south)



DSL WD # 2010-0023 3of11
Approval Issued 12/24/2013
Approval Expires 12/24/2018



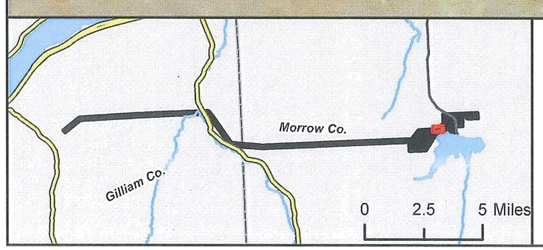
N
0 125 250 500 Feet
1 inch = 200 feet

Site Boundary
Access Road
Culvert / Bridge Road Crossing
2012 / 2013 E&E Field Data
Wetlands
Six-mile Canyon Drainage (OHWM width is 10 feet)
EPHEMERAL THIS REACH
Photo Location
SDAM Points
Soil Points
Upland
Wetland
2009 E&E Field Data
Soil Sample
Upland
Wetland

Field Data Accurate to +/- 1 meter

Figure 5.1.2:
Wetlands H, WW-002-001, and WW-004-001

PGE Carty Generating Station
December 2013



N

0 125 250 500 Feet

1 inch = 200 feet

Site Boundary
Access Road
Tax Lots

2012 / 2013 E&E Field Data
Wetlands
Photo Location

InvestigativeWetland Point (XW)
2009 E&E Field Data
Soil Sample
Upland
Wetland

Field Data Accurate to +/- 1 meter

DSL WD # 2010-0023 4of11

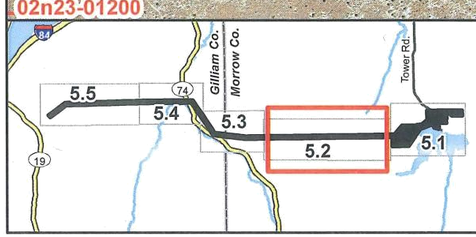
Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.1.3:
Wetland B Area

PGE Carty Generating Station

December 2013



N

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

- Site Boundary
- Proposed Energy Facility Area
- Temporary Construction Area
- Proposed Grassland Switchyard
- Tax Lots
- Access Road
- Field Delineated Wetland
- Stream Features
- Reference Location

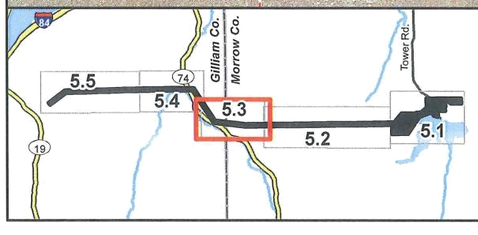
DSL WD # 2010-0023 5 of 11

Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.2
Wetland and Watebodies Map Tile Overview, including Tax Lot Boundaries
PGE Carty Generating Station
December 2013

03N22E-700
03N22E-2100
03n23-00100
03N22E-3602
03N22E-700
Gilliam County
Morrow County
FIGURE 5.3.2
FIGURE 5.3.1
02N22E-300
02N22E-3800
02N22E-200
Wetland D
Wetland C
02N22E-100
02n23-00100
02N22E-500
02n23-04400
02n23-00100
02N22E-400
02n23-00700
02n23-00900



N

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

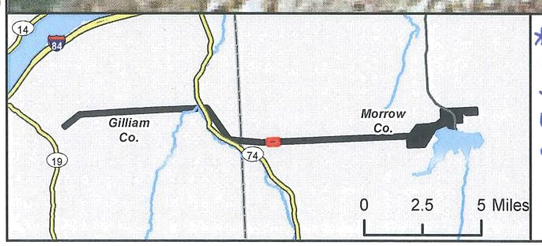
- Site Boundary
- Proposed Energy Facility Area
- Temporary Construction Area
- Proposed Grassland Switchyard
- Tax Lots
- Access Road
- Field Delineated Wetland
- Stream Features

DSL WD # 2010-0023 6 of 11

Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.3
Wetland and Watebodies Map Tile Overview, including Tax Lot Boundaries
PGE Carty Generating Station
December 2013



*SS-002-001 intermittent & jurisdictional within study area OHWM MAX WIDTH = 2ft.

N

0 125 250 500 Feet

1 inch = 200 feet

Site Boundary
Access Road
Tax Lots

2012 / 2013 E&E Field Data

Wetlands
Delineated Water Features
Photo Location

SDAM Points

Soil Points
Upland
Wetland

Field Data Accurate to +/- 1 meter

DSL WD # 2010-0023 7 of 11

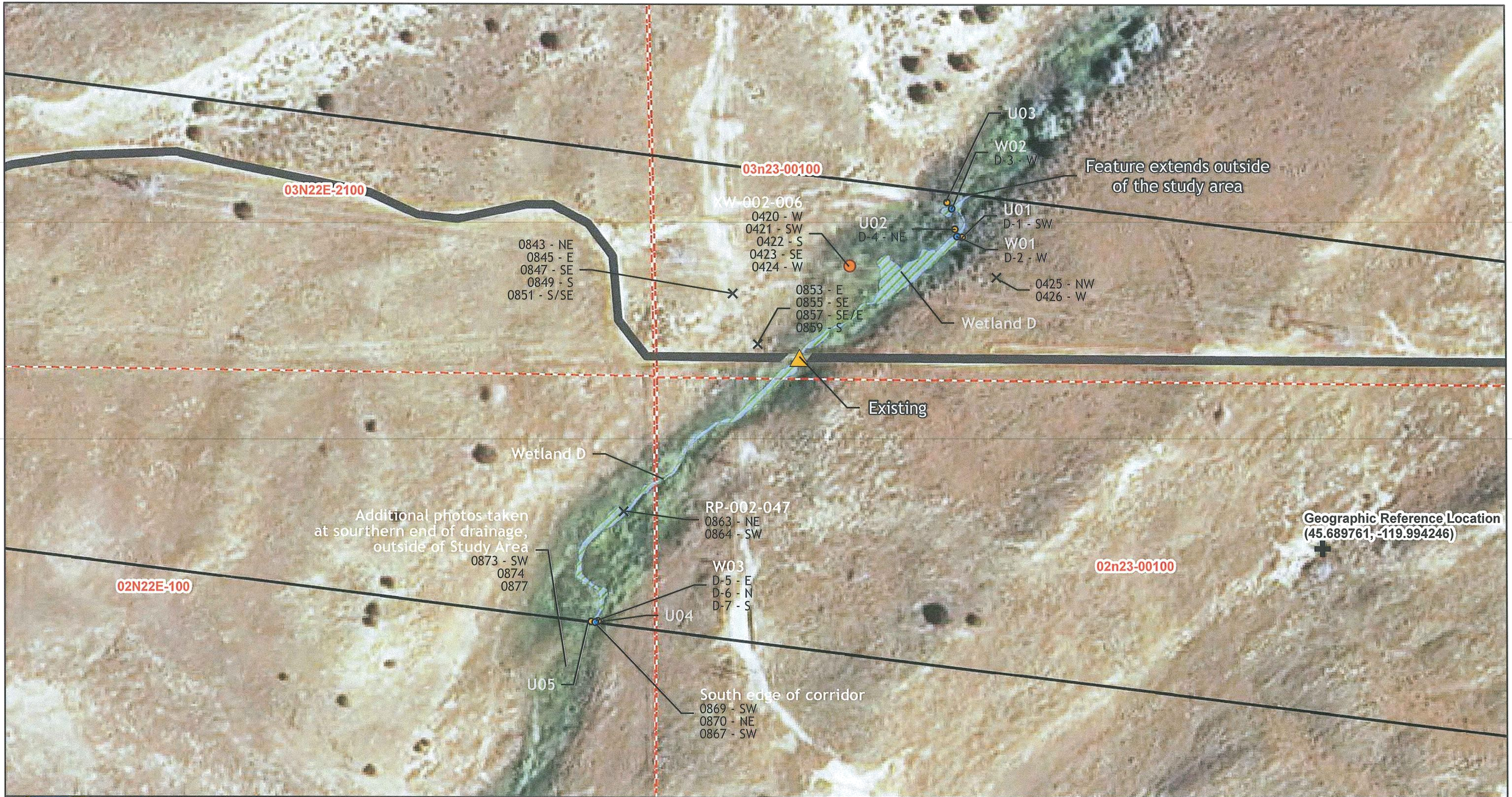
Approval Issued 12/24/2013

Approval Expires 12/24/2018

Figure 5.3.1: Wetland C Area

PGE Carty Generating Station

December 2013



N

0 125 250 500 Feet

1 inch = 200 feet

Site Boundary
Access Road
Tax Lots
Existing Culvert / Bridge Road Crossing
2012/ 2013 E&E Field Data
Wetlands
Soil Points
Upland
Wetland
Investigative Wetland Point (XW)
Photo Location

Field Data Accurate to +/- 1 meter

Figure 5.3.2:
Wetland D Area

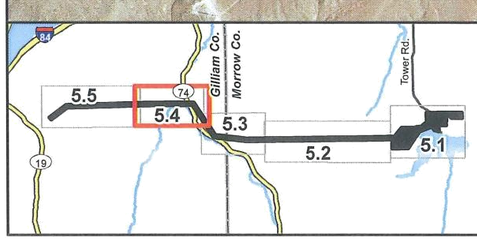
DSL WD # 2010-0023 Bof11
12/24/2013
Approval Issued

12/24/2018
Approval Expires

PGE Carty Generating Station

December 2013

03N22E-2000
03N22E-1903
03N22E-1302
03N22E-1900
03N22E-700
03N22E-2300
03N22E-3605
03N22E-2202
FIGURE 5.4.1
03N22E-700
03N22E-3601
03N22E-2100
03N22E-2201
Eightmile Canyon Creek
Willow Creek
03N22E-2501
03N22E-2502
03N22E-2203
03N22E-2200
03N22E-700
03N22E-3000
03N22E-3602



N

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

Site Boundary
Proposed Energy Facility Area
Temporary Construction Area
Proposed Grassland Switchyard
Tax Lots
Access Road
Field Delineated Wetland
Stream Features

DSL WD # 2010-0023 9 of 11
Approval Issued 12/24/2013
Approval Expires 12/24/2018

Figure 5.4
Wetland and Watebodies Map Tile Overview, including Tax Lot Boundaries
PGE Carty Generating Station
December 2013

03N22E-700

0894 - SW

03N22E-2202

0928 - SW

Features extend outside of the study area

03N22E-3601

A
0902 - SW

Dirt road only, no culvert present

Eightmile Canyon Drainage
*NOT STATE JURISDICTIONAL (EPHEMERAL) WITHIN STUDY AREA

