

Exhibit J

Wetlands and Other Jurisdictional Waters

**Carty Generating Station
October 2026**

Prepared for



Portland General Electric Company

Prepared by



TETRA TECH

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Acronyms and Abbreviations

AC	alternating current
BCP	Boardman Coal Plant
BESS	battery energy storage system
Certificate Holder/ PGE	Portland General Electric Company
CFR	Code of Federal Regulations
CGS/ Facility	Carty Generating Station
MW	megawatt
NWI	National Wetland Inventory
OAR	Oregon Administrative Rules
ODSL	Oregon Department of State Lands
OHWL/M	ordinary high-water line/mark
ORS	Oregon Revised Statutes
RFA	Request for Amendment
SWI	Statewide Wetland Inventory
USACE	United States Army Corps of Engineers
WOS	Waters of the State
WOUS	Waters of the United States

1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment (RFA) 4 to the Site Certificate for the Carty Generating Station (CGS or Facility). The Facility is located approximately 13 miles southwest of Boardman, in Morrow County, Oregon. As currently approved, the Facility is capable of generating up to 450 megawatts (MW) from the natural gas-fueled combined-cycle unit (Unit 1).

In RFA 4, the Certificate Holder is proposing photovoltaic solar energy generation with approximately 200 MW alternating current (AC) of nominal and average generating capacity and BESS with the capability of storing up to 200 MW AC. The overall CGS additions proposed with RFA 4 (including the BESS) are referred to throughout this request as the Carty Solar Farm with proposed RFA 4 changes. The solar generation is proposed in two separate solar areas referred to as the Northern Solar Area, located north of the Carty Reservoir, and the Southern Solar Area, located south of the reservoir [see Figure 2 in RFA 4's Division 27 document (Request for Amendment 4 for the Carty Generating Station)].

This Exhibit J provides information about the wetlands and other jurisdictional waters that could be affected by the Carty Solar Farm with proposed RFA 4 changes. This Exhibit J was prepared to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-021-0010(1)(j).

2.0 Analysis Area

The analysis area for wetlands and other jurisdictional waters is composed of approximately 1,213 acres within and adjacent to the Amended Site Boundary. The analysis area is referred to in this exhibit as the Wetland Study Area (see Figures J-1 and J-2). The Wetland Study Area is where the Certificate Holder is proposing permanent and temporary disturbance for RFA 4. All permanent and temporary disturbance associated with RFA 4 are proposed within the Wetland Study Area; however, not all of the study area will be disturbed. Figure J-1 shows that the northeast corner of the Wetland Study Area is outside the Amended Site Boundary, as this specific area has been removed from consideration for permanent and temporary disturbance. The Amended Site Boundary is defined in detail in Section 4.1.1.2 of the RFA 4's Division 27 document (Request for Amendment 4 for the Carty Generating Station).

3.0 Wetlands and Other Jurisdictional Waters – OAR 345-021-0010(1)(j)(A)

OAR 345-021-0010(1)(j) Information based on literature and field study, as appropriate, about waters of this state, as defined under ORS 196.800, including:

OAR 345-021-0010(1)(j)(A) A description of all areas within the site boundary that might be waters of this state and a map showing the location of these features;

3.1 Definitions

3.1.1 Federal

Waters of the United States (WOUS) are defined in 33 Code of Federal Regulations (CFR) 36 328.3(a)(1-7) as:

- 1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;*
- 2. All interstate waters including interstate wetlands;*
- 3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sandflats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:*
 - a) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or*
 - b) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or*
 - c) Which are used or could be used for industrial purpose by industries in interstate commerce;*
- 4. All impoundments of waters otherwise defined as WOUS under the definition;*
- 5. Tributaries of waters identified in paragraphs (a) (1) through (4) of this section;*
- 6. The territorial seas; and*
- 7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (a) (1) through (6) of this section.*

Wetlands are defined federally at 33 CFR § 328.3(b) as “[t]hose areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions.”

3.1.2 State

Oregon Revised Statute (ORS) 196.800(14) defines WOS more broadly than federal WOUS. Specifically, WOS include “all natural waterways, tidal and non-tidal bays, intermittent streams, constantly flowing streams, lakes, wetlands, that portion of the Pacific Ocean that is in the

boundaries of this state, all other navigable and non-navigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605, where removal or fill activities are regulated under a state-assumed permit program as provided in 33 United States Code 1344(g) of the Federal Water Pollution Control Act, as amended.”

The Oregon Department of State Lands (ODSL) definition of wetlands mirrors the federal definition; see OAR 141-085-0510 (101).

3.2 Jurisdictional Versus Non-Jurisdictional Waters

Not all wetlands and streams are within the jurisdiction of state or federal regulation, and not all waters falling within the state’s jurisdiction fall under federal jurisdiction. For the Carty Solar Farm with proposed RFA 4 changes, several jurisdictional distinctions are important, to estimate impacts only to jurisdictional wetlands and other waters. These include determinations related to the following:

- Ephemeral streams, which generally are not under state jurisdiction and are evaluated on a case-by-case basis for federal jurisdiction, as distinct from perennial and intermittent (USACE 2005, USACE 2008).
- Artificially created roadside and farm ditches, which are considered WOS if they contain food or game fish and are connected to WOS (OAR 141-085-0515(8)) and WOUS if they connect to other WOUS and are not ephemeral (EPA and USACE 2011).

Ephemeral streams are defined in the Streamflow Duration Assessment Method for the Pacific Northwest (Nadeau 2015) as streams that flow:

“...only in direct response to precipitation. Water typically flows only during and shortly after large precipitation events. An ephemeral stream may or may not have a well-defined channel, the stream bed is always above the water table, and stormwater runoff is the primary source of water. An ephemeral stream typically lacks biological, hydrological, and physical characteristics commonly associated with the continuous or intermittent conveyance of water).”

In contrast, intermittent streams are defined by Oregon as “any stream which flows during a portion of every year and which provides spawning, rearing or food-producing areas for food and game fish” (OAR 141-085-0510(46)). Food-producing streams are typically one stream order above a fish-bearing stream.

This exhibit presents the Certificate Holder’s best professional judgment as to which wetland and other water features are jurisdictional under ODSL regulation. While Exhibit J uses the term “jurisdictional waters,” the Certificate Holder recognizes that final determination of agency jurisdiction will be made by ODSL, based on the information presented by the Certificate Holder.

3.3 Delineation of Wetlands and Other Water Features

The following sections detail the methods and results of the wetland delineation surveys.

3.3.1 Methods

The Certificate Holder conducted a desktop study of potentially jurisdictional wetlands and other waters to assist in planning for field delineations. The results of the desktop study are shown on Figure J-1. Site-specific literature and geographic information system map layers reviewed as part of the desktop study included:

- Statewide Wetland Inventory (SWI) / National Wetland Inventory (NWI) mapping (USFWS 2023)
- Natural Resources Conservation Service Soil Survey of Morrow County (NRCS 2023a)
- Aerial photography (ArcGIS desktop application)
- National Hydrography Dataset (USGS 2023)

Field investigations for the delineation of wetlands and other waters were conducted by AECOM Technical Services Inc. in April and May of 2023 and included pedestrian surveys within the Wetland Study Area (see Figure J-2).

Delineations were conducted utilizing techniques published in the 1987 United States Army Corps of Engineers (USACE) Wetlands Delineation Manual (USACE 1987), the Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (USACE 2008), and OARs for wetland delineations (141-090-0005 through 141-090-0055; ODSL 2001).

During the delineation effort, each other water encountered was examined for wetland characteristics consistent with Waters of the State definitions (see Section 2.1.2). The location and extent of each other water (regardless of its characteristics) was mapped with Global Positioning System technology. Upland plots were also established at some survey locations with orthoimagery signatures to confirm that the sites did not meet wetland criteria.

Detailed descriptions of delineation methods for wetlands and other waters are provided in the Wetland Delineation Report (Attachment J-1). The report was submitted to ODSL for written concurrence on September 30, 2025 (WD2025-0538) and PGE continues to respond to DSL correspondence to obtain the jurisdictional determination.

3.3.2 Results

The wetland and other waters surveys within the Wetland Study Area resulted in the delineation of two wetlands, a portion of Carty Reservoir, several artificially created settling ponds, an artificially constructed channel, and two dry ditches (see Figure J-2). Since the time of the wetland delineation surveys, four of the artificially created ponds have been demolished (Ponds 3, 4, 5, and 6) as part of demolition of PGE's BCP. Two wetlands (Wetland A and Wetland B) totaling 0.89 acres were delineated within the Wetland Study Area. The wetlands occur on a low terrace of Sixmile Canyon, south of Tower Road. They are depressional features with shallow saturation/groundwater associated with an off-site stream.

A 0.41-acre portion of Carty Reservoir was delineated within the Wetland Study Area. The ordinary high-water line/mark (OHWL/M) boundaries were assessed using ODSL field indicators of ordinary high water per Oregon Administrative Rule (OAR) 141-085-0515(3), which include a clear, natural line impressed on the bank, vegetation lines, scour lines, and/or wrack line debris created by controlled water elevations.

4.0 Effects on Wetlands and Other Jurisdictional Waters of the State – OAR 345-021-0010(1)(j)(B)

OAR 345-021-0010(1)(j)(B) An analysis of whether construction or operation of the proposed facility would adversely affect any waters of this state;

OAR 345-021-0010(1)(j)(B) requests an analysis of any adverse effects on Waters of the State from the Facility. The Carty Solar Farm with proposed RFA 4 changes will not adversely affect WOS as defined under OAR 141-085-0510 (see Figure J-2; also see Figure 2 in the RFA 4's Division 27 document [Request for Amendment 4 for the Carty Generating Station]). The wetlands within the Wetland Study Area will have at least 50-foot buffers from any construction activities. The channel, ditches, ponds, and portion of the Carty Reservoir delineated within the Wetland Study Area are artificially created and will likely not be considered WOS, or although they are within the analysis area, will not be impacted by the Carty Solar Farm with proposed RFA4 changes. The report was submitted to ODSL for written concurrence on September 30, 2025 (WD2025-0538).

4.1 Significance of Impacts – OAR 345-021-0010(1)(j)(C)

OAR 345-021-0010(1)(j)(C) A description of the significance of potential adverse impacts to each feature identified in (A), including the nature and amount of material the applicant would remove from or place in the waters analyzed in (B);

There will be no impacts to WOS during the construction or operation of the Carty Solar Farm with proposed RFA 4 changes (see Figure J-2; also see Figure 2 in the RFA 4's Division 27 document [Request for Amendment 4 for the Carty Generating Station]).

5.0 Information Supporting Lack of Requirement for Removal-Fill Permit – OAR 345-021-0010(1)(j)(D)

OAR 345-021-0010(1)(j)(D) If the proposed facility would not need a removal-fill authorization, an explanation of why no such authorization is required for the construction and operation of the proposed facility;

There will be no impacts to WOS during the construction or operation of the Carty Solar Farm with proposed RFA 4 changes, so no Removal-Fill Permit is needed (see Figure J-2; also see Figure 2 in the RFA 4's Division 27 document [Request for Amendment 4 for the Carty Generating Station]).

6.0 Information Supporting Issuance of Removal-Fill Permit – OAR 345-021-0010(1)(j)(E)

OAR 345-021-0010(1)(j)(E) If the proposed facility would need a removal-fill authorization, information to support a determination by the Council that the Oregon Department of State Lands should issue a removal-fill permit, including information in the form required by the Department of State Lands under OAR Chapter 141 Division 85; and

There will be no impacts to WOS during the construction or operation of the Carty Solar Farm with proposed RFA 4 changes, so no Removal-Fill Permit is needed (see Figure J-2; also see Figure 2 in the RFA 4's Division 27 document [Request for Amendment 4 for the Carty Generating Station]).

7.0 Mitigation and Monitoring Program – OAR 345-021-0010(1)(j)(F)

OAR 345-021-0010(1)(j)(F) A description of proposed actions to mitigate adverse impacts to the features identified in (A) and the applicant's proposed monitoring program, if any, for such impacts.

There will be no impacts to WOS during the construction or operation of the Carty Solar Farm with proposed RFA 4 changes, so no mitigation or monitoring is required.

8.0 References

- EPA (U.S. Environmental Protection Agency) and USACE (U.S. Army Corps of Engineers). 2011. Clean Water Act Jurisdiction Following the U.S. Supreme Court's Decision in *Rapanos v. United States & Carabell v. United States*.
<http://www.epa.gov/owow/wetlands/pdf/RapanosGuidance6507.pdf>.
- Nadeau, Tracie-Lynn. 2015. Streamflow Duration Assessment Method for the Pacific Northwest. EPA 910-K-14-001, U.S. Environmental Protection Agency, Region 10, Seattle, Washington.
- NRCS (Natural Resources Conservation Service). 2023a. Soil Survey of Morrow County, Oregon. Web Soil Survey Online Data.
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- USACE (U.S. Army Corps of Engineers). 1987. Corps of Engineers Wetlands Delineation Manual. Technical Report Y-87-1. January 1987. Wetlands Research Program. U.S. Army Corps of Engineers, Waterways Experiment Station, Vicksburg, Mississippi.

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USACE. 2008. Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region (Version 2.0). ed. J.S. Wakeley, R.W. Lichvar, and C.V. Noble. ERDC/EL TR-08-28. Vicksburg, Mississippi: U.S. Army Engineer Research and Development Center.
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Accessed on June 27, 2023.

USFWS (U.S. Fish and Wildlife Service). 2008. National Wetland Inventory. CONUS (conterminous United States) Wetland Polygons- Oregon. Washington, D.C.

USFWS. 2023. National Wetland Inventory Wetlands Mapper. Wetlands Data by State, Oregon. U.S. Fish and Wildlife Service. <http://www.fws.gov/wetlands/Data/Mapper.html>.

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Figures

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Carty Generating Station Request for Amendment 4

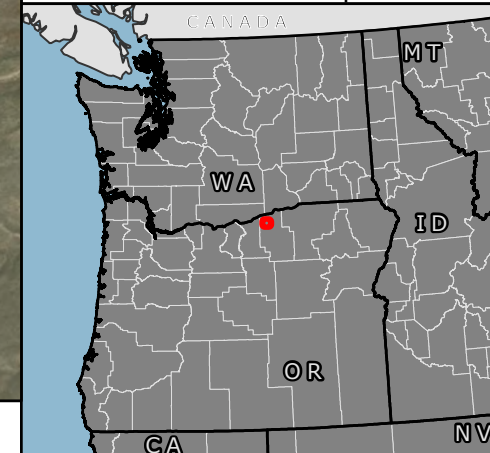
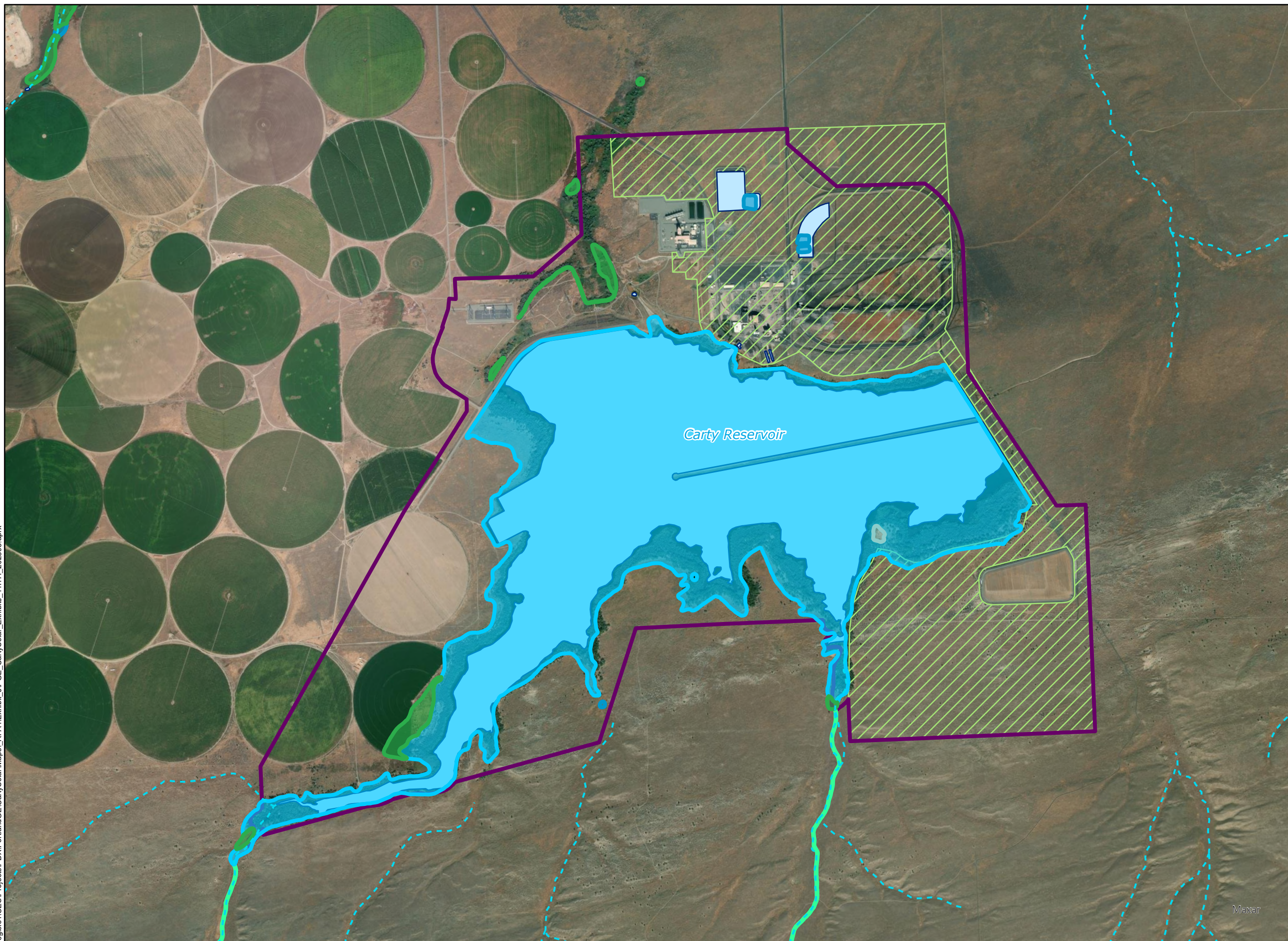
Figure J-1 National Wetlands Inventory and National Hydrography Dataset

MORROW COUNTY, OR

- Amended Site Boundary
- Wetland Study Area
- National Hydrography Dataset
 - Intermittent Stream
- Waterbody
- National Wetland Inventory
 - Freshwater Emergent Wetland
 - Freshwater Forested/Shrub Wetland
 - Freshwater Pond
 - Lake
 - Riverine



Reference Map



1:24,000

WGS 1984 UTM Zone 10N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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Carty Generating Station Request for Amendment 4

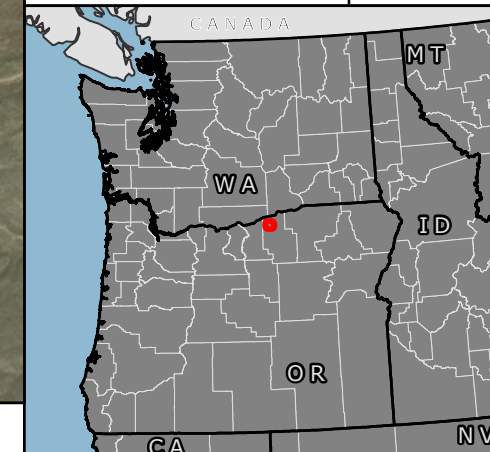
**Figure J-2
Delineated Wetlands
and Waters**

MORROW COUNTY, OR

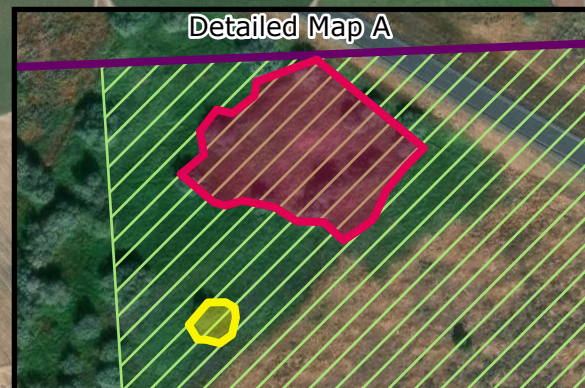
- Amended Site Boundary
- Wetland Study Area
- Wetlands
 - Wetland A
 - Wetland B
- Constructed Features
 - Carty Reservoir
 - Constructed Channel 1
 - Constructed Pond 1
 - Constructed Pond 2
 - Constructed Pond 3
 - Constructed Pond 4
 - Constructed Pond 5
 - Constructed Pond 6
 - Dry Ditch 1
 - Dry Ditch 2



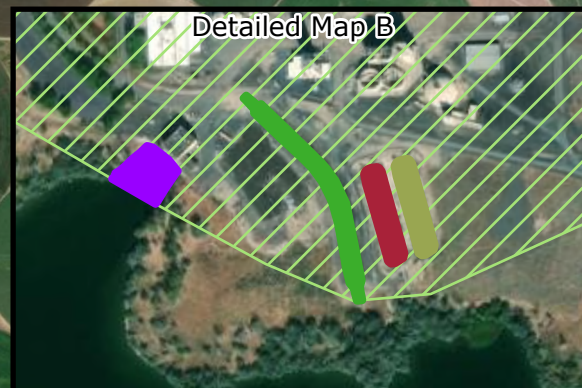
Reference Map



Detailed Map A



Detailed Map B



Detailed Map C



Carty Reservoir



1:24,000

WGS 1984 UTM Zone 10N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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Attachment J-1. Wetland Delineation Report

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Portland General Electric Carty Generating Station Solar Farm

Wetland and Waters Delineation Report



October 2023
Job# 60706827

Executive Summary

On behalf of Portland General Electric (PGE), AECOM Technical Services Inc. (AECOM) conducted a field study to delineate wetland and waters boundaries within areas associated with an anticipated Request for Site Certificate Amendment No. 4 for the Carty Generating Station Solar Farm (the Carty site) located in Morrow County, Oregon.

AECOM conducted two visits to the Carty site in April and May of 2023 to delineate wetlands and other waters within the study area. Two wetlands (Wetland A and Wetland B) totaling 0.89 acres, and 0.41 acres of Carty Reservoir, were delineated within the study area. Wetlands A and B are isolated depressions associated with an off-site stream within Sixmile Canyon. Carty Reservoir extends on-site at a facility intake area. Six artificially constructed ponds, an artificially constructed channel, and two dry ditches were also documented. The constructed ponds, channels, and Carty Reservoir are all controlled by the associated power generating facilities.

Wetlands A and B are likely to be regulated by the state but unlikely to be federally regulated. Carty Reservoir and the artificially constructed ponds and channels are collectively considered wastewater impoundments and would not be considered waters of this state.

This report was prepared according to the required wetland delineation report format described in Oregon Administrative Rule 141-090-0035.

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Site Data Summary

Project Name	PGE Carty Generating Station Solar Farm Wetland and Waters Delineation Report	
PGE Contact	Lenna Cope Portland General Electric 121 SW Salmon Street – 1WTC0403 Portland, OR 97204 lenna.cope@pgn.com	
AECOM Wetland Delineators	Lex Francis Biologist Lex.Francis@aecom.com (971) 323-6309	Brian Fletcher, PWS Wetland Ecologist Brian.Fletcher@aecom.com (971) 323-6287
Report Preparer	Lex Francis	
Quality Control	Brian Fletcher and Danni Kline	
Site Visit Dates	April 24 and May 25, 2023	
General Site Location	Approximately 13 miles southwest of Boardman, Morrow County, Oregon	
Legal Description	Township 3 North, Range 24 East, Sections 33, 34, 35 Willamette Meridian Township 2 North, Range 24 East, Sections 2, 3, 10, 11 Willamette Meridian	
Latitude/Longitude	45.702335°, -119.812176°	
Study Area Size	1,212.94 acres	
Previous Concurrences	WD2018-0158 and WD2010-0023	
USGS Topo Map	Ella, OR 7.5-minute quadrangle	
Drainage Basin	Sixmile Canyon (Hydrologic Unit Code 1707010108)	
Mapped NRCS Soil Series	53A - Royal silt loam, 0 to 3 percent slopes 54B - Sagehill fine sandy loam, 2 to 5 percent slopes 54D - Sagehill fine sandy loam, 12 to 20 percent slopes 55B - Sagehill fine sandy loam, hummocky, 2 to 5 percent slopes 55C - Sagehill fine sandy loam, hummocky 5 to 12 percent slopes 58C - Taunton fine sandy loam, 5 to 12 percent slopes 78 - Xeric Torriorthents, nearly level 9 - Dune land	
Cowardin Classes	PEM1C – Palustrine emergent, persistent, seasonally flooded L1UBHh – Lacustrine limnetic, unconsolidated bottom, permanently flooded, diked/impounded PUBHx – Palustrine unconsolidated bottom, permanently flooded, excavated	
HGM Classes	Depressional, lacustrine	
Total On-Site Wetland Area	0.89 acres	
Total On-Site Waters Area	0.41 acres (Carty Reservoir)	

Section A. Landscape Setting and Land Use

The Portland General Electric (PGE) Carty Generating Station (the Carty site) is located approximately 13 miles southwest of Boardman, in Morrow County, Oregon (Figure 1; Appendix A). The Carty site is located in Township 2 North, Range 24 East, Sections 2, 3, 10, and 11; and Township 3 North, Range 24 East, Sections 33, 34, and 35, Willamette Meridian. It is within the Sixmile Canyon watershed (Hydrologic Unit Code 1707010108) and the Columbia Plateau Oregon Conservation Strategy Ecoregion (OCS 2016).

The study area and surrounding lands have been used for the Boardman Coal Plant (now retired and demolished) and the Carty Generating Station gas facility or open range for decades.