Features extend outside of the study area

03N22E-700

Geographic Reference Location
(45.709894, -120.033052)

03N22E-2201

Green signature is a stand of russian thistle

N

0 125 250 500 Feet

1 inch = 200 feet

Site Boundary
Tax Lots

2012 E&E Field Data
Eightmile Stream
(OHWM width is 3 feet)
*EPHEMERAL W/IN STUDY AREA
Willow Creek OHWM PERENNIAL

Photo Location
SDAM Points

Soil Sample
Upland
Wetland
Culvert / Bridge Road Crossing

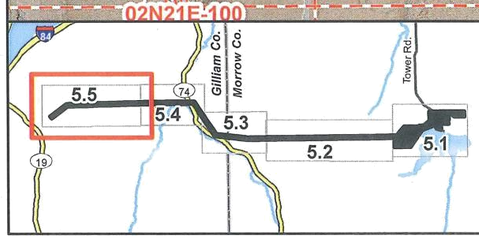
Field Data Accurate to +/- 1 meter

DSL WD # 2010-0023 10 of 11
Approval Issued 12/24/2013
Approval Expires 12/24/2018

Figure 5.4.1:
Willow Creek and Eightmile Drainage

PGE Carty Generating Station
December 2013

03N21E-200
03N21E-700
03N21E-500
03N21E-501
03N21E-503
03N21E-500
03N21E-599
03N21E-504
03N21E34-116
03N21E34-100
03N21E-506
03N21E-503
03N21E34-106
03N21E-500
02N21E-100
02N21E-101
03N22E-700
03N22E-1700
03N22E-1600
03N22E-1800
03N22E-700
03N22E-701
03N22E-2800
03N22E-700
03N22E-701
03N22E-2900



N

0 0.25 0.5 1 Miles

0 0.25 0.5 1 Kilometers

- Site Boundary
- Proposed Energy Facility Area
- Temporary Construction Area
- Proposed Grassland Switchyard
- Tax Lots
- Access Road
- Field Delineated Wetland
- Stream Features