Section B. Site Alterations

B.1 Habitats

The study area is situated within a mix of shrub-steppe, agricultural, and heavily developed habitat types. The site is generally flat; one gently sloping drainage is present within Sixmile Canyon, and Carty Reservoir is at the south and west end of the study area. Dominant vegetation in the area consists of big sage (*Artemisia tridentata*; UPL¹), cheatgrass (*Bromus tectorum*; UPL), bluebunch wheatgrass (*Pseudoroegneria spicata*; UPL), broom snakeweed (*Gutierrezia sarothrae*; UPL), and rubber rabbitbrush (*Ericameria nauseosa*; UPL). Small off-site areas surrounding the Carty Reservoir are dominated by riparian vegetation, which includes black cottonwood (*Populus trichocarpa*; FAC) and Russian olive (*Elaeagnus angustifolia*; FAC). Wetland areas associated with Sixmile Canyon also contain this riparian vegetation, in addition to wetland plants such as common reed (*Phragmites australis*; FACW).

B.2 Local Soil Types

The Natural Resources Conservation Service (NRCS 2023a) maps eight soil types within the study area (Table 1). Mapped soils are shown in Figure 4 in Appendix A.

¹ Indicator Status Ratings

Indicator Status **Abrv.** **Definitions - Short Version (ERDC/CRREL TN-12-1)**

OBL	Obligate - Occur almost always under natural conditions in wetlands
FACW	Facultative Wetland - Usually occur in wetlands, but occasionally found in non-wetlands.
FAC	Facultative - Equally likely to occur in wetlands and non-wetlands.
FACU	Facultative Upland - Usually occur in non-wetlands, but occasionally found in wetlands.
UPL	Upland - Occur almost always under natural conditions in non-wetlands.

Table 1. Soil Mapping Units within the Study Area

Map Unit Name	Map Unit Symbol	Hydric Rating (percent)
Royal silt loam, 0 to 3 percent slopes	53A	0
Sagehill fine sandy loam, 2 to 5 percent slopes	54B	0
Sagehill fine sandy loam, 12 to 20 percent slopes	54D	0
Sagehill fine sandy loam, hummocky, 2 to 5 percent slopes	55B	0
Sagehill fine sandy loam, hummocky 5 to 12 percent slopes	55C	0
Taunton fine sandy loam, 5 to 12 percent slopes	58C	0
Xeric Torriorthents, nearly level	78	0
Dune land	9	0

Source: NRCS 2023

The majority of the study area is underlain with Sagehill fine sandy loam with Royal silt loam and Taunton fine sandy loam in wetland or riparian areas. The Sagehill mapping unit forms on terraces and are deep to very deep, well-drained soils formed in lacustrine deposits with slopes ranging from 0 to 60 percent. The Taunton mapping unit forms on structural benches, fan terraces, or mesas on slopes ranging from 0 to 45 percent. They are moderately deep to a duripan and well drained. Royal soils form on terraces with slopes ranging from 0 to 40 percent in very deep well-drained soils (NRCS 2023a).

Section C. Precipitation Data and Analysis

Observed precipitation data were obtained from the National Oceanic and Atmospheric Administration (NOAA 2023) Boardman, Oregon, station for both site visits (Appendix D). The closest NRCS Climate Analysis for Wetlands Tables (WETS) station to the project site is the Boardman station (NRCS 2023b).

According to the Boardman station data, no rainfall was received the day of the April 24, 2023, site visit, and 0.32 inches was received in the 2 weeks prior. Observed water-year-to-date (since October 1, 2022) was 5.85 inches, which was 0.07 inches above normal. According to the WETS data, monthly observed precipitation for the Boardman area was drier than normal for the 3 months preceding the site visit, as shown in Table 2.

Table 2. Rainfall Assessment for the 3-Month Period Preceding April 24, 2023 Site Visit

Prior Month	WETS Rainfall Percentile (inches)		Measured Rainfall (in.)	Condition: Dry Normal Wet	Value: Dry=1 Normal=2 Wet=3	Month Weight	Multiply Previous Columns
	30th	70th					
Mar 2023	0.40	0.82	0.00	Dry	1	3	3
Feb 2023	0.52	1.14	0.30	Dry	1	2	2
Jan 2023	0.83	1.53	0.70	Dry	1	1	1
						Sum	6

If sum is 6-9, rainfall of prior period was **drier than normal**

If sum is 10-14, rainfall of prior period was normal

If sum is 15-18, rainfall of prior period was wetter than normal

Data sources: NOAA 2023, NRCS 2023b

According to Boardman station data, no rainfall was received the day of the May 25, 2023, site visit, and no rainfall was received in the 2 weeks prior. Observed water-year-to-date (since October 1, 2022) was 6.34 inches, which was 0.11 inches above normal. According to the WETS data, monthly observed precipitation for the Boardman area was drier than normal for the 3 months preceding the site visit, as shown in Table 3.

Table 3. Rainfall Assessment for the 3-Month Period Preceding May 25, 2023, Site Visit

Prior Month	WETS Rainfall Percentile (inches)		Measured Rainfall (in.)	Condition: Dry Normal Wet	Value: Dry=1 Normal=2 Wet=3	Month Weight	Multiply Previous Columns
	30th	70th					
Apr 2023	0.26	0.72	0.40	Normal	2	3	6
Mar 2023	0.40	0.82	0.00	Dry	1	2	2
Feb 2023	0.52	1.14	0.30	Dry	1	1	1
						Sum	9

If sum is 6-9, rainfall of prior period was **drier than normal**

If sum is 10-14, rainfall of prior period was normal

If sum is 15-18, rainfall of prior period was wetter than normal

Data sources: NOAA 2023, NRCS 2023b

Because the field investigation was conducted after the beginning of the growing season in below-normal conditions, the lack of primary hydrology indicators was not considered sufficient to rule out the presence of wetland hydrology.

Section D. Methods

D.1 Existing Data Review

Prior to conducting the wetland and waters delineation, AECOM reviewed data from the following sources.

- Statewide Wetland Inventory (SWI) / National Wetland Inventory (NWI) mapping (USFWS 2023)
- NRCS Soil Survey of Morrow County (NRCS 2023a)
- Aerial photography (ArcGIS desktop application)
- National Hydrography Dataset (USGS 2023)

A Local Wetland Inventory has not been completed for the study area.

D.2 Site-Specific Field Methodology

Site visits were conducted on April 24 and May 25, 2023. Wetland presence was determined by AECOM wetland scientists using the methods outlined in the 1987 U.S. Army Corps of Engineers (USACE) *Wetlands Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the*

Corps of Engineers Wetland Delineation Manual: Arid West Region (Regional Supplement) (USACE 2008). All wetlands and other waters are described in Section E. Representative ground-level photographs can be seen in Appendix B.

Wetland Determination

Wetland boundaries were determined by examining the vegetation, soils, and hydrology indicators at eight sample plot locations throughout the study area. At each sample plot, vegetation composition, soil profiles, and wetland hydrology indicators were recorded on standard Wetland Determination Data Forms sourced from the Regional Supplement (USACE 2008). These forms describe the wetland or upland conditions and are provided in Appendix C.

Vegetation

AECOM determined the dominant plant species present within circular plots centered on each sample plot location. Unless recorded as otherwise, trees were documented within a 30-foot radius, shrubs were documented within a 15-foot radius, and herbaceous species were documented within a 5-foot radius. Dominant plant species were determined using the 50/20 rule (Environmental Laboratory 1987). The wetland indicator status for each dominant species was assigned using the Oregon subset of the National Wetland Plant List, Arid West Region (USACE 2020).

Soils

Soil profile characteristics were examined to determine if they met the definition of a hydric soil indicator per the Field Indicators of Hydric Soils in the United States (NRCS 2018). Soil colors were determined using a Munsell Soil Color Chart (X-Rite 2009). Soils were also examined for the presence of oxidized rhizospheres along living roots to support determinations of wetland hydrology.

Hydrology

Per the Regional Supplement (USACE 2008), wetland hydrology was determined by observing at least one primary indicator (e.g., ponding, high water table and/or saturation within 12 inches of the soil surface) or two secondary indicators.

Classification

Wetlands were classified per the *Classification of Wetlands and Deepwater Habitats of the United States* (Cowardin et al. 1979) and the Oregon Hydrogeomorphic (HGM) method (Adamus and Field 2001). Under the Cowardin classification system, palustrine wetlands include all non-tidal wetlands dominated by vegetation, including forested, scrub-shrub, and emergent wetlands, based on the percent cover of woody vegetation and the height of the dominant vegetation. Modifiers are included in the Cowardin classification to indicate water regime or other pertinent information. The HGM method classifies wetlands based on the hydrologic and geomorphic characteristics that control many wetland functions.

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

E.1 Wetlands

Two wetlands (Wetland A and Wetland B) totaling 0.89 acres were delineated within the study area. The wetlands occur on a low terrace of Sixmile Canyon, south of Tower Road. They are depressional features with shallow saturation/groundwater associated with an off-site stream. Details about each wetland are summarized in Table 4. Wetlands are shown in Figure 6 in Appendix A, and photographs are provided in Appendix B. The wetland-upland boundary conditions are documented on wetland determination data forms provided in Appendix C.

Additional sample plots were taken in three locations, with potential wetland conditions observed within riparian areas or drainages (Plots 1 through 3). Plot 8 was taken at the furthest extent of the study area in the northwest corner near another likely wetland just outside the study area boundary. Plots 1, 2, 3, and 8 were all determined to meet upland conditions.

Table 4. Summary of Wetlands within the Study Area

Feature Name (Acreage within Study Area)	Paired Sample Plots/ Photo No.	Cowardin^/ HGM Classification	Anticipated State/Federal Jurisdiction*
Wetland A (0.84 ac)	SP-4 SP-5 Photos 1, 2	PEM1C/ Depressional	Likely / Unlikely
Wetland B (0.05 ac)	SP-6 SP-7 Photo 3	PEM1C/ Depressional	Likely / Unlikely

^ Cowardin Classification: PEM1C = Palustrine emergent, persistent, seasonally flooded.

* State jurisdiction (Oregon DSL) is considered Likely if the wetland is a naturally occurring feature. Federal jurisdiction (USACE) is considered Likely if there is continuous surface water connection to a WOTUS. Federal jurisdiction is Not Likely if the feature is isolated from a WOTUS.

Key: ac = acre; DSL = Department of State Lands; HGM = hydrogeomorphic; USACE = U.S. Army Corps of Engineers; WOTUS = Waters of the U.S.

E.2 Other Waters

A 0.41-acre portion of Carty Reservoir was delineated within the study area. The ordinary high water line/mark (OHWL/M) boundaries were assessed using Oregon DSL field indicators of ordinary high water per Oregon Administrative Rule (OAR) 141-085-0515(3), which include a clear, natural line impressed on the bank, vegetation lines, scour lines, and/or wrack line debris created by controlled water elevations. A summary of Carty Reservoir is provided in Table 5.

Table 5. Summary of Other Waters within the Study Area

Feature Name (Acreage within Study Area)	Photo No.	Cowardin[^]/ HGM Classification	Anticipated State/Federal Jurisdiction*
Carty Reservoir OHWL/M (0.41 ac)	Photos 4, 5	L1UBHh/ Lacustrine	Unlikely / Unlikely

[^] Cowardin Classifications: L1UBHh = Lacustrine limnetic, unconsolidated bottom, permanently flooded, diked/impounded.

* State jurisdiction (Oregon DSL) is considered Likely if the stream is a naturally occurring feature. Federal jurisdiction (USACE) is considered Likely if there is at least a direct connection to a WOTUS. Anticipated jurisdiction is for advisory/planning purposes; the ultimate decision is at the discretion of the USACE and the Oregon DSL.

Key: ac = acre; DSL = Department of State Lands; HGM = hydrogeomorphic; OHWL/M = ordinary high water line/mark; USACE = U.S. Army Corps of Engineers; WOTUS = Waters of the U.S.

E.3 Artificially Constructed Features

The study area contains three artificially constructed channels for discharges of the former Boardman Coal Plant or overflows of the Carty Reservoir. Six artificially constructed ponds within the facility are/were used for water settling and treatment.

Constructed Channel 1 is an approximately 680-foot-long artificial water discharge conveyance within the facility (Photo 6) that connects to the Carty Reservoir via concrete tunnel. The channel banks and bottom were fully lined with riprap and concrete. It contained sparsely scattered vegetation throughout. There was no flow in the channel during the site visits.

Dry Ditches 1 and 2 occur just east of Carty Reservoir's eastern berm/access road embankment. These ditches serve to drain the toe of the Carty Reservoir impoundment and were clearly constructed in uplands (Sample Plot 2). Dry Ditch 1 runs parallel to the toe of the eastern embankment (Photo 7). Dry Ditch 2 runs east and continues off-site.