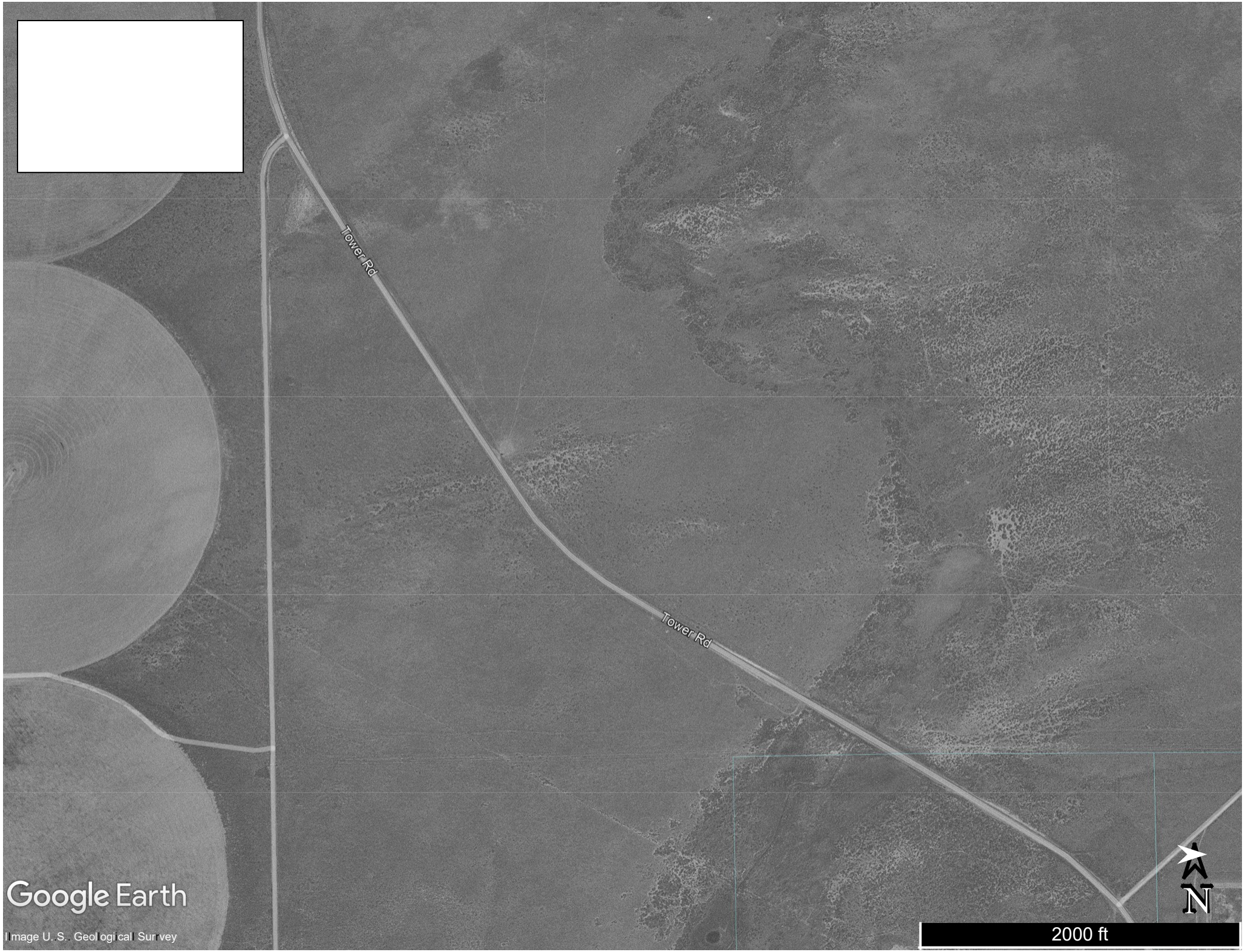
DSL WD # 2010-0023 11 of 11

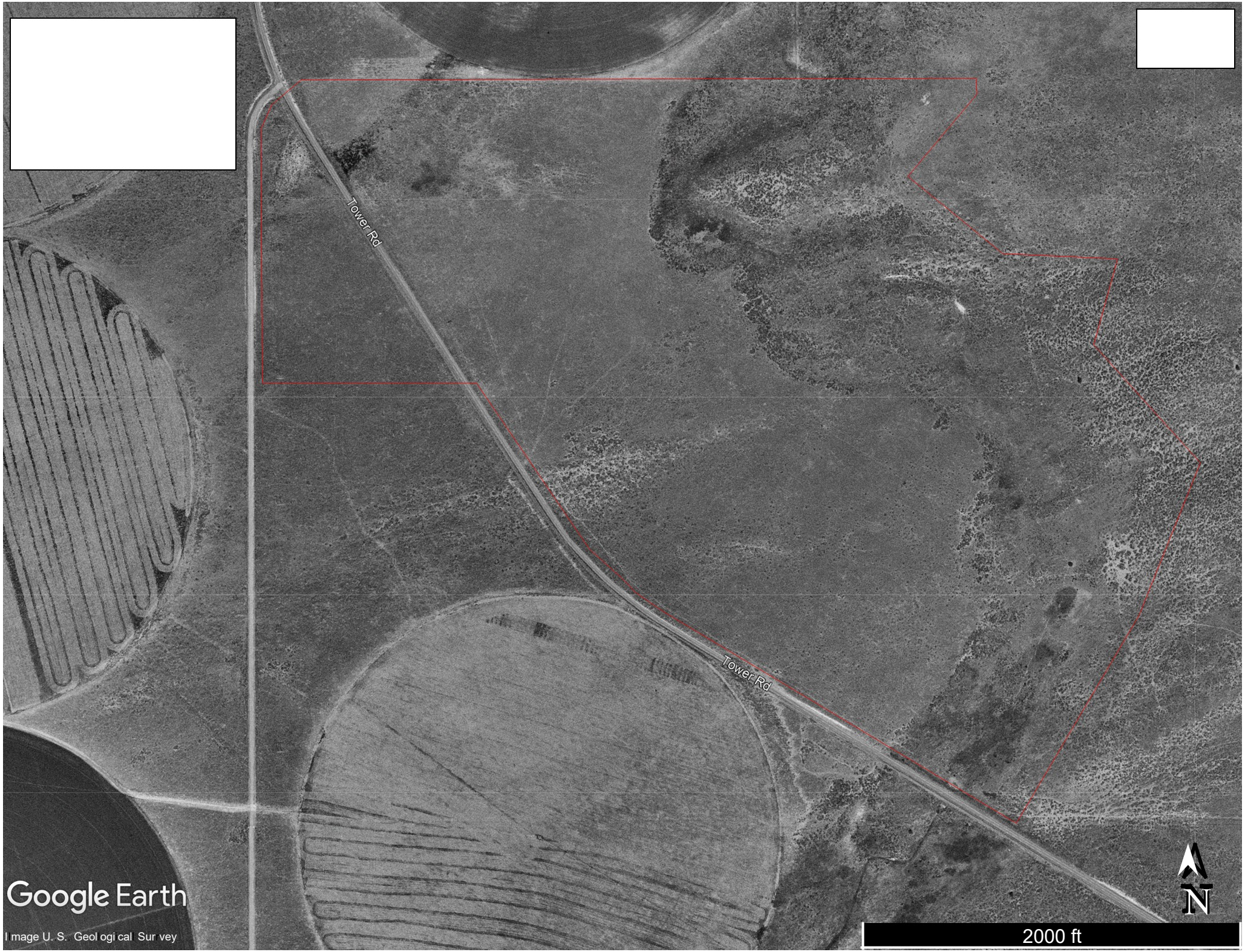
Approval Issued 12/24/2013

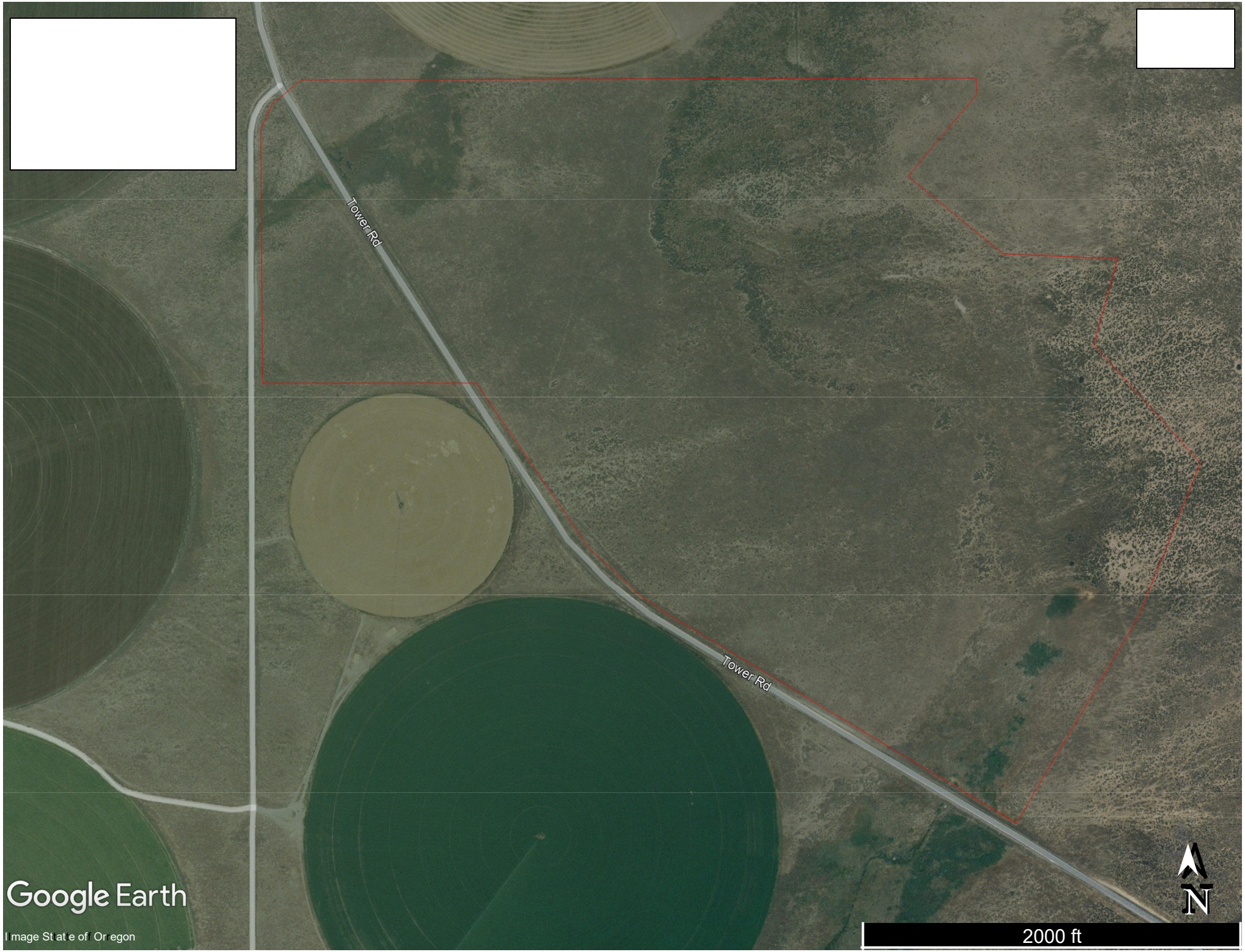
Approval Expires 12/24/2018

Figure 5.5
Wetland and Watebodies Map Tile Overview, including Tax Lot Boundaries
PGE Carty Generating Station
December 2013

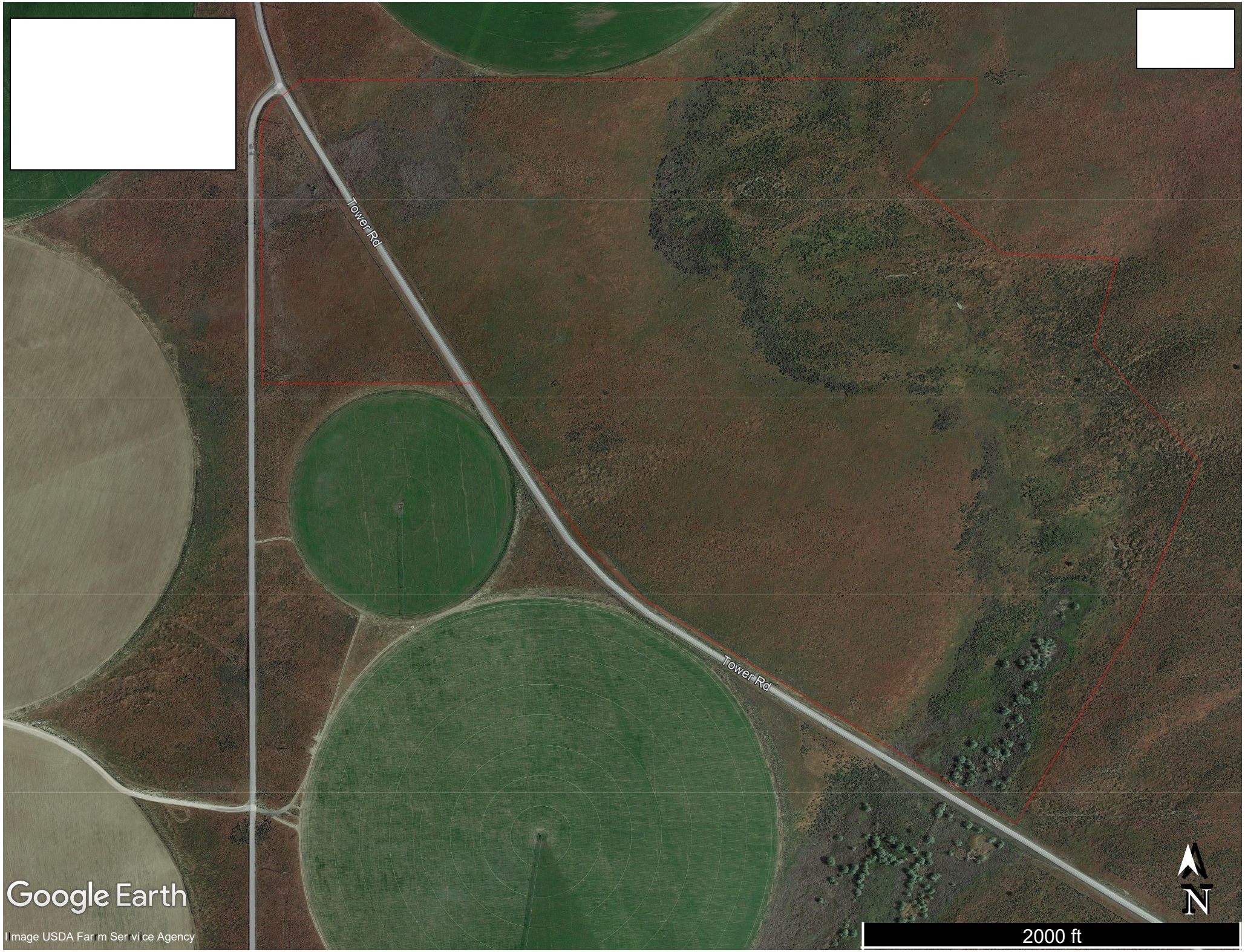
Appendix C: Google Earth Aerial Images


Tower Rd
Tower Rd
Google Earth
Image U. S. Geological Survey
N
2000 ft

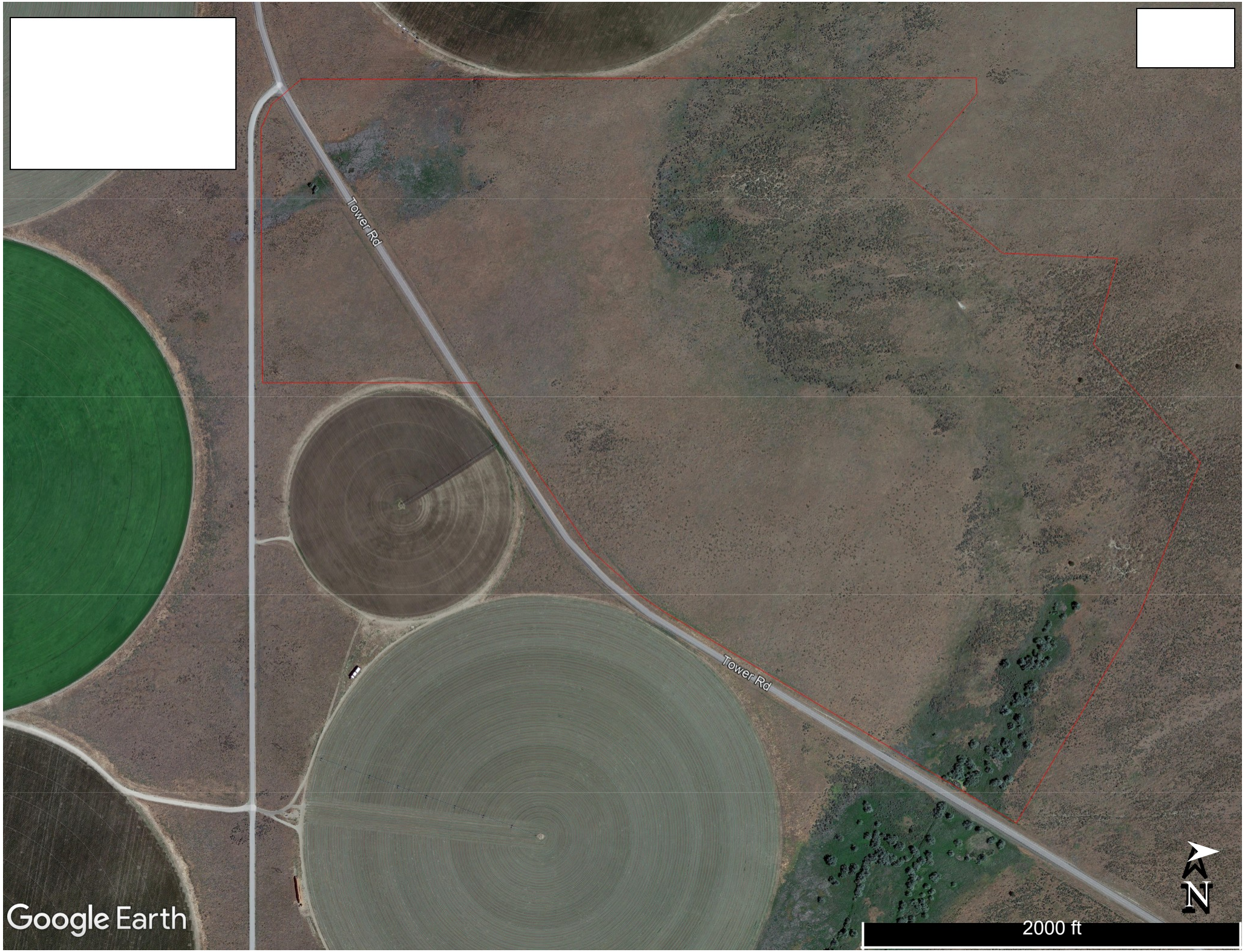

Tower Rd
Tower Rd
Google Earth
Image U. S. Geological Survey
N
2000 ft


Tower Rd
Tower Rd
Google Earth
Image State of Oregon
N
2000 ft


Tower Rd
Tower Rd
Google Earth
N
2000 ft


Tower Rd
Tower Rd
Google Earth
Image USDA Farm Service Agency
2000 ft
N


Tower Rd
Tower Rd
Google Earth
N
2000 ft


Tower Rd
Tower Rd
Google Earth
N
2000 ft


Tower Rd
Tower Rd
Google Earth
N
2000 ft

Appendix D: Precipitation Data

2021-07-01	110	72	91.0	51	41	0.00	0.0	0
2021-07-02	97	65	81.0	41	31	0.00	0.0	0
2021-07-03	99	65	82.0	42	32	0.00	0.0	0
2021-07-04	103	69	86.0	46	36	0.00	0.0	0
2021-07-05	101	70	85.5	46	36	0.00	0.0	0
2021-07-06	102	66	84.0	44	34	0.00	0.0	0
2021-07-07	100	66	83.0	43	33	0.00	0.0	0
2021-07-08	94	63	78.5	39	29	0.00	0.0	0
2021-07-09	98	63	80.5	41	31	0.00	0.0	0
2021-07-10	95	61	78.0	38	28	0.00	0.0	0
2021-07-11	102	62	82.0	42	32	0.00	0.0	0
2021-07-12	100	65	82.5	43	33	0.00	0.0	0
2021-07-13	101	64	82.5	43	33	0.00	0.0	0
2021-07-14	102	71	86.5	47	37	0.00	0.0	0
2021-07-15	105	68	86.5	47	37	0.00	0.0	0
2021-07-16	96	65	80.5	41	31	0.00	0.0	0
2021-07-17	95	63	79.0	39	29	0.00	0.0	0
2021-07-18	92	62	77.0	37	27	0.00	0.0	0
2021-07-19	96	62	79.0	39	29	0.00	0.0	0
2021-07-20	95	66	80.5	41	31	0.00	0.0	0
2021-07-21	96	64	80.0	40	30	0.00	0.0	0
2021-07-22	88	55	71.5	32	22	0.00	0.0	0
2021-07-23	88	55	71.5	32	22	0.00	0.0	0
2021-07-24	95	63	79.0	39	29	0.00	0.0	0
2021-07-25	97	65	81.0	41	31	0.00	0.0	0
2021-07-26	103	65	84.0	44	34	0.00	0.0	0
2021-07-27	91	65	78.0	38	28	0.00	0.0	0
2021-07-28	84	64	74.0	34	24	0.00	0.0	0
2021-07-29	95	65	80.0	40	30	0.00	0.0	0
2021-07-30	102	67	84.5	45	35	0.00	0.0	0
2021-07-31	108	71	89.5	50	40	0.00	0.0	0

Climatological Data for BOARDMAN, OR - August 2021

2021-08-01	98	76	87.0	47	37	0.00	0.0	0
2021-08-02	96	70	83.0	43	33	0.00	0.0	0
2021-08-03	101	66	83.5	44	34	0.00	0.0	0
2021-08-04	102	67	84.5	45	35	0.00	0.0	0
2021-08-05	95	67	81.0	41	31	0.00	0.0	0
2021-08-06	91	67	79.0	39	29	0.00	0.0	0
2021-08-07	91	67	79.0	39	29	0.00	0.0	0
2021-08-08	94	60	77.0	37	27	0.00	0.0	0
2021-08-09	83	56	69.5	30	20	0.00	0.0	0
2021-08-10	86	55	70.5	31	21	0.00	0.0	0
2021-08-11	95	60	77.5	38	28	0.00	0.0	0
2021-08-12	101	65	83.0	43	33	0.00	0.0	0
2021-08-13	101	64	82.5	43	33	0.00	0.0	0
2021-08-14	92	63	77.5	38	28	0.00	0.0	0
2021-08-15	100	66	83.0	43	33	0.00	0.0	0
2021-08-16	98	66	82.0	42	32	0.00	0.0	0
2021-08-17	102	60	81.0	41	31	0.00	0.0	0
2021-08-18	79	60	69.5	30	20	0.02	0.0	0
2021-08-19	83	56	69.5	30	20	0.00	0.0	0
2021-08-20	88	58	73.0	33	23	0.00	0.0	0
2021-08-21	79	49	64.0	24	14	0.00	0.0	0
2021-08-22	78	51	64.5	25	15	0.00	0.0	0
2021-08-23	82	52	67.0	27	17	0.00	0.0	0
2021-08-24	76	44	60.0	20	10	0.00	0.0	0
2021-08-25	82	46	64.0	24	14	0.00	0.0	0
2021-08-26	84	51	67.5	28	18	0.00	0.0	0
2021-08-27	84	60	72.0	32	22	0.00	0.0	0
2021-08-28	81	51	66.0	26	16	0.00	0.0	0
2021-08-29	87	52	69.5	30	20	0.00	0.0	0
2021-08-30	89	53	71.0	31	21	0.00	0.0	0
2021-08-31	81	53	67.0	27	17	0.00	0.0	0

2021-09-01	79	46	62.5	23	13	0.00	0.0	0
2021-09-02	79	46	62.5	23	13	0.00	0.0	0
2021-09-03	81	M	M	M	M	0.00	0.0	0
2021-09-04	83	49	66.0	26	16	0.00	0.0	0
2021-09-05	89	57	73.0	33	23	0.00	0.0	0
2021-09-06	96	66	81.0	41	31	0.00	0.0	0
2021-09-07	89	54	71.5	32	22	0.00	0.0	0
2021-09-08	87	55	71.0	31	21	0.00	0.0	0
2021-09-09	95	57	76.0	36	26	0.00	0.0	0
2021-09-10	83	63	73.0	33	23	0.00	0.0	0
2021-09-11	71	56	63.5	24	14	0.32	0.0	0
2021-09-12	78	54	66.0	26	16	0.00	0.0	0
2021-09-13	84	56	70.0	30	20	0.00	0.0	0
2021-09-14	78	49	63.5	24	14	0.00	0.0	0
2021-09-15	87	49	68.0	28	18	0.00	0.0	0
2021-09-16	81	45	63.0	23	13	0.00	0.0	0
2021-09-17	71	43	57.0	17	7	0.00	0.0	0
2021-09-18	78	46	62.0	22	12	0.01	0.0	0
2021-09-19	78	45	61.5	22	12	0.04	0.0	0
2021-09-20	72	52	62.0	22	12	0.00	0.0	0
2021-09-21	73	43	58.0	18	8	0.00	0.0	0
2021-09-22	78	43	60.5	21	11	0.00	0.0	0
2021-09-23	80	47	63.5	24	14	0.00	0.0	0
2021-09-24	78	47	62.5	23	13	0.00	0.0	0
2021-09-25	80	47	63.5	24	14	0.00	0.0	0
2021-09-26	92	55	73.5	34	24	0.00	0.0	0
2021-09-27	88	62	75.0	35	25	0.00	0.0	0
2021-09-28	75	51	63.0	23	13	0.22	0.0	0
2021-09-29	69	45	57.0	17	7	0.00	0.0	0
2021-09-30	70	47	58.5	19	9	0.00	0.0	0

2022-01-01	25	5	15.0	0	0	0.00	0.0	0
2022-01-02	14	5	9.5	0	0	0.00	0.0	0
2022-01-03	27	6	16.5	0	0	0.00	0.0	0
2022-01-04	37	25	31.0	0	0	0.33	2.0	0
2022-01-05	39	28	33.5	0	0	0.00	0.0	0
2022-01-06	36	28	32.0	0	0	0.43	0.0	0
2022-01-07	36	28	32.0	0	0	0.00	0.0	0
2022-01-08	45	31	38.0	0	0	0.00	0.0	0
2022-01-09	48	25	36.5	0	0	0.00	0.0	0
2022-01-10	42	25	33.5	0	0	0.00	0.0	0
2022-01-11	37	26	31.5	0	0	0.00	0.0	0
2022-01-12	40	32	36.0	0	0	0.00	0.0	0
2022-01-13	43	28	35.5	0	0	0.00	0.0	0
2022-01-14	40	29	34.5	0	0	0.00	0.0	0
2022-01-15	37	32	34.5	0	0	0.08	1.0	0
2022-01-16	35	32	33.5	0	0	T	0.0	0
2022-01-17	34	32	33.0	0	0	0.00	0.0	0
2022-01-18	35	31	33.0	0	0	0.00	0.0	0
2022-01-19	40	31	35.5	0	0	0.00	0.0	0
2022-01-20	38	33	35.5	0	0	0.08	0.0	0
2022-01-21	36	36	36.0	0	0	0.00	0.0	0
2022-01-22	60	34	47.0	7	0	0.00	0.0	0
2022-01-23	50	26	38.0	0	0	0.00	0.0	0
2022-01-24	34	30	32.0	0	0	0.00	0.0	0
2022-01-25	33	30	31.5	0	0	0.02	T	0
2022-01-26	34	31	32.5	0	0	0.00	0.0	0
2022-01-27	34	31	32.5	0	0	0.00	0.0	0
2022-01-28	36	31	33.5	0	0	0.00	0.0	0
2022-01-29	34	30	32.0	0	0	0.00	0.0	0
2022-01-30	35	31	33.0	0	0	0.00	0.0	0
2022-01-31	43	31	37.0	0	0	0.02	0.0	0

2022-02-01	49	25	37.0	0	0	0.00	0.0	0
2022-02-02	50	29	39.5	0	0	0.00	0.0	0
2022-02-03	39	28	33.5	0	0	0.00	0.0	0
2022-02-04	46	25	35.5	0	0	0.00	0.0	0
2022-02-05	47	26	36.5	0	0	0.00	0.0	0
2022-02-06	57	27	42.0	2	0	0.00	0.0	0
2022-02-07	49	26	37.5	0	0	0.00	0.0	0
2022-02-08	63	26	44.5	5	0	0.00	0.0	0
2022-02-09	50	31	40.5	1	0	0.00	0.0	0
2022-02-10	63	33	48.0	8	0	0.00	0.0	0
2022-02-11	63	31	47.0	7	0	0.00	0.0	0
2022-02-12	56	25	40.5	1	0	0.00	0.0	0
2022-02-13	54	25	39.5	0	0	0.00	0.0	0
2022-02-14	50	25	37.5	0	0	0.00	0.0	0
2022-02-15	58	34	46.0	6	0	0.00	0.0	0
2022-02-16	58	39	48.5	9	0	0.00	0.0	0
2022-02-17	60	37	48.5	9	0	0.00	0.0	0
2022-02-18	53	29	41.0	1	0	0.00	0.0	0
2022-02-19	59	29	44.0	4	0	0.00	0.0	0
2022-02-20	55	42	48.5	9	0	0.00	0.0	0
2022-02-21	54	40	47.0	7	0	0.00	0.0	0
2022-02-22	46	21	33.5	0	0	0.00	0.0	0
2022-02-23	31	12	21.5	0	0	0.00	0.0	0
2022-02-24	32	12	22.0	0	0	0.00	0.0	0
2022-02-25	34	12	23.0	0	0	0.50	0.0	0
2022-02-26	39	12	25.5	0	0	0.00	0.0	0
2022-02-27	42	19	30.5	0	0	0.00	0.0	0
2022-02-28	47	32	39.5	0	0	0.06	0.0	0