Four artificially constructed pond features (wastewater/sanitary lagoons) were documented in the northern portion of the study area east of Tower Road. Constructed Ponds 1 and 2 are 9.74 and 1.31 acres in size, respectively. Constructed Ponds 3 and 4 are 1.10 acres and 1.13 acres in size, respectively. The ponds are graveled and bermed, lined with plastic, and do not contain wetlands at the pond fringe. After the delineation site visit, these features were removed and graded as part of the Boardman Coal Plant demolition.

Two nearly identical artificially constructed industrial basins (Constructed Ponds 5 and 6) were also documented within the Carty site, just east of Constructed Channel 1. They are gravel-lined and each contains four rectangular cells in series that were used to treat facility discharges. Reportedly, they have not been used since October 2020 when the facility ceased its operations. Vegetation within and surrounding the features was largely dried and dead at the time of the field study. After the delineation site visit, these features were removed and graded as part of the Boardman Coal Plant demolition.

Section F. Deviation from SWI

As shown in Figure 3 in Appendix A, the SWI / NWI only maps four features within the study area. Carty Reservoir is described as lacustrine, limnetic, unconsolidated bottom, permanently flooded, diked/impounded (L1UBHh). The three artificially constructed ponds are categorized as palustrine, unconsolidated bottom, permanently flooded, excavated (PUBHx). The SWI / NWI does not document any wetland features in the vicinity of delineated Wetlands A and B, or stream features in the vicinity of any of the constructed channels.

Section G. Mapping Method

A handheld Trimble TDC2600 with DA2 Catalyst GPS unit with sub-meter horizontal accuracy was used to survey wetland and water boundaries and sample plot locations. Raw GPS data were collected in the field as point data. At each point, 30 GPS positions were collected and averaged. The surveyed wetland and water boundaries are shown in Figure 6 in Appendix A.

Section H. Additional Information

An old coal ash landfill area (now capped with plastic ClosureTurf and gravel) is located in the southern portion of the study area, as shown on Figure 1—it is obvious upland. Wetlands A and B are likely regulated under Oregon DSL jurisdiction, as they are naturally occurring. The wetlands lack a direct surface connection to a WOTUS and are not likely jurisdictional by the USACE.

The Carty Reservoir is a constructed industrial pond that meets the definition of an Exempt Artificially Created Pond constructed for the purpose of wastewater treatment (OAR 141-085-0515(7)(a)). Based on the landscape setting and lack of mapped hydric soils in the area, it appears that the land was upland before the Carty Reservoir was constructed. Because the hydrology source is water pumped from the Columbia River, the Reservoir would likely revert to dry land if the pumping ceased; therefore, the USACE is unlikely to have jurisdiction.

The Constructed Channel 1, Dry Ditches 1 and 2, and the six constructed ponds are unlikely to be determined jurisdictional by DSL under OAR 141-085-0515(7). These artificial settling ponds were constructed in uplands and have no connection to WOTUS; they are unlikely to be regulated under state or federal jurisdictions.

Section I. Results and Conclusions

Two wetlands totaling 0.89 acre and a portion of Carty Reservoir totaling 0.41 acres were delineated. Photographs of the features can be seen in Appendix B. Appendix C contains the wetland determination data forms completed during the site visits.

Section J. Disclaimer

This report documents the investigation, best professional judgment, and conclusions of the investigators. It is correct and complete to the best of our knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at one's own risk until it has been reviewed and approved in writing by the Oregon DSL in accordance with OAR 141-090-0005 through 141-090-0055.

Section K. References

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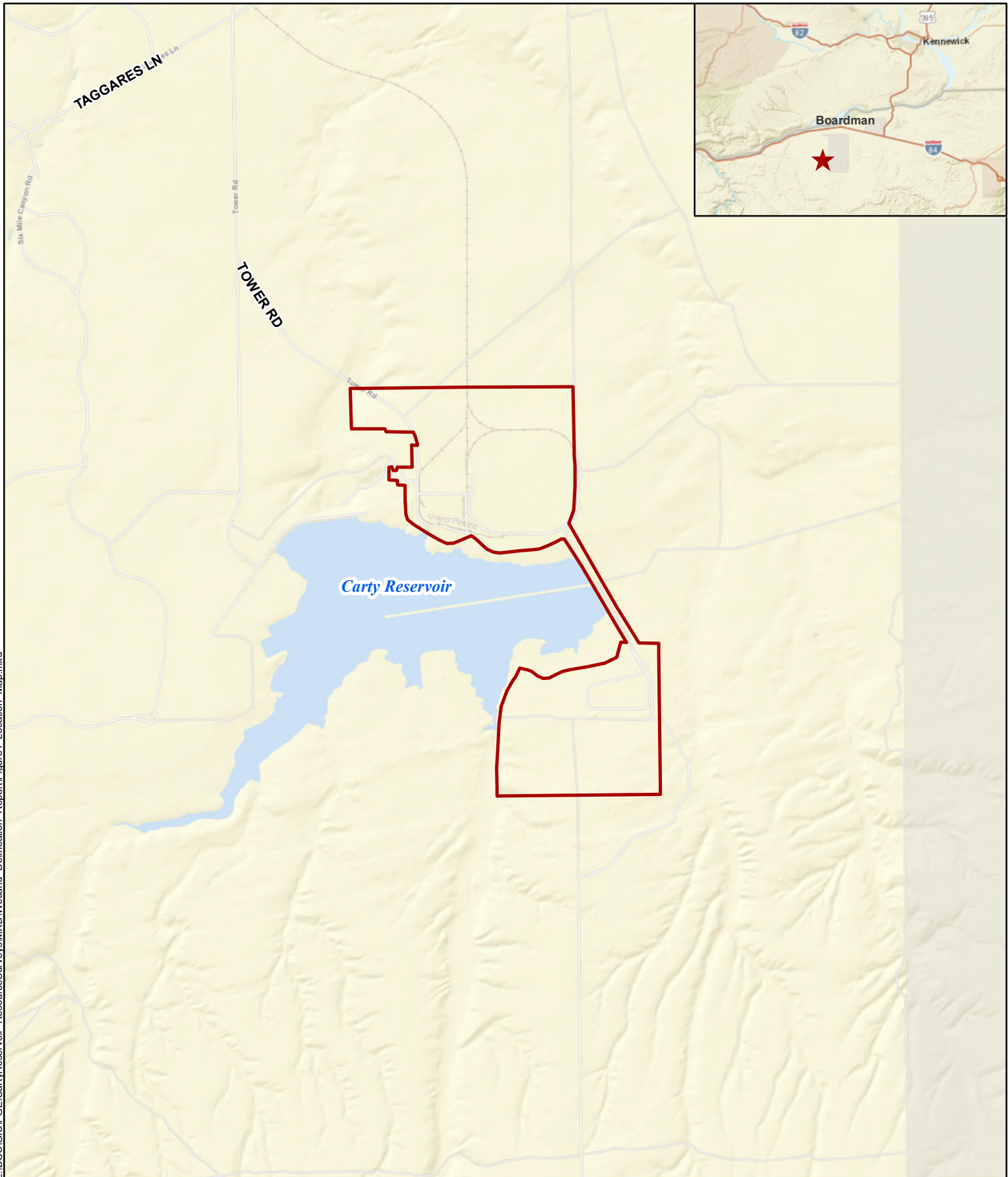
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Appendix A: Figures

L:\DCS\GIS\PG&E\CartyReservoir_ResourceSurveys\MXD\Wetland_Delineation_Report\Figure1_Location_Map.mxd



Sources: Esri, HERE, Garmin, USGS, Intermap, INCREMENT P, NRCan, Esri Japan, METI, Esri China (Hong Kong), Esri Korea, Esri (Thailand), NGCC, (c) OpenStreetMap contributors, and the GIS User Community

Legend

 Study Area (1,212.94 acres)

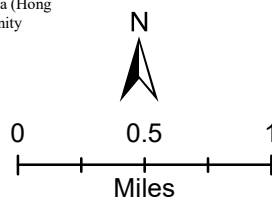
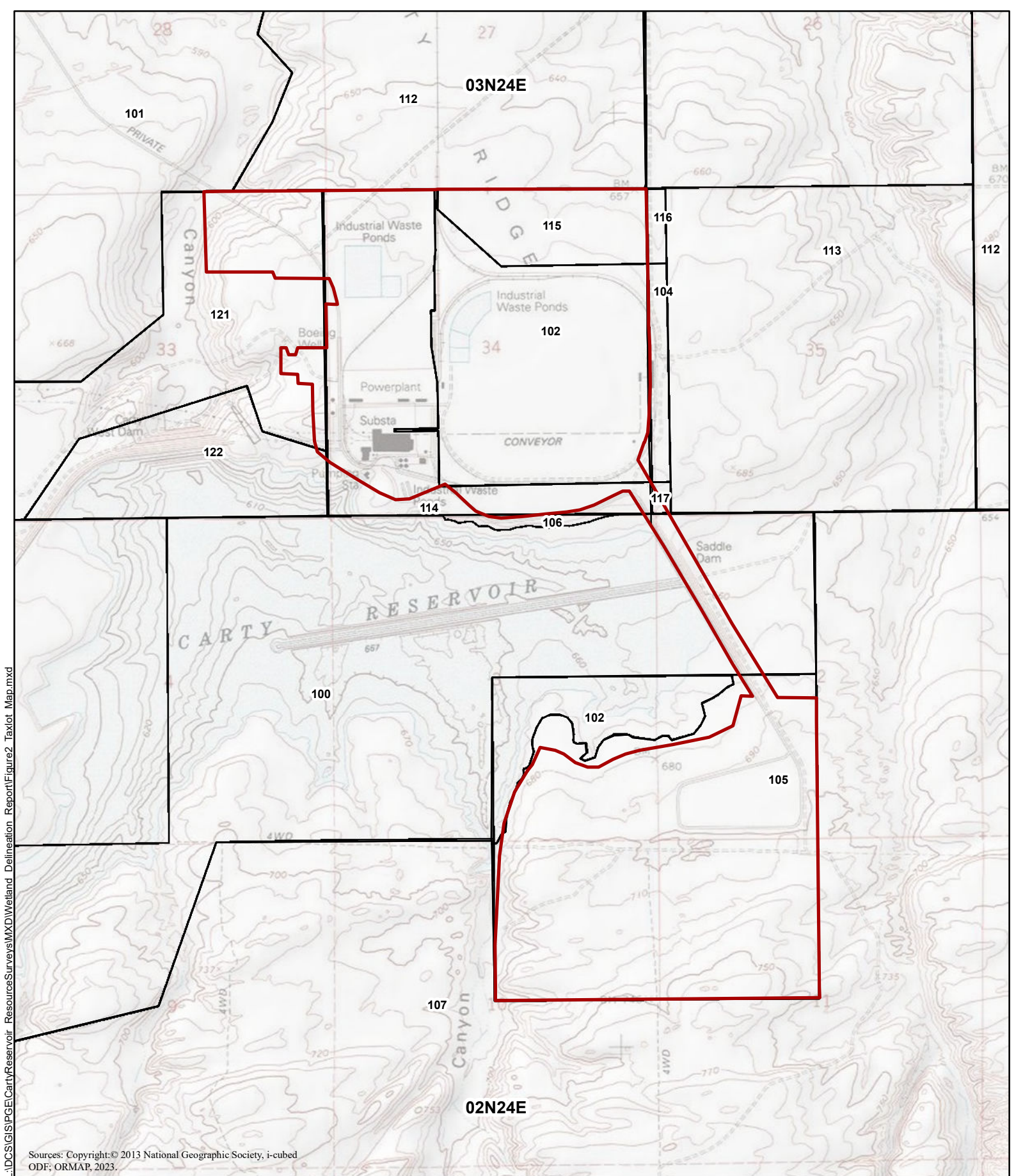


FIGURE 1 – LOCATION MAP

PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM



Sources: Copyright: © 2013 National Geographic Society, i-cubed
ODF: ORMAP, 2023.

Legend

- Study Area
- Tax Lot

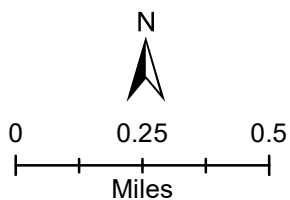


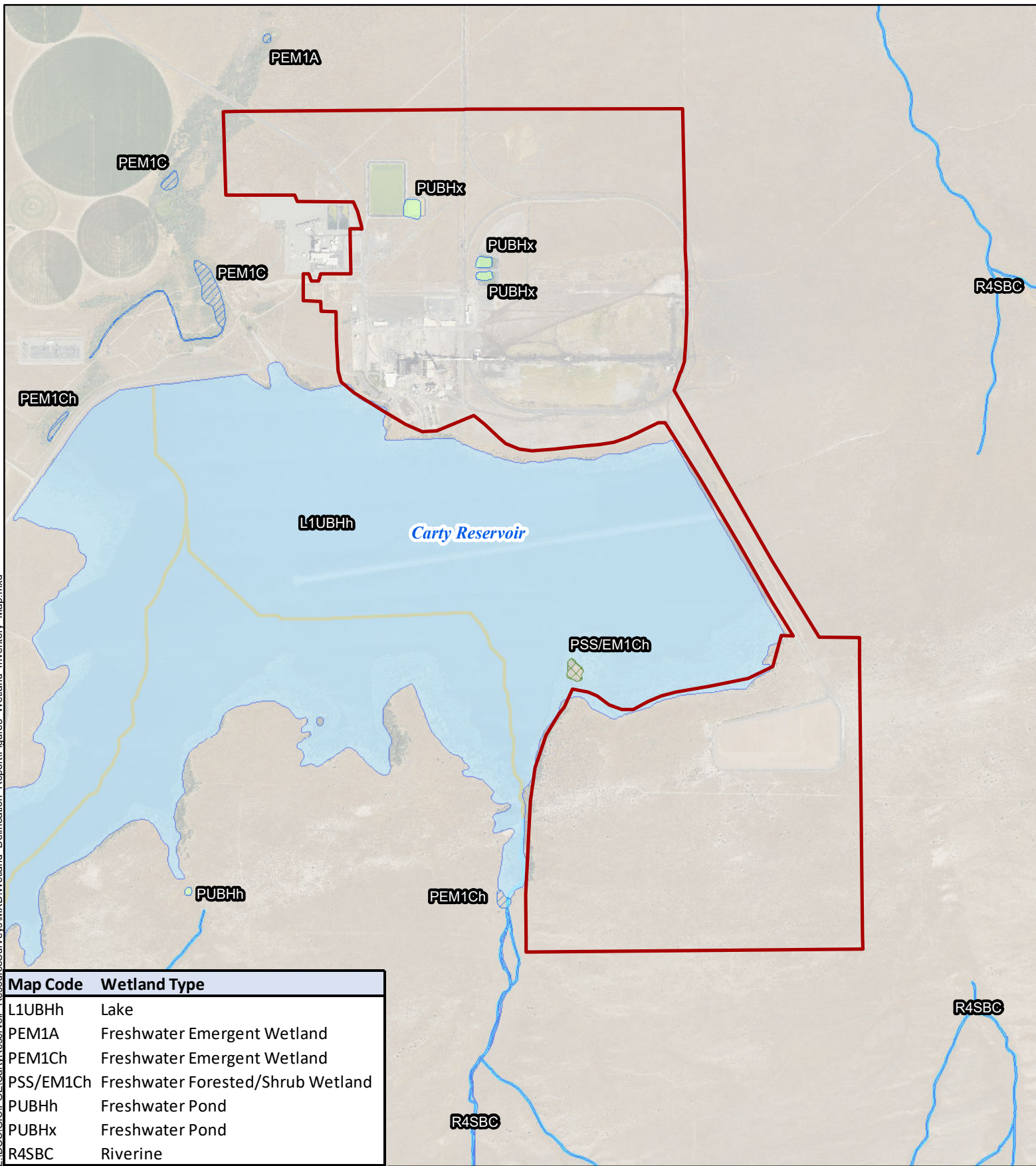
FIGURE 2 – TAX LOT MAP

PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM

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Sources: Morrow County NAIP, 2022; ORMAP, 2023; NWI, 2023; NHD, 2023.

Legend

- Study Area

Artificial Path

Intermittent
- National Wetland Inventory

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Riverine

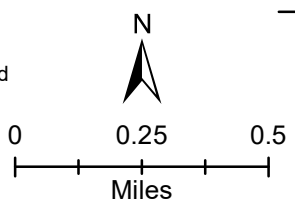


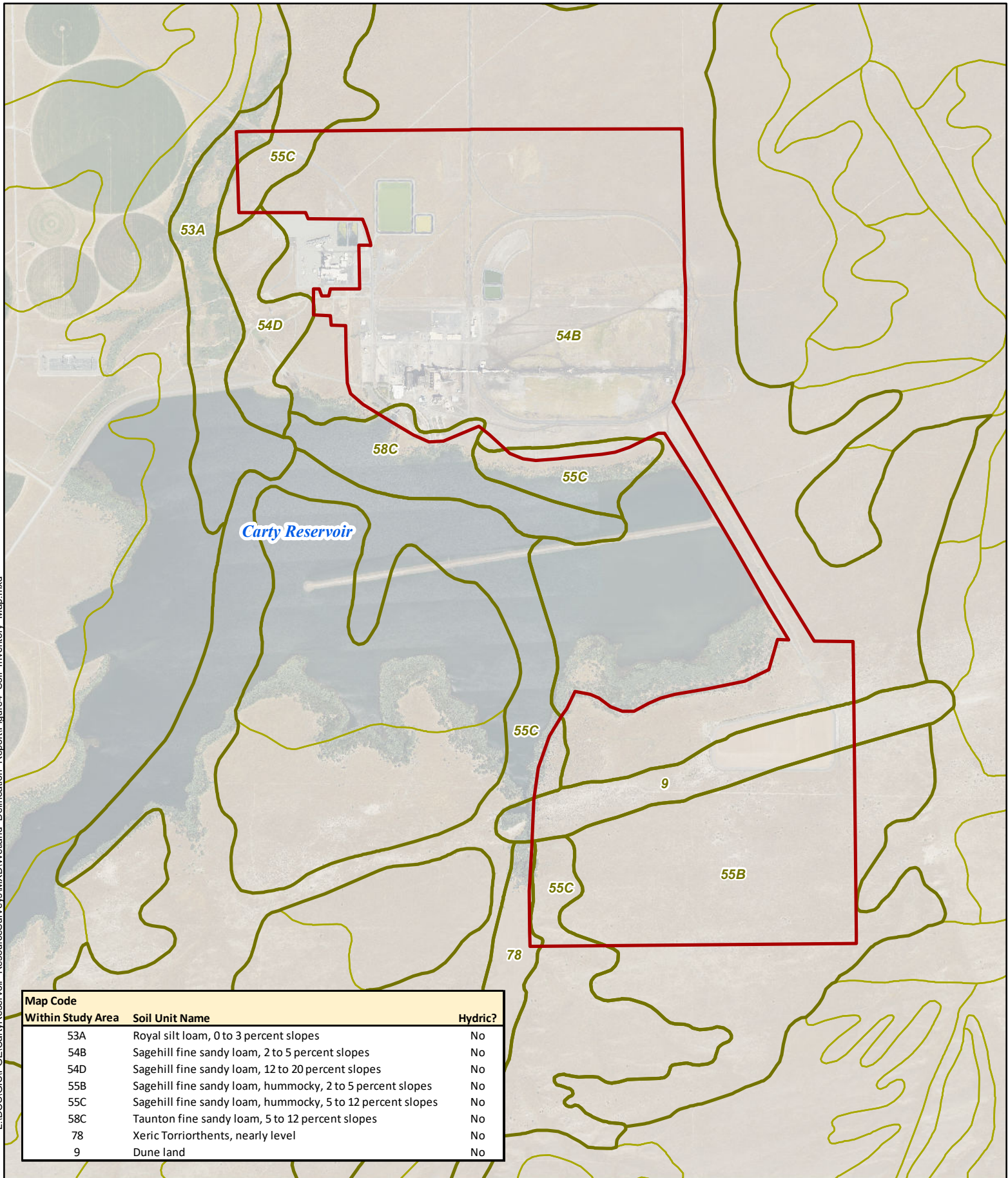
FIGURE 3
NATIONAL WETLAND INVENTORY MAP

PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM

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Sources: Morrow County NAIP, 2022; NRCS, 2023.

Legend

- Study Area
- Project Soil Unit
- Other Soil Unit

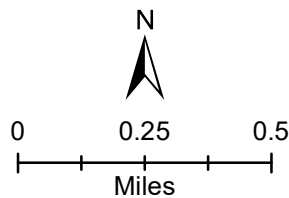


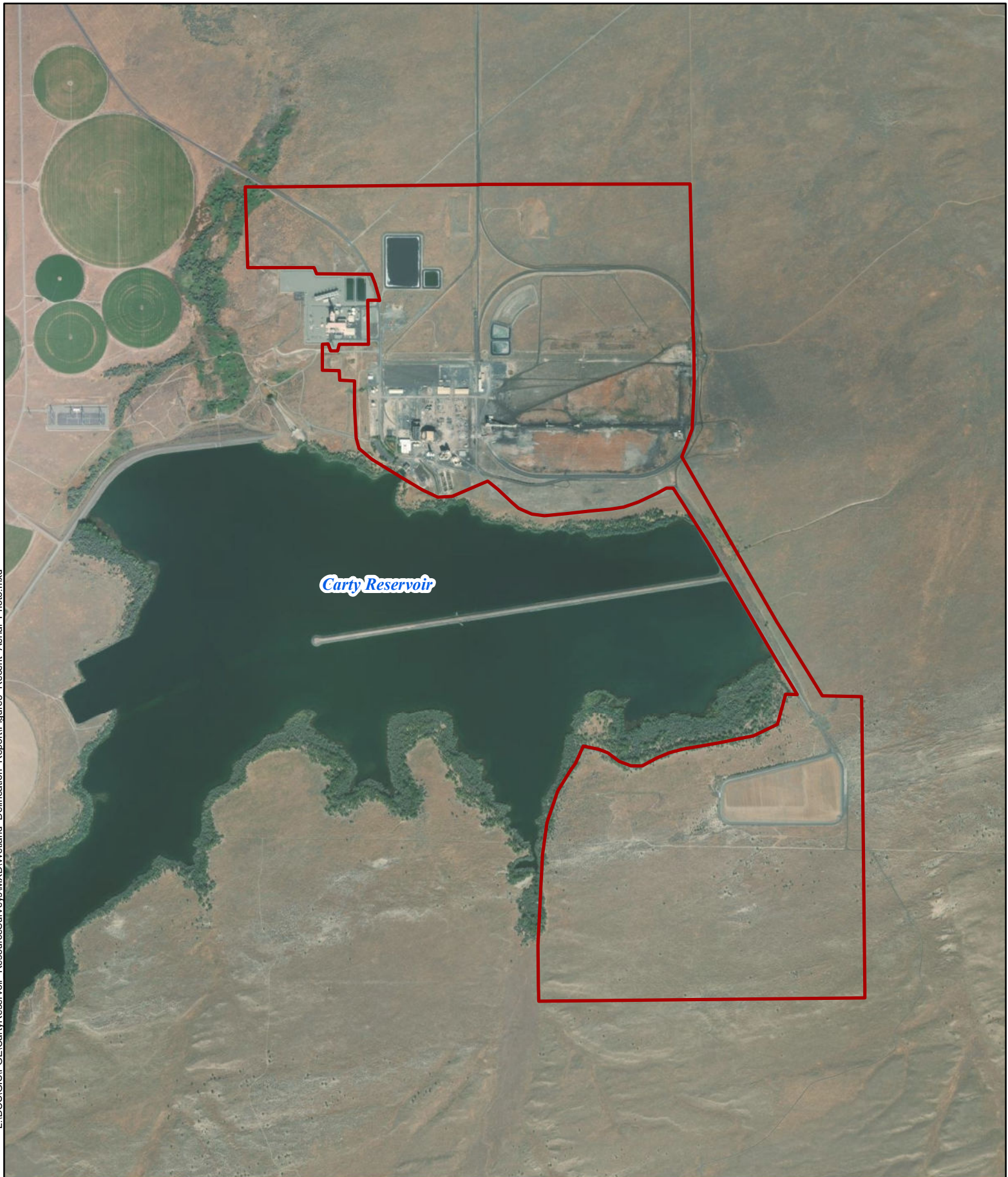
FIGURE 4 – COUNTY SOIL SURVEY MAP

PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM

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Source: ArcGIS Online Imagery, October, 2022

Legend

 Study Area

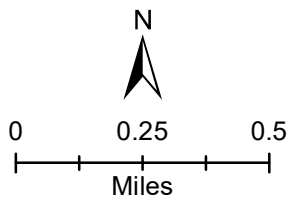


FIGURE 5 – RECENT AERIAL PHOTOGRAPH

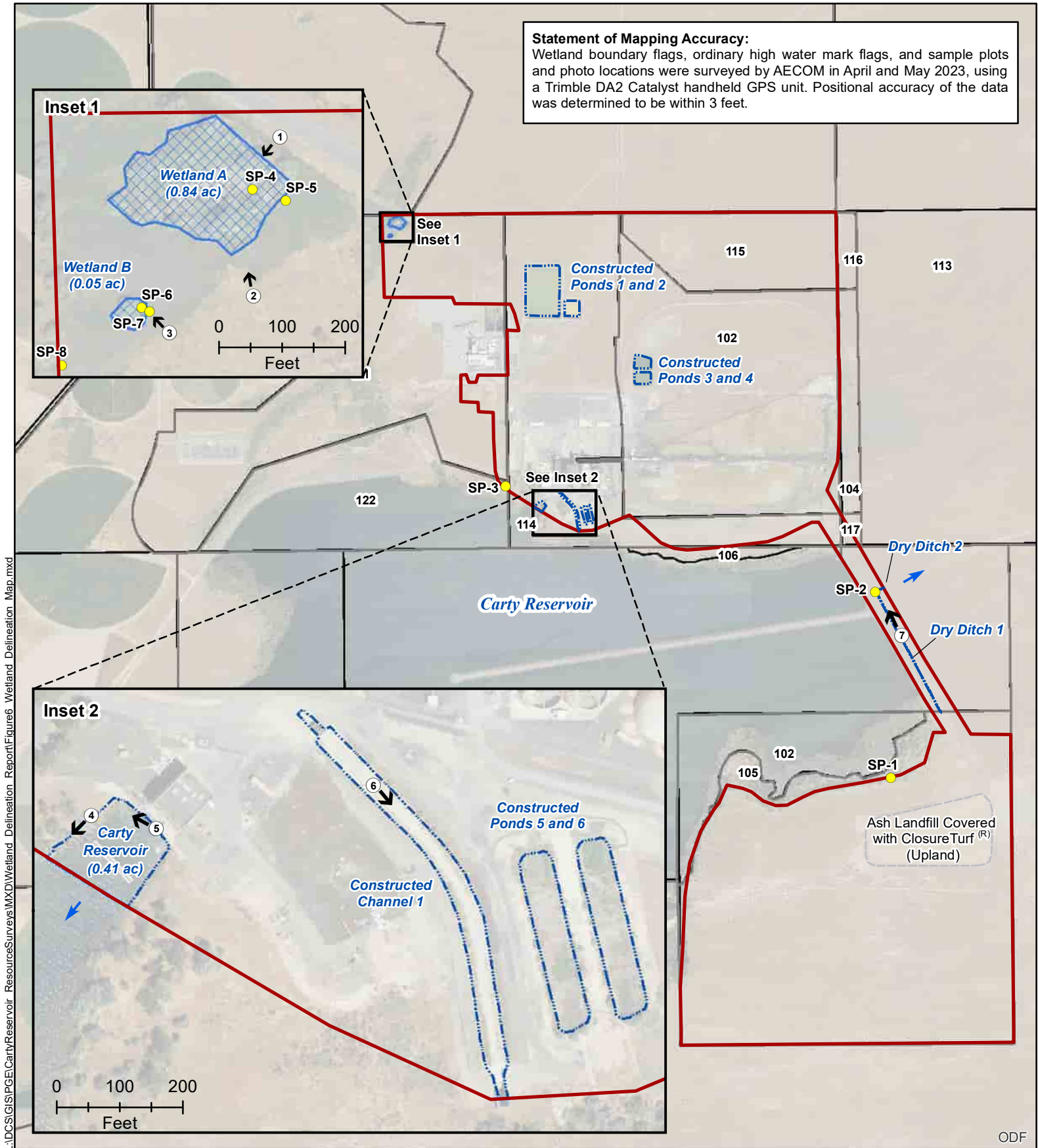
PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM

Statement of Mapping Accuracy:

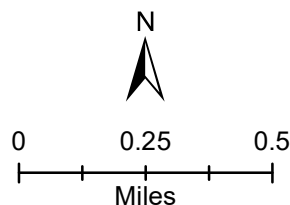
Wetland boundary flags, ordinary high water mark flags, and sample plots and photo locations were surveyed by AECOM in April and May 2023, using a Trimble DA2 Catalyst handheld GPS unit. Positional accuracy of the data was determined to be within 3 feet.



Sources: Morrow County NAIP Imagery, 2022; ORMAP, 2023; NWI, 2023; NHD, 2023.

Legend

- Study Area
- Tax Lot
- Sample Plot
- Photo Point
- Wetland (PEM)
- Constructed Feature
- Feature Continues Offsite

**FIGURE 6
WETLAND & WATERS DELINEATION MAP**

PORTLAND GENERAL ELECTRIC
CARTY GENERATING STATION SOLAR FARM
MORROW COUNTY, OREGON

October 2023
AECOM Project No. 60706827

AECOM

Appendix B: Photographs

Project: PGE Carty Generating Station		SITE PHOTOS	AECOM Project No. 60682780
Photo No. 1	Date 5/25/23		
Direction Photo Taken: Southwest			
Description: Wetland A is an 0.84-acre shallow depression that is seasonally flooded. Vegetation is dominated by common reed and the fringe contains several Russian olive trees and shrubs.			

Photo No. 2	Date: 5/25/23
Direction Photo Taken: North	
Description: Photo shows Wetland A from the south. The wetland-upland boundary was easily identified by the abrupt transition from the dominant common reed (FAC). Scattered Russian olive trees and shrubs can also be seen.	



Photo No. 3	Date: 5/25/23	
Direction Photo Taken: Northwest		
Description: Photo shows the upland sample plot SP-7 located near the boundary of Wetland B. The wetland is overwhelmingly dominated by common reed and the upland contains a dense thatch of unknown dead grasses.		

Photo No. 4	Date: 5/25/23	
Direction Photo Taken: Southwest		
Description: The OHWL/M of Carty Reservoir was an obvious topographic transition and change in vegetation from the largely unvegetated rocky shore.		

Photo No. 5	Date: 5/25/23	
Direction Photo Taken: Northwest		
Description: Photo shows Carty Reservoir from the top of the facility's concrete intake structure. The controlled water elevation on the concrete and riprap-lined bank can be seen.		

Photo No. 6	Date: 5/25/23	
Direction Photo Taken: Southeast		
Description: Photo shows Constructed Channel 1, a sparsely vegetated, cobble and riprap-lined water discharge conveyance within the Carty facility.		

Photo No. 7	Date: 4/24/23	
Direction Photo Taken: Northwest		
Description: Dry Ditch 1 drains the toe of the Carty Reservoir / access road embankment. It was rock-lined, dry, and partially vegetated.		

Appendix C: Wetland Determination Data Forms

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Arid West Region See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Carty Generating Station Solar Farm City/County: Boardman / Morrow County Sampling Date: 04/24/2023

Applicant/Owner: Portland General Electric (PGE) State: OR Sampling Point: SP-1

Investigator(s): Lex Francis Section, Township, Range: T2N, R24E, Section 2

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

Subregion (LRR): LRR B Lat: 45.680076 Long: -119.787500 Datum: NAD1983

Soil Map Unit Name: Sagehill fine sandy loam, 2 to 5 percent slopes NWI classification: L1UBHh

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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: Drier than normal climatic conditions. Plot located within riparian forest community within documented NWI area.	

VEGETATION – Use scientific names of plants.

<p><u>Tree Stratum</u> (Plot size: <u>30'</u>)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">Absolute % Cover</th> <th style="width: 15%;">Dominant Species?</th> <th style="width: 30%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Populus balsamifera</u></td><td style="text-align: center;"><u>15</u></td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;"><u>15</u></td><td colspan="2">=Total Cover</td></tr> </tbody> </table> <p><u>Sapling/Shrub Stratum</u> (Plot size: <u>15'</u>)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">Absolute % Cover</th> <th style="width: 15%;">Dominant Species?</th> <th style="width: 30%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Juniperus communis</u></td><td style="text-align: center;"><u>15</u></td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACU</td></tr> <tr><td>2. <u>Artemisia tridentata</u></td><td style="text-align: center;"><u>10</u></td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>3. <u>Elaeagnus angustifolia</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;">No</td><td style="text-align: center;">FAC</td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;"><u>30</u></td><td colspan="2">=Total Cover</td></tr> </tbody> </table> <p><u>Herb Stratum</u> (Plot size: <u>5'</u>)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">Absolute % Cover</th> <th style="width: 15%;">Dominant Species?</th> <th style="width: 30%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Bromus tectorum</u></td><td style="text-align: center;"><u>40</u></td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>2. <u>Holosteum umbellatum</u></td><td style="text-align: center;"><u>25</u></td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>3. <u>Achillea millefolium</u></td><td style="text-align: center;"><u>5</u></td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>6. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>7. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>8. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;"><u>70</u></td><td colspan="2">=Total Cover</td></tr> </tbody> </table> <p><u>Woody Vine Stratum</u> (Plot size: <u> </u>)</p> <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%;">Absolute % Cover</th> <th style="width: 15%;">Dominant Species?</th> <th style="width: 30%;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td colspan="2" style="text-align: right;"><u> </u></td><td colspan="2">=Total Cover</td></tr> </tbody> </table> <p>% Bare Ground in Herb Stratum <u>30</u> % Cover of Biotic Crust <u>0</u></p>		Absolute % Cover	Dominant Species?	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SOIL

Sampling Point: SP-1

[illegible]

HYDROLOGY

Wetland Hydrology Indicators: <u>Primary Indicators (minimum of one is required; check all that apply)</u>				<u>Secondary Indicators (minimum of two required)</u>	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)			
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)			
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)			
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)			
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)			
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)			
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)			
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)			
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Water Table Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Saturation Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> (includes capillary fringe)				Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Aerial, previous delineations					
Remarks: Soils dry from 0-14 inches, and slightly moist from 14 to 18 inches. No saturation, water table, or other indicators of wetland hydrology.					

SOIL

Sampling Point: SP-2

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-6	2.5Y 4/3	100					Sandy Loam (SL)	
6-13	2.5Y 4/3	95	10YR 4/6	5	C	PL/M	Sandy Loam (SL)	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 1 cm Muck (A9) (LRR C)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ 2 cm Muck (A10) (LRR B)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Iron-Manganese Masses (F12) (LRR D)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Reduced Vertic (F18)
☐ Stratified Layers (A5) (LRR C)	☐ Depleted Matrix (F3)	☐ Red Parent Material (F21)
☐ 1 cm Muck (A9) (LRR D)	☐ Redox Dark Surface (F6)	☐ Very Shallow Dark Surface (F22)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Other (Explain in Remarks)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):	Hydric Soil Present?	Yes	No
Type: <u>Angular gravels</u>			
Depth (inches): <u>13</u>			

Remarks:
Shovel refusal at 13 inches due to restrictive gravel layer within the ditch.

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)	
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☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)	

Field Observations:				Wetland Hydrology Present? Yes ☐ No ☒
Surface Water Present?	Yes ☐ No ☒	Depth (inches):	<u> </u>	
Water Table Present?	Yes ☐ No ☒	Depth (inches):	<u> </u>	
Saturation Present?	Yes ☐ No ☒	Depth (inches):	<u> </u>	
(includes capillary fringe)				

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

Remarks:
Soils dry throughout.

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Arid West Region See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Carty Generating Station Solar Farm City/County: Boardman / Morrow County Sampling Date: 5/25/2023

Applicant/Owner: Portland General Electric (PGE) State: OR Sampling Point: SP-3

Investigator(s): Lex Francis Section, Township, Range: T3N, R24E, Section 33

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

Subregion (LRR): LRR B Lat: 45.692903 Long: -119.811225 Datum: NAD1983

Soil Map Unit Name: Sagehill fine sandy loam, 2 to 5 percent slopes NWI classification: L1UBHh

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 <u> </u> No <u>X</u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: Drier than normal climatic conditions. Plot located within slight depression in riparian forest to the north of Carty Reservoir.	

VEGETATION – Use scientific names of plants.

<div style="margin-bottom: 10px;"> Tree Stratum (Plot size: <u>30'</u>) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;">Absolute % Cover</th> <th style="width: 15%; text-align: center;">Dominant Species?</th> <th style="width: 30%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Populus deltoides</u></td><td style="text-align: center;">25</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">25</td> <td colspan="2" style="text-align: center;">=Total Cover</td> </tr> </tbody> </table> </div> <div style="margin-bottom: 10px;"> Sapling/Shrub Stratum (Plot size: <u>15'</u>) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;">Absolute % Cover</th> <th style="width: 15%; text-align: center;">Dominant Species?</th> <th style="width: 30%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Elaeagnus angustifolia</u></td><td style="text-align: center;">5</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u>Ericameria nauseosa</u></td><td style="text-align: center;">3</td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">8</td> <td colspan="2" style="text-align: center;">=Total Cover</td> </tr> </tbody> </table> </div> <div style="margin-bottom: 10px;"> Herb Stratum (Plot size: <u>5'</u>) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;">Absolute % Cover</th> <th style="width: 15%; text-align: center;">Dominant Species?</th> <th style="width: 30%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u>Nassella leucotricha</u></td><td style="text-align: center;">70</td><td style="text-align: center;">Yes</td><td style="text-align: center;">UPL</td></tr> <tr><td>2. <u>Poa bulbosa</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>3. <u>Agropyron cristatum</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">UPL</td></tr> <tr><td>4. <u>Bromus tectorum</u></td><td style="text-align: center;">5</td><td style="text-align: center;">No</td><td style="text-align: center;">UPL</td></tr> <tr><td>5. <u>Melilotus officinalis</u></td><td style="text-align: center;">3</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>6. <u>Lactuca serriola</u></td><td style="text-align: center;">3</td><td style="text-align: center;">No</td><td style="text-align: center;">FACU</td></tr> <tr><td>7. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>8. <u> </u></td><td></td><td></td><td></td></tr> <tr> <td></td> <td style="text-align: center;">91</td> <td colspan="2" style="text-align: center;">=Total Cover</td> </tr> </tbody> </table> </div> <div> Woody Vine Stratum (Plot size: <u> </u>) <table style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="width: 40%;"></th> <th style="width: 15%; text-align: center;">Absolute % Cover</th> <th style="width: 15%; text-align: center;">Dominant Species?</th> <th style="width: 30%; text-align: center;">Indicator Status</th> </tr> </thead> <tbody> <tr><td>1. <u> </u></td><td></td><td></td><td></td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td></tr> <tr> <td></td> <td></td> <td colspan="2" style="text-align: center;">=Total Cover</td> </tr> </tbody> </table> </div> <div style="margin-top: 10px;"> % Bare Ground in Herb Stratum <u>9</u> % Cover of Biotic Crust <u>0</u> </div>		Absolute % Cover	Dominant Species?	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SOIL

Sampling Point: SP-3

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:				Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)			
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)			
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)			
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)			
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)			
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)			
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)			
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)			
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Water Table Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Saturation Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> (includes capillary fringe)			Wetland Hydrology Present? Yes ☐ No ☒		
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Aerial, previous delineations					
Remarks:					
Soils dry throughout.					

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Arid West Region See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R			OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)		
Project/Site: Carty Generating Station Solar Farm			City/County: Boardman / Morrow County		Sampling Date: 5/25/2023
Applicant/Owner: Portland General Electric (PGE)			State: OR		Sampling Point: SP-4
Investigator(s): Lex Francis			Section, Township, Range: T3N, R24E, Section 33		
Landform (hillside, terrace, etc.): Terrace			Local relief (concave, convex, none): Concave		Slope (%): 3
Subregion (LRR): LRR B			Lat: 45.704424		Long: -119.817537
Datum: NAD1983			Soil Map Unit Name: Royal silt loam, 0 to 3 percent slopes		
NW1 classification: None			Are climatic / hydrologic conditions on the site typical for this time of year?		
Yes X No (If no, explain in Remarks.)			Are Vegetation, Soil, or Hydrology significantly disturbed?		
Are "Normal Circumstances" present? Yes X No			Are Vegetation, Soil, or Hydrology naturally problematic?		
(If needed, explain any answers in Remarks.)			SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.		
Hydrophytic Vegetation Present? Yes X No			Is the Sampled Area within a Wetland? Yes X No		
Hydric Soil Present? Yes X No					
Wetland Hydrology Present? Yes X No					
Remarks: Drier than normal climatic conditions. Plot located within depressional wetland to the south of Tower Road (Wetland A).					
VEGETATION – Use scientific names of plants.					
Tree Stratum (Plot size: 30')		Absolute % Cover	Dominant Species?	Indicator Status	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: 100.0% (A/B)
1. Elaeagnus angustifolia		30	Yes	FAC	
2.					
3.					
4.					
		30	=Total Cover		Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x 1 = FACW species x 2 = FAC species x 3 = FACU species x 4 = UPL species x 5 = Column Totals: (A) (B) Prevalence Index = B/A =
Sapling/Shrub Stratum (Plot size: 15')					
1.					
2.					
3.					
4.					
5.					
			=Total Cover		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, unless disturbed or problematic.
Herb Stratum (Plot size: 5')					
1. Phragmites australis		100	Yes	FACW	
2.					
3.					
4.					
5.					
6.					
7.					
8.					
		100	=Total Cover		Hydrophytic Vegetation Present? Yes X No
Woody Vine Stratum (Plot size:)					
1.					
2.					
			=Total Cover		
% Bare Ground in Herb Stratum 0 % Cover of Biotic Crust 0					
Remarks:					

SOIL

Sampling Point: SP-4

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-4	2.5Y 2.5/1	100					Muck	observable fibers- greasy
4-6	10YR 5/2	85	10YR 4/6	15	C	PL/M	Silty clay loam (SiCL)	
6-16	10YR 3/2	95	7.5YR 3/4	5	C	M	Silt loam (SiL)	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 1 cm Muck (A9) (LRR C)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ 2 cm Muck (A10) (LRR B)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Iron-Manganese Masses (F12) (LRR D)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Reduced Vertic (F18)
☐ Stratified Layers (A5) (LRR C)	☒ Depleted Matrix (F3)	☐ Red Parent Material (F21)
☐ 1 cm Muck (A9) (LRR D)	☒ Redox Dark Surface (F6)	☐ Very Shallow Dark Surface (F22)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Other (Explain in Remarks)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes ☒ No ☐
Remarks:	

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	
☒ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)	
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)	
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)	
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)	
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)	
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)	
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)	
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)	

Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): _____ Water Table Present? Yes ☒ No ☐ Depth (inches): <u>10</u> Saturation Present? Yes ☒ No ☐ Depth (inches): <u>7</u> (includes capillary fringe)				Wetland Hydrology Present? Yes ☒ No ☐
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:				
Remarks:				

SOIL

Sampling Point: SP-5

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-2	10YR 2/2	100					Loam (L)	high organic content, +/- 2"
								duff layer above
2-16	10YR 3/2	100					Silt Loam (SiL)	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 1 cm Muck (A9) (LRR C)
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☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Other (Explain in Remarks)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed):	Hydric Soil Present?	Yes	No
Type: _____ Depth (inches): _____			

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)	
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)	
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☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)	

Field Observations:				Wetland Hydrology Present?	Yes	No
Surface Water Present?	Yes _____	No <u>X</u>	Depth (inches): _____			
Water Table Present?	Yes _____	No <u>X</u>	Depth (inches): _____			
Saturation Present?	Yes _____	No <u>X</u>	Depth (inches): _____			

(includes capillary fringe)

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

Aerial, previous delineations

Remarks:

Soils dry throughout. No saturation, water table, or other indicators of wetland hydrology.

SOIL

Sampling Point: SP-6

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:				Secondary Indicators (minimum of two required)	
Primary Indicators (minimum of one is required; check all that apply)					
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)			
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)			
☒ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)			
☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)			
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)			
☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)			
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)			
☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)			
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Water Table Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Saturation Present? Yes ☒ No ☐ Depth (inches): <input type="text" value="8"/> (includes capillary fringe)				Wetland Hydrology Present? Yes ☒ No ☐	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Aerial, previous delineations					
Remarks: Water table not established in short duration of open pit. Drier than normal precipitation conditions, and collection of data in the later part of the growing season may have impacted hydrology at this plot. Assumed stronger indicators of wetland hydrology within the early part of the growing season or within a normal rainfall year.					

SOIL

Sampling Point: SP-7

[illegible]

HYDROLOGY

Wetland Hydrology Indicators:				Wetland Hydrology Indicators:	
Primary Indicators (minimum of one is required; check all that apply)				Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)	☐ Water Marks (B1) (Nonriverine)	☐ Hydrogen Sulfide Odor (C1)	☐ Drainage Patterns (B10)
☐ Sediment Deposits (B2) (Nonriverine)	☐ Oxidized Rhizospheres on Living Roots (C3)	☐ Dry-Season Water Table (C2)	☐ Drift Deposits (B3) (Nonriverine)	☐ Presence of Reduced Iron (C4)	☐ Crayfish Burrows (C8)
☐ Surface Soil Cracks (B6)	☐ Recent Iron Reduction in Tilled Soils (C6)	☐ Saturation Visible on Aerial Imagery (C9)	☐ Inundation Visible on Aerial Imagery (B7)	☐ Thin Muck Surface (C7)	☐ Shallow Aquitard (D3)
☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)			
Field Observations: Surface Water Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Water Table Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> Saturation Present? Yes ☐ No ☒ Depth (inches): <input type="text"/> (includes capillary fringe)				Wetland Hydrology Present? Yes ☐ No ☒	
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:					
Aerial, previous delineations					
Remarks:					

U.S. Army Corps of Engineers WETLAND DETERMINATION DATA SHEET – Arid West Region See ERDC/EL TR-08-28; the proponent agency is CECW-CO-R	OMB Control #: 0710-0024, Exp: 11/30/2024 Requirement Control Symbol EXEMPT: (Authority: AR 335-15, paragraph 5-2a)
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Project/Site: Carty Generating Station Solar Farm City/County: Boardman / Morrow County Sampling Date: 05/25/2023

Applicant/Owner: Portland General Electric (PGE) State: OR Sampling Point: SP-8

Investigator(s): Lex Francis Section, Township, Range: T3N, R24E, Section 33

Landform (hillside, terrace, etc.): Terrace Local relief (concave, convex, none): Convex Slope (%): 2

Subregion (LRR): LRR B Lat: 45.703667 Long: -119.818733 Datum: NAD1983

Soil Map Unit Name: Royal silt loam, 0 to 3 percent slopes NWI classification: None

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

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

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

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

Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> Hydric Soil Present? Yes <u> </u> No <u>X</u> Wetland Hydrology Present? Yes <u> </u> No <u>X</u>	Is the Sampled Area within a Wetland? Yes <u> </u> No <u>X</u>
Remarks: Drier than normal climatic conditions. Plot located at edge of study area within FACW vegetation. Plot determined upland, wetland located off site to the west.	

VEGETATION – Use scientific names of plants.

<table style="width: 100%;"> <tr> <th style="text-align: left;">Tree Stratum</th> <th style="text-align: left;">(Plot size: <u>30'</u>)</th> <th style="text-align: center;">Absolute % Cover</th> <th style="text-align: center;">Dominant Species?</th> <th style="text-align: center;">Indicator Status</th> </tr> <tr><td>1. <u>Elaeagnus angustifolia</u></td><td></td><td style="text-align: center;">10</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FAC</td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="2"></td><td style="text-align: center;">10</td><td colspan="2" style="text-align: center;">=Total Cover</td></tr> </table> <table style="width: 100%;"> <tr> <th style="text-align: left;">Sapling/Shrub Stratum</th> <th style="text-align: left;">(Plot size: <u>15'</u>)</th> <th></th> <th></th> <th></th> </tr> <tr><td>1. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="2"></td><td></td><td colspan="2" style="text-align: center;">=Total Cover</td></tr> </table> <table style="width: 100%;"> <tr> <th style="text-align: left;">Herb Stratum</th> <th style="text-align: left;">(Plot size: <u>5'</u>)</th> <th></th> <th></th> <th></th> </tr> <tr><td>1. <u>Phragmites australis</u></td><td></td><td style="text-align: center;">75</td><td style="text-align: center;">Yes</td><td style="text-align: center;">FACW</td></tr> <tr><td>2. <u>Astragalus spp</u></td><td></td><td style="text-align: center;">3</td><td style="text-align: center;">No</td><td style="text-align: center;">FAC</td></tr> <tr><td>3. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>4. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>5. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>6. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>7. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>8. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="2"></td><td style="text-align: center;">78</td><td colspan="2" style="text-align: center;">=Total Cover</td></tr> </table> <table style="width: 100%;"> <tr> <th style="text-align: left;">Woody Vine Stratum</th> <th style="text-align: left;">(Plot size: <u> </u>)</th> <th></th> <th></th> <th></th> </tr> <tr><td>1. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td>2. <u> </u></td><td></td><td></td><td></td><td></td></tr> <tr><td colspan="2"></td><td></td><td colspan="2" style="text-align: center;">=Total Cover</td></tr> </table> <p>% Bare Ground in Herb Stratum <u>22</u> % Cover of Biotic Crust <u>0</u></p>	Tree Stratum	(Plot size: <u>30'</u>)	Absolute % Cover	Dominant Species?	Indicator Status	1. <u>Elaeagnus angustifolia</u>		10	Yes	FAC	2. <u> </u>					3. <u> </u>					4. <u> </u>							10	=Total Cover		Sapling/Shrub Stratum	(Plot size: <u>15'</u>)				1. <u> </u>					2. <u> </u>					3. <u> </u>					4. <u> </u>					5. <u> </u>								=Total Cover		Herb Stratum	(Plot size: <u>5'</u>)				1. <u>Phragmites australis</u>		75	Yes	FACW	2. <u>Astragalus spp</u>		3	No	FAC	3. <u> </u>					4. <u> </u>					5. <u> </u>					6. <u> </u>					7. <u> </u>					8. <u> </u>							78	=Total Cover		Woody Vine Stratum	(Plot size: <u> </u>)				1. <u> </u>					2. <u> </u>								=Total Cover		<div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A) Total Number of Dominant Species Across All Strata: <u>2</u> (B) Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100.0%</u> (A/B) </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Prevalence Index worksheet: <table style="width: 100%;"> <tr> <th style="text-align: left;">Total % Cover of:</th> <th style="text-align: left;">Multiply by:</th> </tr> <tr><td>OBL species <u> </u></td><td>x 1 = <u> </u></td></tr> <tr><td>FACW species <u> </u></td><td>x 2 = <u> </u></td></tr> <tr><td>FAC species <u> </u></td><td>x 3 = <u> </u></td></tr> <tr><td>FACU species <u> </u></td><td>x 4 = <u> </u></td></tr> <tr><td>UPL species <u> </u></td><td>x 5 = <u> </u></td></tr> <tr><td>Column Totals: <u> </u> (A)</td><td><u> </u> (B)</td></tr> <tr><td colspan="2">Prevalence Index = B/A = <u> </u></td></tr> </table> </div> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> Hydrophytic Vegetation Indicators: <u>X</u> Dominance Test is >50% <u> </u> Prevalence Index is ≤3.0¹ <u> </u> Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) <u> </u> Problematic Hydrophytic Vegetation¹ (Explain) ¹Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic. </div> <div style="border: 1px solid black; padding: 5px;"> Hydrophytic Vegetation Present? Yes <u>X</u> No <u> </u> </div>	Total % Cover of:	Multiply by:	OBL species <u> </u>	x 1 = <u> </u>	FACW species <u> </u>	x 2 = <u> </u>	FAC species <u> </u>	x 3 = <u> </u>	FACU species <u> </u>	x 4 = <u> </u>	UPL species <u> </u>	x 5 = <u> </u>	Column Totals: <u> </u> (A)	<u> </u> (B)	Prevalence Index = B/A = <u> </u>	
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SOIL

Sampling Point: SP-8

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)								
Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type ¹	Loc ²		
0-16	10YR 3/2	100					Loamy Sand (LS)	

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

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils ³ :
☐ Histosol (A1)	☐ Sandy Redox (S5)	☐ 1 cm Muck (A9) (LRR C)
☐ Histic Epipedon (A2)	☐ Stripped Matrix (S6)	☐ 2 cm Muck (A10) (LRR B)
☐ Black Histic (A3)	☐ Loamy Mucky Mineral (F1)	☐ Iron-Manganese Masses (F12) (LRR D)
☐ Hydrogen Sulfide (A4)	☐ Loamy Gleyed Matrix (F2)	☐ Reduced Vertic (F18)
☐ Stratified Layers (A5) (LRR C)	☐ Depleted Matrix (F3)	☐ Red Parent Material (F21)
☐ 1 cm Muck (A9) (LRR D)	☐ Redox Dark Surface (F6)	☐ Very Shallow Dark Surface (F22)
☐ Depleted Below Dark Surface (A11)	☐ Depleted Dark Surface (F7)	☐ Other (Explain in Remarks)
☐ Thick Dark Surface (A12)	☐ Redox Depressions (F8)	
☐ Sandy Mucky Mineral (S1)		
☐ Sandy Gleyed Matrix (S4)		

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

Restrictive Layer (if observed): Type: _____ Depth (inches): _____	Hydric Soil Present? Yes _____ No <u>X</u>
Remarks:	

HYDROLOGY

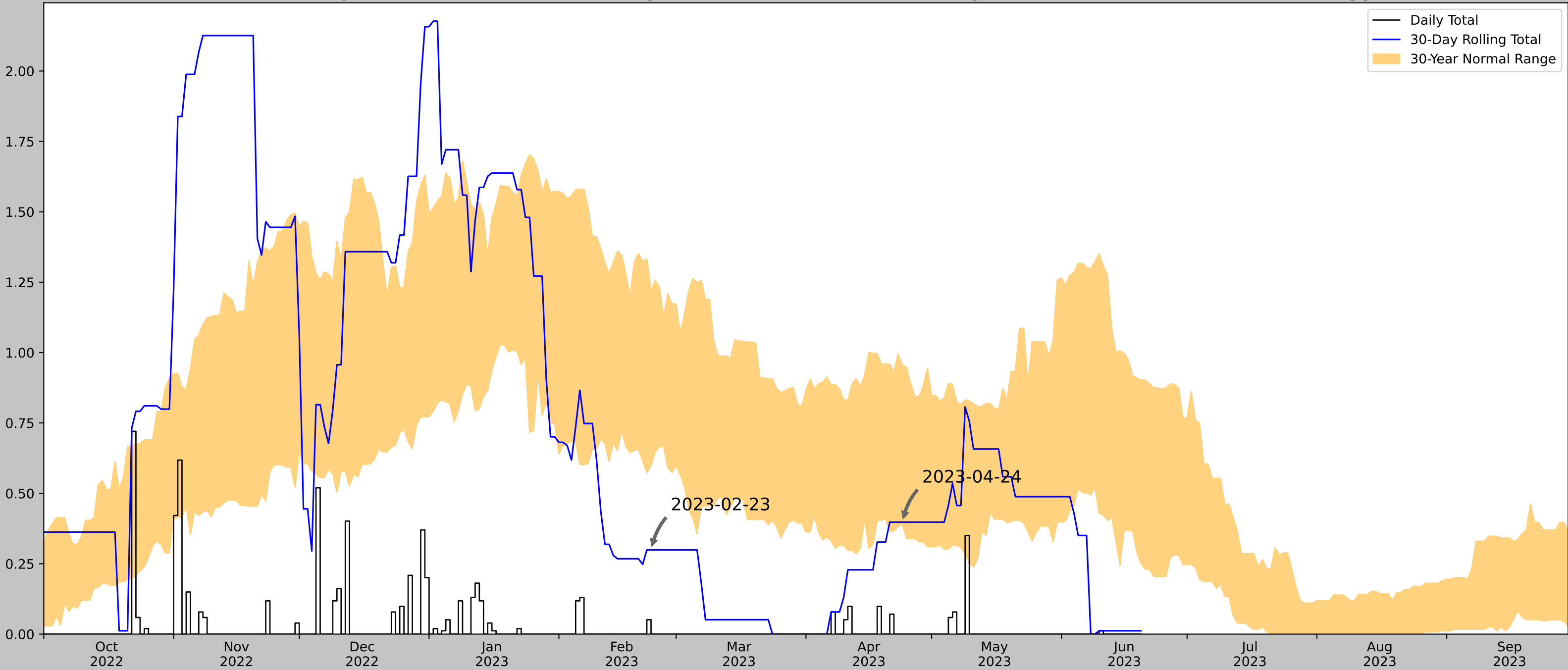
Wetland Hydrology Indicators:			
Primary Indicators (minimum of one is required; check all that apply)		Secondary Indicators (minimum of two required)	
☐ Surface Water (A1)	☐ Salt Crust (B11)	☐ Water Marks (B1) (Riverine)	
☐ High Water Table (A2)	☐ Biotic Crust (B12)	☐ Sediment Deposits (B2) (Riverine)	
☐ Saturation (A3)	☐ Aquatic Invertebrates (B13)	☐ Drift Deposits (B3) (Riverine)	
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☐ Water-Stained Leaves (B9)	☐ Other (Explain in Remarks)	☐ FAC-Neutral Test (D5)	

Field Observations: Surface Water Present? Yes _____ No <u>X</u> Depth (inches): _____ Water Table Present? Yes _____ No <u>X</u> Depth (inches): _____ Saturation Present? Yes _____ No <u>X</u> Depth (inches): _____ (includes capillary fringe)	Wetland Hydrology Present? Yes _____ No <u>X</u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Aerial, previous delineations Remarks: Soils slightly damp	

Appendix D: Additional Tables and Information

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network

Rainfall (Inches)



Coordinates	45.688574, -119.791770
Observation Date	2023-04-24
Elevation (ft)	670.17
Drought Index (PDSI)	Mild wetness
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-04-24	0.390551	0.955906	0.397638	Normal	2	3	6
2023-03-25	0.381496	0.872441	0.0	Dry	1	2	2
2023-02-23	0.597638	1.220866	0.299213	Dry	1	1	1
Result							Drier than Normal - 9

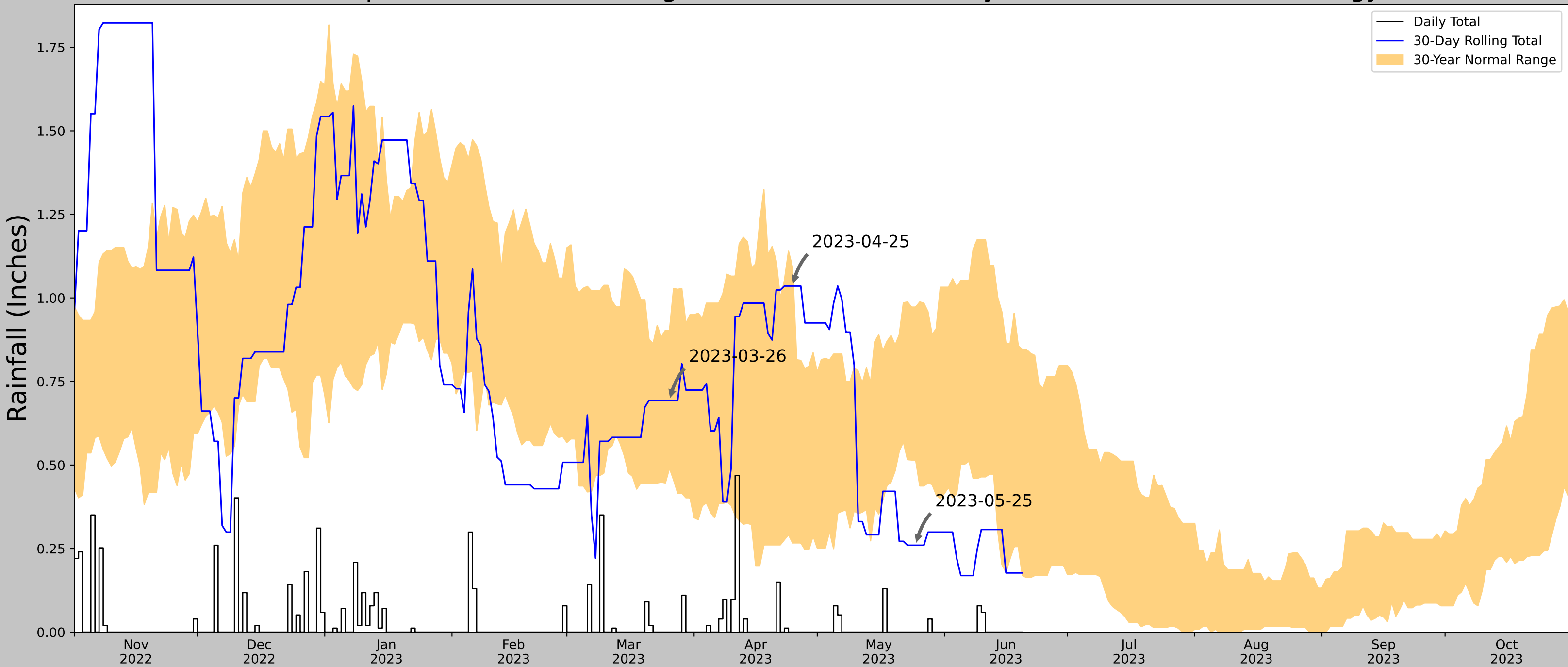


Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
BOARDMAN	45.8472, -119.6933	279.856	11.943	390.314	10.036	10415	90
BOARDMAN 0.5 SW	45.8331, -119.7101	325.131	1.266	45.275	0.627	1	0
UMATILLA 0.7 WSW	45.9094, -119.3414	393.045	17.464	113.189	9.836	28	0
MCNARY DAM #2	45.9306, -119.2956	360.892	19.976	81.036	10.608	681	0
MCNARY DAM	45.9406, -119.2978	360.892	20.084	81.036	10.665	197	0
HERMISTON 2.2 NW	45.8581, -119.3101	456.037	18.456	176.181	11.557	2	0
HERMISTON 2.1 NNW	45.861, -119.2967	499.016	19.109	219.16	12.787	11	0
HERMISTON 1 SE	45.8289, -119.2636	640.092	20.723	360.236	16.791	1	0
HERMISTON MUNI AP	45.8258, -119.2611	640.092	20.858	360.236	16.9	17	0

Antecedent Precipitation vs Normal Range based on NOAA's Daily Global Historical Climatology Network



Coordinates	45.688574, -119.791770
Observation Date	2023-05-25
Elevation (ft)	670.17
Drought Index (PDSI)	Mild wetness
WebWIMP H ₂ O Balance	Dry Season

30 Days Ending	30 th %ile (in)	70 th %ile (in)	Observed (in)	Wetness Condition	Condition Value	Month Weight	Product
2023-05-25	0.514961	0.972441	0.259843	Dry	1	3	3
2023-04-25	0.266929	1.090945	1.035433	Normal	2	2	4
2023-03-26	0.490551	0.901969	0.692913	Normal	2	1	2
Result							Drier than Normal - 9



Figure and tables made by the
Antecedent Precipitation Tool
Version 1.0

Written by Jason Deters
U.S. Army Corps of Engineers

Weather Station Name	Coordinates	Elevation (ft)	Distance (mi)	Elevation Δ	Weighted Δ	Days Normal	Days Antecedent
PROSSER	46.2014, -119.7581	830.053	35.47	159.883	21.632	9370	90
PROSSER 0.4 SSE	46.2009, -119.7616	770.997	0.171	59.056	0.087	725	0
PROSSER 1.9 WSW	46.2002, -119.805	659.121	2.244	170.932	1.393	155	0
GRANDVIEW 1.1 NNE	46.2593, -119.9027	814.961	7.986	15.092	3.714	3	0
HERMISTON 1 SE	45.8289, -119.2636	640.092	35.006	189.961	22.402	623	0
HERMISTON MUNI AP	45.8258, -119.2611	640.092	35.245	189.961	22.555	176	0
BOARDMAN	45.8472, -119.6933	279.856	24.67	550.197	24.675	268	0
MCNARY DAM	45.9406, -119.2978	360.892	28.487	469.161	26.184	33	0