2022-03-01	62	39	50.5	11	1	T	M	M
2022-03-02	69	45	57.0	17	7	0.30	M	M
2022-03-03	51	43	47.0	7	0	0.32	M	M
2022-03-04	57	31	44.0	4	0	0.00	M	M
2022-03-05	55	30	42.5	3	0	0.00	M	M
2022-03-06	58	27	42.5	3	0	0.00	M	M
2022-03-07	57	29	43.0	3	0	0.00	M	M
2022-03-08	66	34	50.0	10	0	0.00	M	M
2022-03-09	47	34	40.5	1	0	0.18	M	M
2022-03-10	46	35	40.5	1	0	0.00	M	M
2022-03-11	50	35	42.5	3	0	0.00	M	M
2022-03-12	67	33	50.0	10	0	0.00	M	M
2022-03-13	65	34	49.5	10	0	T	M	M
2022-03-14	61	42	51.5	12	2	T	M	M
2022-03-15	56	42	49.0	9	0	0.25	M	M
2022-03-16	62	43	52.5	13	3	0.00	M	M
2022-03-17	60	31	45.5	6	0	0.00	M	M
2022-03-18	59	31	45.0	5	0	0.00	M	M
2022-03-19	62	39	50.5	11	1	0.00	M	M
2022-03-20	60	37	48.5	9	0	0.00	M	M
2022-03-21	57	41	49.0	9	0	0.05	M	M
2022-03-22	54	41	47.5	8	0	0.00	M	M
2022-03-23	65	40	52.5	13	3	0.00	M	M
2022-03-24	71	37	54.0	14	4	0.00	M	M
2022-03-25	65	37	51.0	11	1	0.00	M	M
2022-03-26	61	39	50.0	10	0	0.00	M	M
2022-03-27	67	42	54.5	15	5	0.00	M	M
2022-03-28	65	45	55.0	15	5	0.00	M	M
2022-03-29	70	46	58.0	18	8	0.00	M	M
2022-03-30	70	46	58.0	18	8	0.00	M	M
2022-03-31	61	38	49.5	10	0	0.00	M	M

WETS Table

WETS Station: BOARDMAN, OR

Requested years: 1971 - 2021

Month	Avg Max Temp	Avg Min Temp	Avg Mean Temp	Avg Precip	30% chance precip less than	30% chance precip more than	Avg number days precip 0.10 or more	Avg Snowfall
Jan	41.4	27.2	34.3	1.21	0.74	1.46	4	2.6
Feb	47.8	28.8	38.3	0.88	0.48	1.07	3	2.1
Mar	57.8	33.6	45.7	0.68	0.43	0.82	3	0.2
Apr	66.0	39.4	52.7	0.66	0.26	0.80	2	0.0
May	74.7	46.8	60.8	0.72	0.36	0.88	3	0.0
Jun	82.2	53.9	68.0	0.47	0.18	0.54	2	0.0
Jul	90.9	59.0	74.9	0.18	0.00	0.17	1	0.0
Aug	89.2	57.7	73.5	0.27	0.07	0.24	1	0.0
Sep	79.7	48.7	64.2	0.37	0.10	0.36	1	0.0
Oct	66.1	39.0	52.5	0.63	0.31	0.75	2	0.0
Nov	51.2	32.6	41.9	1.07	0.60	1.30	4	0.6
Dec	41.6	27.7	34.7	1.30	0.75	1.58	5	2.9
Annual:					7.01	8.97		
Average	65.7	41.2	53.5	-	-	-	-	-
Total	-	.	-	8.43			30	8.4

GROWING SEASON DATES

Years with missing data:	24 deg = 9	28 deg = 6	32 deg = 5
Years with no occurrence:	24 deg = 0	28 deg = 0	32 deg = 0
Data years used:	24 deg = 42	28 deg = 45	32 deg = 46
Probability	24 F or higher	28 F or higher	32 F or higher
50 percent *	3/9 to 11/16: 252 days	4/3 to 10/29: 209 days	4/16 to 10/16: 183 days
70 percent *	3/2 to 11/24: 267 days	3/29 to 11/4: 220 days	4/11 to 10/21: 193 days

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

STATS TABLE - total precipitation (inches)

Yr	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annl
1971								M0.19	0.88	0.43	0.91	1.33	3.74
1972	0.48	0.49	0.40	0.02	1.99	1.79	0.06	0.01	0.04	0.22	0.60	1.30	7.40
1973	0.87	0.41	0.19	0.21	0.42	0.03	0.03	0.01	0.62	0.68	3.43	2.76	9.66
1974	0.79	0.69	0.88	1.20	0.20	0.13	0.25	0.00	T	0.41	0.55	1.18	6.28
1975	1.85	0.97	0.35	0.56	0.11	0.12	0.37	1.05	T	0.82	0.53	0.98	7.71
1976	0.88	0.58	0.42	0.71	0.10	0.13	0.23	0.94	0.46	0.08	0.50	0.15	5.18
1977	0.10	0.57	0.65	0.02	0.86	0.16	0.09	1.01	0.82	0.50	1.34	2.62	8.74
1978	2.40	0.91	0.47	1.49	0.48	0.26	0.82	1.07	0.14	0.02	1.40	1.13	10.59
1979	1.28	0.60	0.69	1.12	0.21	0.02	0.36	0.50	0.	1.	1.65	0.48	7.97

1980	2.87	1.20	0.60	0.62	1.06	1.23	T	0.20	0.06	0.00	0.99	1.71	11.18
1981	1.22	0.91	0.20	0.11	1.20	1.19	T	T	0.30	0.40	1.06	2.59	9.62
1982	0.71	M0.51	0.70	1.00	0.89	0.94	0.35	0.15	0.70	0.44	0.46	1.67	11.54
1983	1.49	1.76	1.38	0.85	0.59	0.27	1.14	0.77	2.35	1.81	1.88	1.96	12.92
1984	0.47	1.06	1.43	0.63	0.36	0.55	0.00	T	0.24	0.59	2.53	0.32	8.70
1985	0.18	0.74	0.46	0.77	0.30	0.69	0.00	0.30	0.99	0.36	1.32	0.48	6.91
1986	1.15	1.52	0.82	0.14	0.72	0.08	0.63	0.14	0.99	0.68	1.38	1.31	9.86
1987	1.71	0.48	1.12	0.15	0.16	0.11	T	0.04	1.19	0.78	0.33	1.97	6.10
1988	1.50	0.01	0.93	2.86	0.74	0.51	M0.26	0.00	0.02	0.01	1.84	0.15	9.23
1989	0.59	0.48	1.58	1.22	0.45	0.03	0.08	0.45	0.43	0.00	1.49	0.47	7.26
1990	1.19		0.57	1.11	0.74	0.09	0.07	0.88	0.02	0.40	0.45	M0.32	6.36
1991	M0.35	0.79	1.14	0.14	0.80	0.36	0.04	0.08	0.00	0.94	M2.01	0.56	6.57
1992	0.66	1.45	0.29	1.27	0.08	0.53	0.70	0.89	0.01	M0.29	1.11	M1.03	8.99
1993	1.38	1.34	M1.11	0.93	0.72	0.52	0.16	0.19	0.31	0.67	0.23	0.55	7.13
1994	0.61	1.22	0.32	0.30	1.35	0.23	0.21	0.00	0.00	T	1.56	1.12	7.91
1995	2.86	M0.37	0.88	M0.57		0.88	0.77	0.02	0.03	0.96	1.08	M1.88	9.94
1996	M1.01	1.14		1.30	0.81		0.11	T	0.36	0.27	M0.42	M2.53	8.34
1997	M1.23	0.68	1.18	M0.80	M0.40	0.64		0.19	0.15	0.87	1.76	0.76	10.34
1998	M1.97	3.42	0.43	0.31	1.22	0.71	1.10	0.01	0.87	1.83	1.95	1.31	12.75
1999	1.22	0.89	0.10	0.05	0.34	0.03	T	0.20	0.15	0.17	0.85	0.63	5.04
2000	1.37	1.53	0.82	0.02	0.48	0.33	0.00	T	0.00	0.73	0.84	M0.48	7.39
2001	0.51	0.31	0.56	0.70	0.10	0.29	0.11	0.25	0.49	1.03	1.59	0.77	5.78
2002	0.39	0.75	0.56	0.32	0.40	0.73	0.11	0.01	T	0.59	0.23	2.72	6.46
2003	1.95	0.87	0.34	0.56	M0.26	0.00	T	0.60	0.05	0.19	M0.34	2.00	7.63
2004	1.53	0.60	0.16	M0.11	1.36	0.89	0.00	0.67	0.50	0.21	0.14	0.94	7.67
2005	M0.78	T	0.76	0.56	0.71	0.08	0.09	0.00	0.19	1.08	1.85	M2.50	8.02
2006	2.76	0.45	0.71		1.84	1.04	0.00	0.00	0.00	0.69	1.58	1.60	11.52
2007	0.32	0.88	0.44	0.97	0.20	1.00	0.04	0.58	0.48	1.06	1.47	1.79	8.46
2008	1.63	0.49	0.37	0.20	0.46	0.56	0.00	0.10	0.03	0.74	0.69	M1.04	5.72
2009	1.24	0.92	1.20	M0.20	1.74	T	0.00	0.00	0.08	0.10	0.20	1.03	7.71
2010	2.05	0.72	0.24		1.59	1.94	0.02	0.14	0.00	1.18	0.89	2.81	12.82
2011	M0.89	M0.40	M1.45	M0.30	M0.99	M1.18	MT		1.53	0.89	M0.35	M0.15	6.29
2012	M1.03	M0.52	M1.25	M0.72	M0.22	M2.22	M0.30	0.00	M0.04	M0.54		1.88	9.49
2013	0.62	0.13		1.16	0.97	0.89	0.00	0.18	1.35	0.	0.25	0.12	5.66

2014	0.67	1.21	0.62	0.45	0.10	0.41	T	0.77	0.14	0.20	0.76	1.23	6.91
2015	0.63	1.11	0.45	0.19	1.39	T	T	0.02	0.02	0.67	1.09	2.24	7.43
2016	1.55	0.46	0.78	0.46	1.55	0.21	0.29	0.16	0.06	0.25	0.56	M	8.30
2017	1.85	1.85	1.25	1.68	0.16	0.04	0.00	0.09	0.37	1.81	M	0.10	10.14
2018	1.29	0.21	0.27	1.30	0.48	0.20	0.00	0.03	0.25	1.02	0.99	0.96	5.63
2019	1.75	2.67	2.05	0.82	0.86	0.54	0.05	0.20	0.00	0.76	0.41	M	10.19
2020	1.47	0.10	0.50	0.09	1.54	0.32	0.00	0.14	0.23	0.28	0.09	0.68	6.83
2021	0.66	1.02	0.00	0.09	0.28	0.25	0.00	0.02	0.00	0.33	1.45	0.89	6.64
2022	0.96	0.56	1.10						0.59	0.68	1.16	1.89	2.62

Notes: Data missing in any month have an "M" flag. A "T" indicates a trace of precipitation.

Data missing for all days in a month or year is blank.

Creation date: 2022-04-06

Appendix E: Wetland Determination Data Forms (Plots 1-18)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 1

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.709058 Long: -119.816177 Datum:

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located in slightly low topographic location.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	35%	Yes	NOL
2.			
3.			
4.			
5.			
	35% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Onopordum acanthium*	65%	Yes	NOL
2. *Atriplex heterosperma*	25%	Yes	FAC*
3. *Chenopodium species*	5%	No	FAC*
4. *Centaurea solstitialis*	2%	No	NOL
5. *Bassia scoparia*	1%	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	98% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 2% % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 31	x 3 =	93
FACU species 0	x 4 =	0
UPL species 102	x 5 =	510
Column Totals: 133 (A)		603 (B)

Prevalence Index = B/A = 4.53

Hydrophytic Vegetation Indicators:

- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
* Assumed FAC. Salsola tumbleweeds present, not rooted in plot.

SOIL

Sampling Point: 1

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-10	10YR 4/3	100					LS	
10-16	10YR 3/2	99	7.5YR 3/4	1	C	PL	SL	Less Sand

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

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

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

Remarks:
Soils very dry throughout, no evidence of previous surface water ponding.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 2

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.709065 Long: -119.815667 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Located within slightly low topographic location.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	20%	Yes	NOL
2.			
3.			
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	60%	Yes	FAC*
2. *Bassia scoparia*	10%	No	FAC
3. *Onopordum acanthium*	10%	No	NOL
4. *Bromus tectorum*	3%	No	NOL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	83% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 17% % Cover of Biotic Crust ____

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 70	x 3 =	210
FACU species 0	x 4 =	0
UPL species 33	x 5 =	165
Column Totals: 103 (A)		375 (B)

Prevalence Index = B/A = 3.64

Hydrophytic Vegetation Indicators:
- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
*Assumed FAC.

SOIL

Sampling Point: 2

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-10	10YR 4/3	100					LS	
10-16	10YR 3/2	99	7.5YR 3/4	1	C	PL	SL	Less Sand

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:
Soils slightly moist at 16 inches.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 3

Investigator(s): Sonya Templeton and Margret Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.715733 Long: -119.820386 Datum: NAD83

Soil Map Unit Name: Quincy loamy fine sand (Unit 40C) , 2-12% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Lowest topographic location within undulating topography.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	5%	Yes	NOL
2.			
3.			
4.			
5.			
	5% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Salsola tragus*	80%	Yes	FACU
2. *Sisymbrium altissimum*	10%	No	FACU
3. *Bromus tectorum*	2%	No	NOL
4. *Cleomella species*	1%	No	FAC*
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	93% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 7% % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 1	x 3 =	3
FACU species 90	x 4 =	360
UPL species 7	x 5 =	35
Column Totals: 98 (A)		398 (B)

Prevalence Index = B/A = 4.06

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
*Assumed FAC.

SOIL

Sampling Point: 3

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

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

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 4

Investigator(s): Sonya Templeton and Margret Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.715492 Long: -119.821023 Datum: NAD83

Soil Map Unit Name: Quincy loamy fine sand (Unit 40C) , 2-12% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Plot 4 located in low topographic location in area with undulating topography.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	20%	Yes	NOL
2.			
3.			
4.			
5.			
	20% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Bromus tectorum*	50%	Yes	NOL
2. *Sisymbrium altissimum*	20%	Yes	FACU
3. *Salsola tragus*	10%	No	FACU
4. *Lactuca serriola*	3%	No	FACU
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	83% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 17% % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 0	x 3 =	0
FACU species 33	x 4 =	132
UPL species 70	x 5 =	350
Column Totals: 103 (A)		482 (B)

Prevalence Index = B/A = 4.68

Hydrophytic Vegetation Indicators:

- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

SOIL

Sampling Point: 4

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

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

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 5

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.708632 Long: -119.816632 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot 5 located within ephemeral swale. No defined bank bed or OHWM present.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Centaurea solstitialis*	50%	Yes	NOL
2. *Sisymbrium altissimum*	45%	Yes	FACU
3. *Salsola tragus*	1%	No	FACU
4. *Bromus tectorum*	1%	No	NOL
5. *Erodium cicutarium*	1%	No	NOL
6.			
7.			
8.			
9.			
10.			
11.			
	98% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 2% % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 0 (A)

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 0	x 3 =	0
FACU species 46	x 4 =	184
UPL species 52	x 5 =	260
Column Totals: 98 (A)		444 (B)

Prevalence Index = B/A = 4.53

Hydrophytic Vegetation Indicators:
- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes ____ No X

Remarks:

SOIL

Sampling Point: 5

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-16	10YR 4/3	100					LS	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

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

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

Remarks:
Soils very dry througout, no eveidence of recent flow or surface water ponding.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 6

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.708092 Long: 119.815915 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot location in lowest topographic location within Wetland A and is approximately 5 feet lower in elevation than Plot 8.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	1%	No	FAC
2.			
3.			
4.			
	1% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Xanthium strumarium*	81%	Yes	FAC
2. *Sphaerophysa salsula*	14%	No	FACU
3. *Atriplex heterosperma*	4%	No	FAC*
4. *Onopordum acanthium*	1%	No	NOL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust ____

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 86	x 3 =	258
FACU species 14	x 4 =	56
UPL species 1	x 5 =	5
Column Totals: 101 (A)		319 (B)
Prevalence Index = B/A =		3.16

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed FAC.

SOIL

Sampling Point: 6

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-4	10YR 2/1	100					SiL	
4-18	10YR 3/2	95	7.5YR 3/4	5	C	M/PL	SiCL	Fine sands

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

Surface Water Present?	Yes _____	No X	Depth (inches):	_____
Water Table Present?	Yes _____	No X	Depth (inches):	>18"
Saturation Present? (includes capillary fringe)	Yes _____	No X	Depth (inches):	>18"

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

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

Remarks:

Soils moist throughout, Evidence of prior ponding. Water marks approximately 3-4 feet high on *Elaeagnus angustifolia* .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 7

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <5%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.708203 Long: -119.815958 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located approximately 3 feet higher in elevation than Plot 6.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	1%	No	FAC
2.			
3.			
4.			
	1% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	35%	Yes	FAC*
2. *Verbena bracteata*	30%	Yes	FAC
3. *Onopordum acanthium*	15%	Yes	NOL
4. *Chenopodium species*	10%	No	FAC*
5. *Xanthium strumarium*	2%	No	FAC
6.			
7.			
8.			
9.			
10.			
11.			
	90% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust 5

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 78	x 3 =	234
FACU species 0	x 4 =	0
UPL species 15	x 5 =	75
Column Totals: 93 (A)		309 (B)

Prevalence Index = B/A = 3.32

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed FAC. Contained Panicum capillare (FAC) during 10/14/2021 site visit.

SOIL

Sampling Point: 7

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-6	10YR 3/2	100					SiL	
6-16	10YR 4/2	55	7.5YR 4/4	5	C	M	SL	
	10YR 3/2	35	7.5YR 4/4	5	C	M/PL	SiCL	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
X Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
X Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >18"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >18"

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

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

Remarks:
Soils slightly moist throughout. Water marks approximately 3-4 feet high on *Elaeagnus angustifolia* .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 8

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 5-10%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.708260 Long: -119.816008 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located approximately 2 feet higher in elevation than Plot 7.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	30%	Yes	NOL
2.			
3.			
4.			
5.			
	30% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Sphaerophysa salsula*	60%	Yes	FACU
2. *Atriplex heterosperma*	20%	Yes	FAC*
3. *Amaranthus species*	10%	No	FACU*
4. *Chenopodium species*	5%	No	FAC*
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	95% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 5% % Cover of Biotic Crust ____

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

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 33% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 25	x 3 =	75
FACU species 70	x 4 =	280
UPL species 30	x 5 =	150
Column Totals: 125 (A)		505 (B)

Prevalence Index = B/A = 4.04

Hydrophytic Vegetation Indicators:
- ___ Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
*Assumed.

SOIL

Sampling Point: 8

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-14	10YR 4/3	100					LS	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14"

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 9

Investigator(s): Sonya Templeton and Marget Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.707589 Long: -119.816378 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Plot located approximately 1 foot lower in elevation than Plot 10.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	100%	Yes	FAC*
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 140	x 3 =	420
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 140 (A)		420 (B)
Prevalence Index = B/A =		3.00

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC.

SOIL

Sampling Point: 9

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-6	10YR 4/2	100					LS	
6-16	10YR 4/2	95	7.5YR 3/4	5	C	M	LS	

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- X Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes X No _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Wetland Hydrology Present? Yes X No _____

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

Remarks:

Water marks approximately 3-4 feet high on *Elaeagnus angustifolia* .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 10

Investigator(s): Sonya Templeton and Margret Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.707665 Long: -119.816567 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Plot located approximately 1 foor higher in elevation than Plot 9.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Sphaerophysa salsula*	60%	Yes	FACU
2. *Atriplex heterosperma*	30%	Yes	FAC*
3. *Amaranthus species*	5%	No	FACU*
4. *Verbena bracteata*	5%	No	FAC
5. *Solanum nigrum*	1%	No	FACU
6.			
7.			
8.			
9.			
10.			
11.			
	101% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 35	x 3 =	105
FACU species 66	x 4 =	264
UPL species 0	x 5 =	0
Column Totals: 101 (A)		369 (B)

Prevalence Index = B/A = 3.65

Hydrophytic Vegetation Indicators:
- Dominance Test is >50%
- Prevalence Index is ≤3.0[1]
- Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes No X

Remarks:
*Assumed.

SOIL

Sampling Point: **10**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-14	10YR3/2	99	7.5YR 3/4	1	C	M	LS	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14"

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 11

Investigator(s): Sonya Templeton and Margret Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.707396 Long: -119.816674 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Plot located approximately half a foot lower in elevation than Plot 12.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	80%	Yes	FAC
2.			
3.			
4.			
	80% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schoenoplectus americanus*	55%	Yes	OBL
2. *Xanthium strumarium*	25%	Yes	FAC
3. *Atriplex heterosperma*	20%	Yes	FAC*
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 55	x 1 =	55
FACW species 0	x 2 =	0
FAC species 125	x 3 =	375
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 180 (A)		430 (B)

Prevalence Index = B/A = 2.39

Hydrophytic Vegetation Indicators:
X Dominance Test is >50%
X Prevalence Index is ≤3.0[1]
___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC.

SOIL

Sampling Point: **11**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-8	10YR 2/1	100					SiL	
8-16	10YR 3/2	95	7.5YR 3/4	5	C	PL	SL	

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- X Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- X FAC-Neutral Test (D5)

Field Observations:

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

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

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

Remarks:

Soils dry throughout. No evidence of recent surface water. Water marks approximately 3-4 feet high on *Elaeagnus angustifolia* .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 10/14/2021

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 12

Investigator(s): Sonya Templeton and Margret Harburg Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): None Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.706846 Long: -119.816699 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.14 inches during the two weeks prior.

Remarks:
Plot 12 slightly higher in elevation than Plot 11.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	50%	Yes	FAC
2.			
3.			
4.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	10%	Yes	NOL
2.			
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	70%	Yes	FAC*
2. *Xanthium strumarium*	5%	No	FAC
3. *Nepeta cataria*	5%	No	FACU
4. *Onopordum acanthium*	1%	No	NOL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	81% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 19% % Cover of Biotic Crust

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

Total Number of Dominant Species Across All Strata: 3 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 67% (A/B)

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 125	x 3 =	375
FACU species 5	x 4 =	20
UPL species 11	x 5 =	55
Column Totals: 141 (A)		450 (B)
Prevalence Index = B/A =		3.19

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

Prevalence Index is ≤3.0[1]

Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No

Remarks:
*Assumed FAC.

SOIL

Sampling Point: 12

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

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

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** X

Remarks:
4 inch duff layer present.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

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

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

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 13

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.707886 Long: -119.815872 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	5%	Yes	FAC
2.			
3.			
4.			
	5% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Xanthium strumarium*	60%	Yes	FAC
2. *Schoenoplectus americanus*	40%	Yes	FAC*
3. *Bromus tectorum*	2%	No	FAC*
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	102% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 107	x 3 =	321
FACU species 0	x 4 =	0
UPL species 0	x 5 =	0
Column Totals: 107 (A)		321 (B)

Prevalence Index = B/A = 3.00

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

* Assumed FAC. Atriplex species present during the 10/14/2022 site visit.

SOIL

Sampling Point: **13**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-2	10YR 2/1	100					SiL	
2-6	10YR 2/1	98	7.5YR 3/4	2	C	PL	SiL	
6-14	10YR 4/2	95	7.5YR 3/4	3	C	M	SCL	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
X Depleted Matrix (F3)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** X **No** _____

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
X Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14"

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

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

Remarks:

Soils saturated at 16 inches. Water marks approximately 3-4 feet high on *Elaeagnus angustifolia* .

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 14

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.707856 Long: -119.815792 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot location approximately 2-3 feet higher in elevation than Plot 13.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	55%	Yes	FAC*
2. *Bassia scoparia*	35%	Yes	FAC
3. *Sphaerophysa salsula*	5%	No	FACU
4. *Onopordum acanthium*	5%	No	NOL
5. *Chenopodium species*	1%	No	FAC*
6. *Amaranthus species*	1%	No	FACU*
7.			
8.			
9.			
10.			
11.			
	102% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust ____

Dominance Test worksheet:
Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 0	x 1 =	0
FACW species 0	x 2 =	0
FAC species 91	x 3 =	273
FACU species 6	x 4 =	24
UPL species 5	x 5 =	25
Column Totals: 102 (A)		322 (B)
Prevalence Index = B/A =		3.16

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- ___ Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed.

SOIL

Sampling Point: **14**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-14	10YR 4/3	100					LS	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >14"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >14"

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

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

Remarks:
Soils dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: **15**

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.705524 Long: -119.817927 Datum: NAD83

Soil Map Unit Name: Royal Silt Loam (Unit 53A), 0% to 3% slopes; Non-hydric NWI classification: None

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

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

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

SUMMARY OF FINDINGS –

Attach site map showing sampling point locations, transects, important features, etc.

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located within Intermittent Water 1.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	50%	Yes	FAC
2.			
3.			
4.			
	50% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	50%	Yes	FAC*
2. *Xanthium strumarium*	5%	No	FAC
3. *Nepeta cataria*	5%	No	FACU
4. *Elaeagnus angustifolia (sprouts)*	5%	No	FAC
5. *Onopordum acanthium*	1%	No	NOL
6. *Euthamia occidentalis*	1%	No	FACW
7. *Bromus tectorum*	1%	No	NOL
8.			
9.			
10.			
11.			
	68% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 32% % Cover of Biotic Crust ____

Dominance Test worksheet:

Number of Dominant Species That Are OBL, FACW, or FAC: 2 (A)

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

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

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	1	x 2 =	2
FAC species	110	x 3 =	330
FACU species	5	x 4 =	20
UPL species	2	x 5 =	10
Column Totals:	118 (A)		362 (B)

Prevalence Index = B/A = 3.07

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

___ Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
*Assumed FAC.

SOIL

Sampling Point: **15**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-8	10YR 3/2	100					LS	
8-17	10YR 4/3	95	7.5YR 3/4	5	C	M	LS	

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ Stratified Layers (A5) (**LRR C**)
- ___ 1 cm Muck (A9) (**LRR D**)
- ___ Depleted Below Dark Surface (A11)
- ___ Thick Dark Surface (A12)
- ___ Sandy Mucky Mineral (S1)
- ___ Sandy Gleyed Matrix (S4)
- ___ Sandy Redox (S5)
- ___ Stripped Matrix (S6)
- ___ Loamy Mucky Mineral (F1)
- ___ Loamy Gleyed Matrix (F2)
- ___ Depleted Matrix (F3)
- ___ Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- ___ Redox Depressions (F8)
- ___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) (**LRR C**)
- ___ 2 cm Muck (A10) (**LRR B**)
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (TF2)
- ___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

- ___ Surface Water (A1)
- ___ High Water Table (A2)
- ___ Saturation (A3)
- ___ Water Marks (B1) (**Nonriverine**)
- ___ Sediment Deposits (B2) (**Nonriverine**)
- ___ Drift Deposits (B3) (**Nonriverine**)
- ___ Surface Soil Cracks (B6)
- ___ Inundation Visible on Aerial Imagery (B7)
- ___ Water-Stained Leaves (B9)
- ___ Salt Crust (B11)
- ___ Biotic Crust (B12)
- ___ 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)
- ___ Thin Muck Surface (C7)
- ___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

- ___ Water Marks (B1) (**Riverine**)
- ___ Sediment Deposits (B2) (**Riverine**)
- ___ Drift Deposits (B3) (**Riverine**)
- ___ Drainage Patterns (B10)
- ___ Dry-Season Water Table (C2)
- ___ Crayfish Burrows (C8)
- ___ Saturation Visible on Aerial Imagery (C9)
- ___ Shallow Aquitard (D3)
- ___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >17"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >17"

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

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

Remarks:
Soils dry throughout during both site visits.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: **16**

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.705413 Long: -119.818335 Datum: NAD83

Soil Map Unit Name: Royal Silt Loam (Unit 53A), 0% to 3% slopes; Non-hydric NWI classification: None

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

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

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

SUMMARY OF FINDINGS –

Attach site map showing sampling point locations, transects, important features, etc.

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located near culverts under Tower Road.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	20%	Yes	FAC
2.			
3.			
4.			
	20% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schoenoplectus americanus*	65%	Yes	OBL
2. *Xanthium strumarium*	25%	Yes	FAC
3. *Cuscuta species*	5%	No	FAC*
4. *Bassia scoparia*	1%	No	FACU
5. *Atriplex heterosperma*	1%	No	FAC
6. *Nepeta cataria*	1%	No	FACU
7.			
8.			
9.			
10.			
11.			
	98% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 2% % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 3 (B)

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

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	65	x 1 =	65
FACW species	0	x 2 =	0
FAC species	51	x 3 =	153
FACU species	2	x 4 =	8
UPL species	0	x 5 =	0
Column Totals:	118 (A)		226 (B)

Prevalence Index = B/A = 1.92

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:
*Assumed FAC. *Schoenopluctus americanus* observed dead with no new growth during both site visits.

SOIL

Sampling Point: **16**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-12	10YR 4/3	100					SL	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:
Shovel refusal at 12 inches due to cobbles and gravels.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >12"

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

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

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

Remarks:
Soils slightly moist throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 17

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Sl. Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.71623172N Long: -120.07752835W Datum: NAD83

Soil Map Unit Name: Koehler loamy fine sand (Unit 26B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1.			
2.			
3.			
4.			
5.			
	0% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Schoenoplectus americanus*	90%	Yes	OBL
2. *Euthamia occidentalis*	7%	No	FACW
3. *Onopordum acanthium*	3%	No	NOL
4.			
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	100% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 0% % Cover of Biotic Crust ____

Dominance Test worksheet:

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

Total Number of Dominant Species Across All Strata: 1 (B)

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 90	x 1 =	90
FACW species 7	x 2 =	14
FAC species 0	x 3 =	0
FACU species 0	x 4 =	0
UPL species 3	x 5 =	15
Column Totals: 100 (A)		119 (B)

Prevalence Index = B/A = 1.19

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)

___ Problematic Hydrophytic Vegetation[1] (Explain)

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

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

Remarks:

SOIL

Sampling Point: **17**

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	[3]Texture	Remarks
0-17	10YR 4/3	100					S	

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
X FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No _____ Depth (inches): _____

Water Table Present? Yes _____ No _____ Depth (inches): >17"

Saturation Present? (includes capillary fringe) Yes _____ No _____ Depth (inches): >17"

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

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

Remarks:
Soils very dry throughout.

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Percheron City/County: Boardman/ Morrow County Sampling Date: 3/31/2022

Applicant/Owner: Birch Infrastructure, LLC State: OR Sampling Point: 18

Investigator(s): Sonya Templeton, Margret Harburg, Stacey Reed, PWS Section, Township, Range: Sec. 28, T.3N., R.24E., W.M.

Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, none): Concave Slope (%): <3%

Subregion (LRR): (B) Columbia/Snake River Plateau Lat: 45.706232 Long: -119.816892 Datum: NAD83

Soil Map Unit Name: Sagehill fine sandy loam hummocky (Unit 55B) , 2-5% slopes; Non-hydric NWI classification: None

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

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

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

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

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

Precipitation prior to fieldwork: According to the AgACIS Boardman weather station, 0.00 inches of precipitation was received on the day of fieldwork and 0.05 inches during the two weeks prior. Conditions for March are wetter than normal.

Remarks:
Plot located within Intermittent Water 1 and within low flow channel.

VEGETATION

Tree Stratum (Plot size: 30' r)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Elaeagnus angustifolia*	40%	Yes	FAC
2.			
3.			
4.			
	40% = Total Cover		
Sapling/Shrub Stratum (Plot size: 10' r)			
1. *Artemisia tridentata*	10%	Yes	NOL
2.			
3.			
4.			
5.			
	10% = Total Cover		
Herb Stratum (Plot size: 5' r)			
1. *Atriplex heterosperma*	50%	Yes	FAC*
2. *Schoenoplectus americanus*	40%	Yes	OBL
3. *Nepeta cataria*	5%	No	FACU
4. *Onopordum acanthium*	1%	No	NOL
5.			
6.			
7.			
8.			
9.			
10.			
11.			
	96% = Total Cover		
Woody Vine Stratum (Plot size: 10' r)			
1.			
2.			
	0% = Total Cover		

% Bare Ground in Herb Stratum 4% % Cover of Biotic Crust ____

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

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

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

Prevalence Index worksheet:

Total % Cover of:	Multiply by:	
OBL species 40	x 1 =	40
FACW species 0	x 2 =	0
FAC species 90	x 3 =	270
FACU species 5	x 4 =	20
UPL species 11	x 5 =	55
Column Totals: 146 (A)		385 (B)
Prevalence Index = B/A =		2.64

Hydrophytic Vegetation Indicators:
- X Dominance Test is >50%
- X Prevalence Index is ≤3.0[1]
- ___ Morphological Adaptations[1] (Provide supporting data in Remarks or on a separate sheet)
- ___ Problematic Hydrophytic Vegetation[1] (Explain)

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

Hydrophytic Vegetation Present? Yes X No ____

Remarks:
*Assumed FAC.

SOIL

Sampling Point: **18**

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

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

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

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

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

___ Histosol (A1)
___ Histic Epipedon (A2)
___ Black Histic (A3)
___ Hydrogen Sulfide (A4)
___ Stratified Layers (A5) (**LRR C**)
___ 1 cm Muck (A9) (**LRR D**)
___ Depleted Below Dark Surface (A11)
___ Thick Dark Surface (A12)
___ Sandy Mucky Mineral (S1)
___ Sandy Gleyed Matrix (S4)
___ Sandy Redox (S5)
___ Stripped Matrix (S6)
___ Loamy Mucky Mineral (F1)
___ Loamy Gleyed Matrix (F2)
___ Depleted Matrix (F3)
___ Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
___ Redox Depressions (F8)
___ Vernal Pools (F9)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) (**LRR C**)
___ 2 cm Muck (A10) (**LRR B**)
___ Reduced Vertic (F18)
___ Red Parent Material (TF2)
___ Other (Explain in Remarks)

[3]Indicators of hydrophytic vegetation and wetland hydrology must be present, unless disturbed or problematic.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** _____ **No** **X**

Remarks:
Half inch duff layer present.

HYDROLOGY

Wetland Hydrology Indicators:

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

___ Surface Water (A1)
___ High Water Table (A2)
___ Saturation (A3)
___ Water Marks (B1) (**Nonriverine**)
___ Sediment Deposits (B2) (**Nonriverine**)
___ Drift Deposits (B3) (**Nonriverine**)
___ Surface Soil Cracks (B6)
___ Inundation Visible on Aerial Imagery (B7)
___ Water-Stained Leaves (B9)
___ Salt Crust (B11)
___ Biotic Crust (B12)
___ 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)
___ Thin Muck Surface (C7)
___ Other (Explain in Remarks)

Secondary Indicators (2 or more required)

___ Water Marks (B1) (**Riverine**)
___ Sediment Deposits (B2) (**Riverine**)
___ Drift Deposits (B3) (**Riverine**)
___ Drainage Patterns (B10)
___ Dry-Season Water Table (C2)
___ Crayfish Burrows (C8)
___ Saturation Visible on Aerial Imagery (C9)
___ Shallow Aquitard (D3)
___ FAC-Neutral Test (D5)

Field Observations:

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

Water Table Present? Yes _____ No X Depth (inches): >18"

Saturation Present? (includes capillary fringe) Yes _____ No X Depth (inches): >18"

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

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

Remarks:
Soils dry throughout.

Appendix F: Representative Site Photos

Photo A. View facing north of one of the animal trails during the October 14, 2021 site visit.

Photo B. View of Plot 3 facing west during the October 14, 2021 site visit.

Photo C. View west of upland Plot 4 during the October 14, 2021 site visit.

Photo D. View facing south towards Plots 1 and 2 and of higher eleva on topographic area isola ng Wetland A with juniper tree during March 31, 2022 site visit.

Photos taken by Sonya Templeton. October 14, 2021 and March 31, 2022.

Photo E. View of Plot 5 during the March 31, 2022 site visit.

Photo F. View south from Plot 5 showing no channel or defined bed and bank present during March 31, 2022 site visit.

Photo G. View east towards Plots 1, 2, and 5 showing undu-la ng topography and rolling shrub steppe plains during March 31, 2022 site visit.

Photo H. View facing south from upland Plot 8 and Wetland A boundary towards Plot 7 and Plot 6 in the center of Wetland A approximately 5 feet lower in eleva on than Plot 8. Photo tak-en during October 14, 2021 site visit.

Photos taken by Sonya Templeton. October 14, 2021 and March 31, 2022.

Photo I. View east of upland Plot 10 with Wetland A boundary and Plot 9 in the background during October 14, 2021 site visit.

Photo J. View east of Wetland A located within low topographic depression during October 14, 2021 site visit.

Photo K. View northwest towards Wetland A in low topographic depression from October 14, 2021 site visit.

Photo L. View east of Plot 13 with Wetland A boundary toward upland Plot 14 loca on approximately 3 feet higher in elevaon than Plot 13. Photo taken March 2022 site visit.

Photos taken by Sonya Templeton. October 14, 2021 and March 31, 2022.

Photo M. View of 4 culverts under Tower Road draining into Intermi ent Water 1 at March 31, 2022 site visit. No flow or surface water was present.

Photo N. View north of Intermi ent Water 1 near Plot 18 from October 14, 2021 site visit.

Photo O. View north of Intermi ent Water 1 from Plot 15 during March 31, 2022 site visit.

Photo P. View northeast towards Intermi ent Water 1 within Russian olive tree grove from October 14, 2021 site visit.

Photos taken by Sonya Templeton. October 14, 2021 and March 31, 2022.

Photo Q. View facing south of an animal trail and shrub-steppe habitat during the October 14, 2021 site visit.

Photo R. View of Plot 17 facing southwest from March 31, 2022 site visit.

Photo S View facing southwest of the culvert on southern side of Tower Road from March 31, 2022 site visit.

Photo T. View facing north of shrub steppe habitat during March 31, 2022 site visit.

Photos taken by Sonya Templeton. October 14, 2021 and March 31, 2022.

Appendix G: SDAM Forms

Appendix B: Streamflow Duration Field Assessment Form

Project # / Name	**Percheron**	Assessor	**Margret Harburg, Natural Resource Specialist**
Address	Morrow County Assessor's Map Sec 28 3N 24E, Portion of Tax Lot 100, Boardman, Oregon	Date	03/31/2022
Waterway Name	Intermittent Water 1	Coordinates at downstream end (ddd.mm.ss)	Lat. 45.705323 - N
Reach Boundaries	from 4 roadside culverts to Wetland A		Long. 119.818314 W
Precipitation w/in 48 hours (cm)	0.00	Channel Width (m)	15
☐ Disturbed Site / Difficult Situation (Describe in "Notes")			

Observed Hydrology

% of reach w/observed surface flow **0%**

% of reach w/any flow (surface or hyporheic) **0%**

# of pools observed **0**

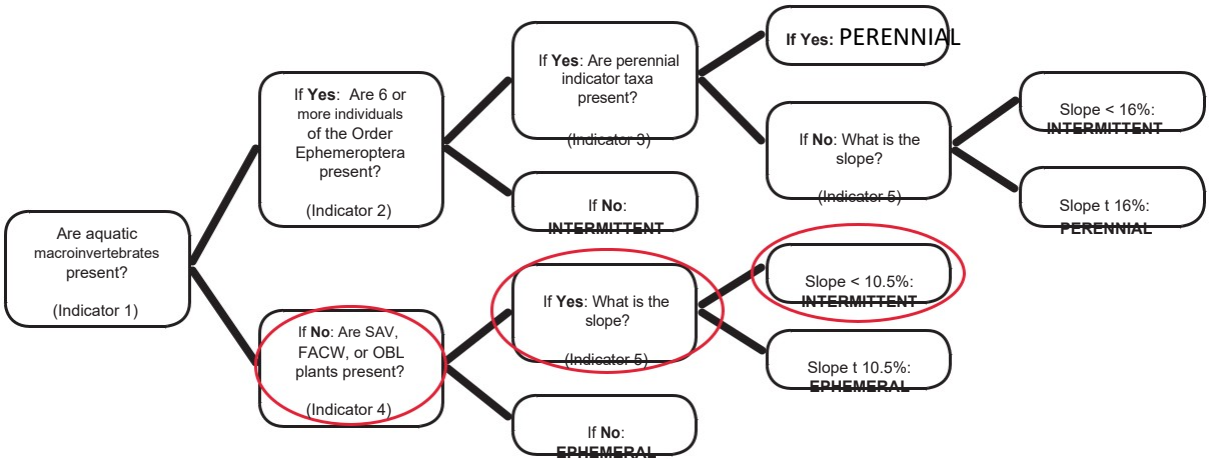
Observed Wetland Plants (and indicator status):

Schoenoplectus americanus, OBL Phragmites australis, FACW

Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
N/A			

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	~3 %	



Single Indicators:

☐ Fish

☐ Amphibians

Finding:

☐ Ephemeral

☒ Intermittent

☐ Perennial

Notes: (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

Shallow broad floodplain with narrow low flow channel present approximately 2-3 feet wide. OHWM was defined in change in vegetation, change in slope, and a defined bed and bank. There was no evidence of recent surface water flow or ponding. The observed wetland plants had no new growth.

Ancillary Information:

- ☒ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Aquatic Snakes, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed