Exhibit J

Wetlands and Other Jurisdictional Waters

Biglow Canyon Wind Farm
February 2025

Prepared for

Portland General Electric Company

Prepared by

TETRA TECH

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Acronyms and Abbreviations

AC	alternating current
Arid West Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement
BCWF or Existing Facility	Biglow Canyon Wind Farm
BIGL or Project Developer	BIGL bn, LLC
Certificate Holder or PGE	Portland General Electric Company
Council or EFSC	Oregon Energy Facility Siting Council
CFR	Code of Federal Regulations
Manual	Wetlands Delineation Manual,
MW	megawatt
OAR	Oregon Administrative Rules
ODOE	Oregon Department of Energy
ODSL	Oregon Department of State Lands
ORS	Oregon Revised Statutes
PEM	palustrine emergent
RFA	Request for Amendment
SDAM	Streamflow Duration Assessment Method for the Pacific Northwest
Site Certificate	Site Certificate on Amendment 3
Solar Components	photovoltaic solar energy generation and battery storage
WOTUS	waters of the United States

1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) submits this Request for Amendment (RFA) 4 to the Site Certificate on Amendment 3, issued October 31, 2008 (Site Certificate) for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic solar energy generation and battery storage (Solar Components) to the operating BCWF.

BCWF, owned and operated by PGE, is located within an approved site boundary comprising approximately 25,000 acres, approximately 2.5 miles northeast of the town of Wasco in Sherman County, Oregon. The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy (ODOE). BCWF currently consists of 217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts (MW).

In RFA 4, PGE proposes to add up to 385 MW alternating current (AC) generating capacity from photovoltaic solar arrays and 375 MW in battery storage capacity. RFA 4 seeks to expand the BCWF site boundary to include the Solar Components in portions of the existing site boundary and in the proposed expanded site boundary (together, Solar Micrositing Area or RFA 4 Site Boundary[1]).

The Solar Micrositing Area is approximately 3,980 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated disturbance footprint. Solar Components will include solar arrays, inverters, battery energy storage system facilities and their subcomponents (i.e., inverters), two collector substations, a total of approximately 3 miles of 230-kilovolt generation tie transmission lines, medium voltage collector lines, operations and maintenance structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas. The maximum generating capacity from the Solar Components will be 385 MW AC and construction may take place in phases.

PGE will own and operate the Solar Components as a part of the BCWF (together, Amended Facility or Facility), which, to date, have been developed by BIGL bn, LLC (BIGL or Project Developer. BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement.

Exhibit J provides the information required by Oregon Administrative Rules (OAR) 345-021-0010(1)(j) in support of RFA 4. The information summarized in this exhibit and described in RFA 4 demonstrate that the Facility, as proposed, can be designed, engineered, constructed, operated, and retired in a manner that satisfies the applicable Council standards. The proposed changes in RFA 4 do not alter the Certificate Holder's ability to comply with applicable Site Certificate Conditions.

[1] Note, as described in further detail in Section 4.1.1.2 of the RFA 4 Division 27 document, the Solar Micrositing Area is the equivalent of the RFA 4 Site Boundary.

2.0 Analysis Area

Consistent with OAR 345-027-0360(3), ODOE concurred with the Certificate Holder's use of a defined portion of the approved BCWF site boundary and the proposed expanded site boundary (i.e., Solar Micrositing Area/RFA 4 Site Boundary) to establish study area boundaries for RFA 4 under OAR 345-001-0010(35). The RFA 4 Site Boundary reflects the Solar Micrositing Area, and all study areas within the meaning of ORS 345-001-0010(35) are measured from the RFA 4 Site Boundary. The analysis area for wetlands and other jurisdictional waters is the Solar Micrositing Area[2] nd is referred to in this exhibit as the Wetland Study Area (see Figures J-1 and J-2). All permanent and temporary disturbance associated with RFA 4 are proposed within the Wetland Study Area; however, not all this area will be disturbed.

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;

Response:

3.1 Definitions

3.1.1 Federal

Waters of the United States (WOTUS) are defined in 33 Code of Federal Regulations (CFR) 36 328.3(a)(1-5) in accordance to the final rule effective since September 8, 2023, as:

(a) Waters of the United States means:

(1) Waters which are:

(i) 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;

(ii) The territorial seas; or

(iii) Interstate waters;

[2] ODOE concurred with excluding the remaining BCWF site boundary that does not overlap with the Solar Micrositing Area from analysis in RFA 4 because no changes are proposed to any BCWF components in the remaining BCWF site boundary as part of RFA 4.

(2) Impoundments of waters otherwise defined as waters of the United States under this definition, other than impoundments of waters identified under paragraph (a)(5) of this section;

(3) Tributaries of waters identified in paragraph (a)(1) or (2) of this section that are relatively permanent, standing or continuously flowing bodies of water;

(4) Wetlands adjacent to the following waters:

(i) Waters identified in paragraph (a)(1) of this section; or

(ii) Relatively permanent, standing or continuously flowing bodies of water identified in paragraph (a)(2) or (a)(3) of this section and with a continuous surface connection to those waters;

(5) Intrastate lakes and ponds not identified in paragraphs (a)(1) through (4) of this section that are relatively permanent, standing or continuously flowing bodies of water with a continuous surface connection to the waters identified in paragraph (a)(1) or (a)(3) of this section.

Wetlands are defined federally at 33 CFR § 328.3(c) as "Those 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(15) defines waters of the State more broadly than federal WOTUS. Specifically, waters of the State 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." Wetlands are defined in ORS 196.800(17) as "those areas that are inundated or saturated by surface or ground water 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."

The Oregon Department of State Lands (ODSL) definition of wetlands mirrors the federal definition; see OAR 141-085-0510 (110).

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 RFA 4 , 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 waters of the State if they contain food or game fish and are connected to waters of the State (OAR 141-085-0515(8)) and WOTUS if they connect to other WOTUS and are not ephemeral (EPA and USACE 2011).

Ephemeral streams are defined in the Streamflow Duration Assessment Method for the Pacific Northwest (SDAM; 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(49)). Food-producing streams are typically one stream order above a fish-bearing stream.

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

3.3.1.1 Pre-Field Work

In preparation for the wetland delineation field work, Tetra Tech reviewed National Wetland Inventory, hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described in the preceding sections (Figure J-1). Tetra Tech prepared digital field maps with these data and uploaded these maps onto a Samsung Android data collection tablet to assist field staff in identifying the locations of probable wetlands and non-wetland waters within or adjacent to the Project study area.

The Washington Natural Heritage Program (WNHP 2018) data were used to determine if natural heritage features associated with wetlands exist in or near the Wetland Study Area. No wetlands associated with natural heritage features were noted as occurring in the Wetland Study Area.

The following guidance documents and procedures were reviewed:

- Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Supplement (Arid West Supplement) (USACE 2008);
- Wetlands Delineation Manual, Technical Report Y-87-1 (the Manual) (USACE 1987);
- SDAM (Nadeau 2015);
- Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979);
- Statewide Wetland Inventory / National Wetland Inventory mapping (USFWS 2024);
- Natural Resources Conservation Service Soil Survey of Morrow County (NRCS 2024);
- Aerial photography (ArcGIS desktop application);
- National Hydrography Dataset (USGS 2024); and
- OAR 141-090, Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State.

3.3.1.2 Field Work

Field investigations for the delineation of wetlands and other waters included pedestrian surveys within the Wetland Study Area (see Figure J-2). Tetra Tech conducted the field surveys from July 9 to 12, 2024. The desktop wetland data were used to focus the wetland delineations, whereas the desktop surface water data were used to focus the non-wetlands water evaluation as necessary.

Wetland presence was determined as per methods in the Manual and the Arid West Supplement. A field indicator of each of the three wetland parameters (i.e., hydrophytic vegetation, hydric soils, and wetland hydrology) must be present to make a positive wetland determination. During the delineation effort, each other water, if encountered, was also examined for wetland characteristics consistent with waters of the State definitions (see Section 3.1.2). The location and extent of each delineated feature along with photograph locations and sample plot locations 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 and Other Waters Delineation Report (Attachment J-1). The report will be submitted to ODSL for written concurrence.

3.3.2 Results

The wetland and other waters surveys within the Wetland Study Area resulted in the delineation of one riverine wetland (PSS; Flats) and two palustrine emergent wetlands (PEM; Flats; see Figure J-2). Three ephemeral drainages were also mapped within the Wetland Study Area. Per the

definitions under CFR 36 328.3(a)(4) and OAR 141-085-0510, the riverine wetland is likely considered a WOTUS as well as a waters of the State as it is potentially hydrologically connected to the John Day River, a water of the State and a WOTUS, outside the analysis area. Both the PEM wetlands appear to be artificially created and do not appear to be hydrologically connected to any other bodies of water considered waters of the State or WOTUS. Therefore, per the definitions under CFR 36 328.3(b) and OAR 141-085-0515, they are likely not considered waters of the State or WOTUS.

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;

Response: OAR 345-021-0010(1)(j)(B) requests an analysis of any adverse effects on waters of the State from the Solar Components. The Solar Components are not expected to adversely affect waters of the State as defined under OAR 141-085-0510 (see Figure J-2). The wetlands within the Wetland Study Area will have at least 50-foot buffers from any construction activities. The Wetlands and Other Waters Delineation Report (Attachment J-1) will be submitted to ODSL for concurrence.

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);

Response: There will be no impacts to waters of the State during the construction or operation of the Solar Components (see Figure J-2; also see Figure 2 in the RFA 4 Division 27 document [Request for Amendment 4 to the Site Certificate for the Biglow Canyon Wind Farm]).

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;

Response: There will be no impacts to waters of the State during the construction or operation of the Solar Components, so no Removal-Fill Permit is needed (see Figure J-2; also see Figure 2 in the RFA 4 Division 27 document [Request for Amendment 4 to the Site Certificate for the Biglow Canyon Wind Farm]).

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

Response: There will be no impacts to waters of the State during the construction or operation of the Solar Components (see Figure J-2; also see Figure 2 in the RFA 4 Division 27 document [Request for Amendment 4 to the Site Certificate for the Biglow Canyon Wind Farm]).

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.

Response: There will be no impacts to waters of the State during the construction or operation of the Solar Components, 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). 2024. Web Soil Survey. United States Department of Agriculture, Natural Resources Conservation Service. https://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx. Accessed July, 2024.

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.

USACE. 2005. Regulatory Guidance Letter (RGL) 05-05 Ordinary High Water Mark Identification. December 2005.

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. https://usace.contentdm.oclc.org/utils/getfile/collection/p266001coll1/id/7627

USGS (U.S. Geological Survey). 2024. The National Hydrography Dataset (NHD). National Geospatial Data Asset service via ArcGIS Online. https://apps.nationalmap.gov/downloader/#/ Accessed July 2024.

USFWS (U.S. Fish and Wildlife Service). 2024. National Wetland Inventory Wetlands Mapper. Wetlands Data by State, Oregon. U.S. Fish and Wildlife Service. http://www.fws.gov/wetlands/Data/Mapper.html. Accessed July, 2024.

Figures

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Biglow Canyon Wind Farm Request for Amendment #4

Figure J-1
National Wetlands Inventory and National Hydrography Dataset

SHERMAN COUNTY, OR

Figure J-1.1

Figure J-1.2

Sherman County
Rufus
WASHINGTON
Klickitat County
Gilliam County
Gilliam County
Sherman County
OREGON
Wasco
97
206
30
84
14

- Map Grid
- Amended Site Boundary
- Solar Micrositing Area
- State Boundary
- County Boundary
- City/Town
- Interstate Highway
- US Highway
- State Highway

Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)

TETRA TECH

PGE

Reference Map

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WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment #4

Figure J-1.1
National Wetlands Inventory and National Hydrography Dataset
Northern Solar Area

SHERMAN COUNTY, OR

- Amended Site Boundary
- Solar Micrositing Area
- County Boundary
- City/Town

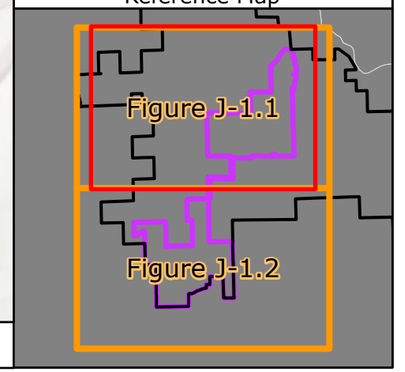
Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)

TETRA TECH

PGE

Reference Map



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WGS 1984 UTM Zone 10N

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Biglow Canyon Wind Farm Request for Amendment #4

Figure J-1.2
National Wetlands Inventory and National Hydrography Dataset
Southern Solar Area

SHERMAN COUNTY, OR

- Amended Site Boundary
- Solar Micrositing Area
- County Boundary
- City/Town
- State Highway

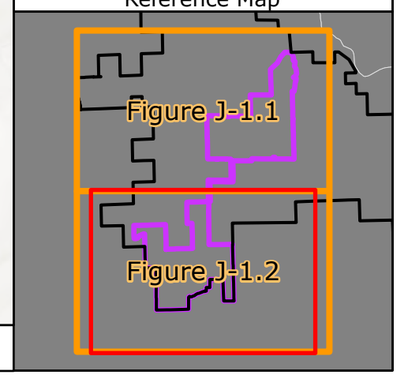
Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)

TETRA TECH

PGE

Reference Map



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WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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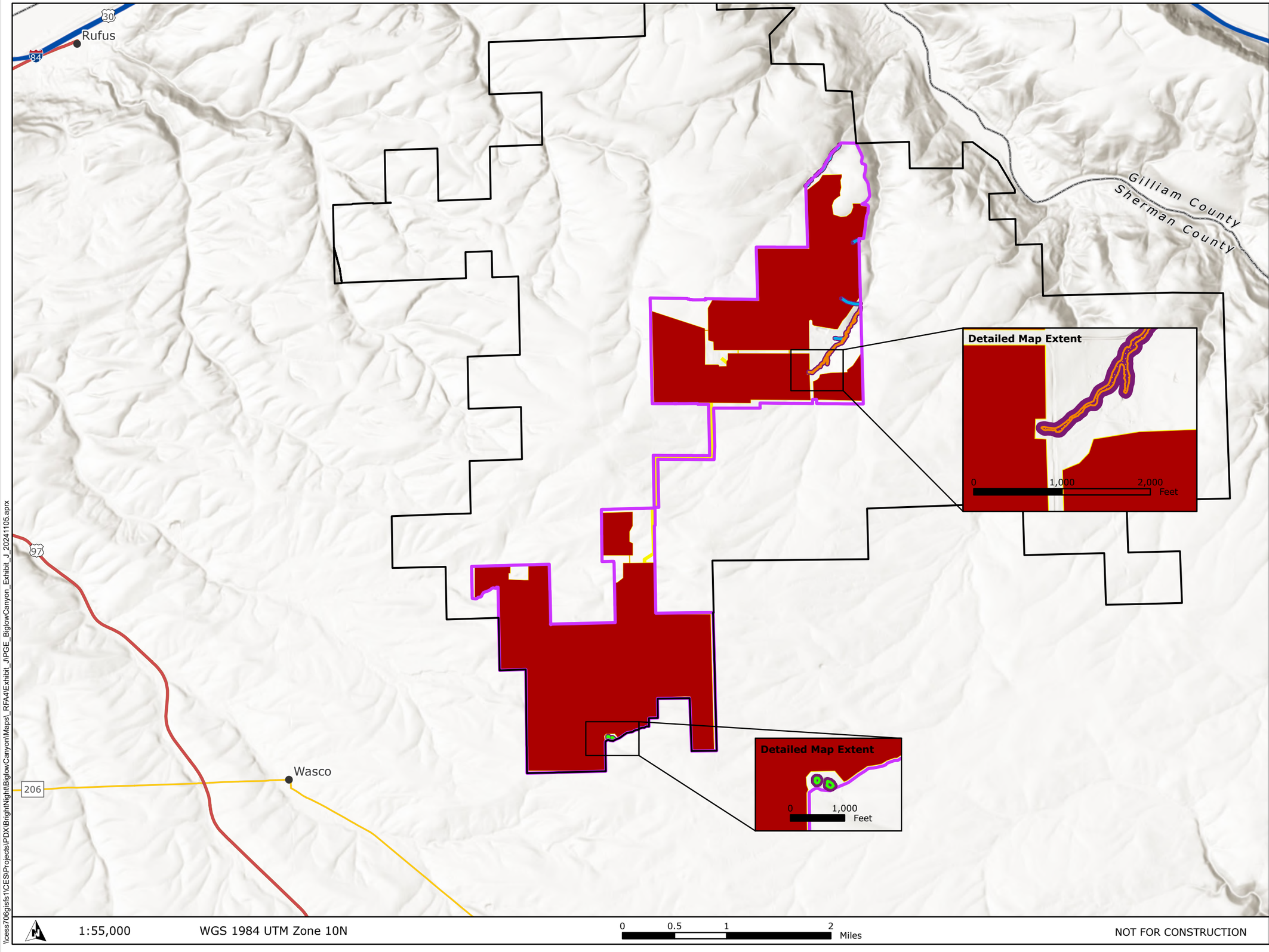
Biglow Canyon Wind Farm Request for Amendment #4

Figure J-2
Delineated Wetlands and Waters

SHERMAN COUNTY, OR



- Amended Site Boundary
- Solar Micrositing Area
- County Boundary
- City/Town
- Interstate Highway
- US Highway
- State Highway
- Exclusion Zone

Field Delineated Wetlands (Cowardin; HGM)

- PEM; Flats
- PSS; Flats

Field Delineated Waters (Flow Duration)

- Ephemeral
- Intermittent

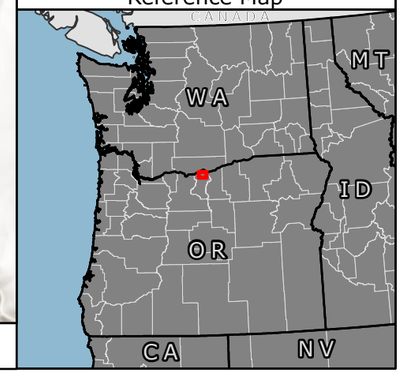
Impacts

- Temporary
- Permanent

TETRA TECH

PGE

Reference Map



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WGS 1984 UTM Zone 10N

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NOT FOR CONSTRUCTION

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Attachment J-1. Wetlands and Other Waters Delineation Report

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Wetlands and Other Waters Delineation Report

Biglow Canyon Wind Farm
Request for Amendment 4
November 2024

Prepared for

BRIGHTNIGHT

BIGL bn, LLC

Prepared by

TETRA TECH

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1.0 Introduction

The Portland General Electric Company (PGE or Certificate Holder) is submitting a Request for Amendment (RFA) 4 to the Site Certificate on Amendment 3, issued October 31, 2008 (Site Certificate) for the Biglow Canyon Wind Farm (BCWF or Existing Facility) to add photovoltaic solar energy generation and battery storage (Solar Components) to the operating BCWF in Sherman County, OR.

BCWF, owned and operated by PGE, is located within an approved site boundary comprising approximately 25,000 acres, approximately 2.5 miles northeast of the town of Wasco in Sherman County, Oregon (Figure 1). The BCWF operates under the Site Certificate from the Oregon Energy Facility Siting Council (Council or EFSC) as administered by the Oregon Department of Energy. BCWF currently consists of 217 wind turbines, with a maximum blade tip height of 445 feet, and a peak generating capacity of 450 megawatts (MW).

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The Solar Micrositing Area is approximately 3,980 acres and provides a conservative estimate of the maximum area needed for development, micrositing, and temporary disturbances from the Solar Components during construction, rather than the anticipated disturbance footprint. Solar Components will include solar arrays, inverters, battery energy storage system facilities and their subcomponents (i.e., inverters), two collector substations, a total of approximately 3 miles of 230-kilovolt generation tie transmission line, medium voltage collector lines, operations and maintenance structures, site access roads, internal roads, perimeter fencing, facility entry gates, and temporary laydown areas. The maximum generating capacity from the Solar Components will be 385 MW AC and construction may take place in phases.

PGE will own and operate the Solar Components as a part of the BCWF, which, to date, have been developed by BIGL bn, LLC (BIGL). BIGL, in its capacity as the project developer, supports PGE in this RFA 4 and may construct and temporarily operate the Solar Components on behalf of PGE under a Build-Transfer Agreement. Tetra Tech Inc. (Tetra Tech) is providing support to PGE and BIGL through preparation of RFA 4.

This survey report presents the methods and results of the 2024 wetland and other waters delineation conducted by Tetra Tech for the Solar Micrositing Area. Tetra Tech completed the wetland survey from July 9 to 12, 2024. The purpose of the survey was to delineate wetlands and waters within the entire 3,980-acre Solar Micrositing Area.

2.0 Landscape Setting

2.1 Study Area

Figure 1 shows the Solar Micrositing Area of approximately 3,980 acres and the 2024 wetlands and waters delineation survey area (Study Area), which covered the entirety of the Solar Micrositing Area. The southern portion of the Survey Area is approximately 1.5 miles east of the town of Wasco, and the northern portion of the Survey Area is approximately 1 mile southwest of the John Day River, in Sherman County, Oregon (Figure 1). The Survey Area encompasses all Solar Components, including potential solar array sites, access roads, temporary workspaces, and laydown areas (Figure 1).

Figure 2 shows the tax lots crossed by the Study Area. Table 1 includes the townships, ranges, and sections in the Study Area.

Table 1. Tax Lot Numbers within the Study Area

Tax Lot Number	
01N170000100	02N1700008201
01N170000200	02N1700008300
02N1700005100	01N1800001600
02N1700008100	01N1800001601
02N1700008200	02N1800003800
02N1800003900	02N1800004000
02N1800004200	02N1800004300
02N1800004400	02N1800004500
02N1800001600	02N1800001700
02N1800007600	02N1800007900

2.2 Landscape Setting

The Solar Micrositing Area is located within the Level III Columbia Plateau Ecoregion, and within the further subdivided Level IV, Umatilla Plateau Ecoregion (Thorson et al. 2003). In addition, the Project is within U.S. Department of Agriculture Land Resource Region (LRR) B, Northwestern Wheat and Range Region (NRCS 2024a). LRR B, Northwestern Wheat and Range Region overlaps with LRR B Columbia/Snake River Plateau Region within the Study Area in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (USACE 2008) (Arid West Supplement).

2.3 NWI, NHD, and Hydric Soils

Prior to field work, Tetra Tech reviewed the National Wetlands Inventory (NWI), the National Hydrography Dataset (NHD), Natural Resources Conservation Service (NRCS) hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described below.

2.3.1 NWI and NHD

Digital maps used in the field contained the NWI, NHD, and recent aerial photograph overlays. Figure 3 shows the NWI and NHD mapped features in the Study Area (USFWS 2024, USGS 2024). There are two pond (PUBF) wetlands within the Study Area.

2.3.2 Hydric Soils

There are 10 soil types mapped by the NRCS in the Study Area (Table 2). Of these, none are listed as hydric soil (NRCS 2024b, NRCS 2024c). Figure 4 shows the mapped soil units within the Study Area. Figure 5 shows recent aerial imagery of the Study Area.

Table 2. Soils Mapped in the Study Area

Map Unit Code	Map Unit Name	Hydric Rating	Acres
16D	Lickskillet very stony loam, 7 to 40 percent south slopes	No	17
18E	Lickskillet-Rock outcrop complex, 40 to 70 percent south slopes	No	7
1B	Anderly silt loam, 1 to 7 percent slopes	No	211
1C	Anderly silt loam, 7 to 15 percent slopes	No	313
21E	Nansene-Rock outcrop complex, 35 to 70 percent north slopes	No	7
31B	Walla Walla silt loam, 1 to 7 percent slopes	No	2139
31C	Walla Walla silt loam, 7 to 15 percent slopes	No	969
32D	Walla Walla silt loam, 15 to 35 percent north slopes	No	116
33D	Walla Walla silt loam, 15 to 35 percent south slopes	No	82
3D	Anderly silt loam, 15 to 35 percent south slopes	No	119

3.0 Site Alterations and Land Use

Site alterations are those activities that directly or indirectly impact wetlands and other waters in such a way that the function or area of the feature changes significantly. A significant alteration would be one that renders the feature non-functioning, or one that changes the boundaries. Land use in the Study Area is generally dominated by wheat and carrot seed farming and the infrastructure needed to manage the existing wind farm (e.g., gravel roads). Road building and other drainage alterations associated with these practices may have affected the geographic size or the hydroperiod of wetlands and other waters. The two wetlands listed on the NWI appear to have

been created by the excavation of basalt rock in a swale. The third wetland is in an area used by cattle and is grazed; it is completely vegetated with reed canary grass.

Where livestock is present on agricultural lands, wetlands and streams have been altered by compacting soils, trampling and grazing of existing vegetation (especially riparian areas), introducing and spreading non-native invasive plant species in disturbed wetland soils, and reducing water quality by depositing manure and increasing sedimentation through the trampling of stream-side soil and vegetation. Alterations associated with livestock affect the vegetation, soils, and hydrologic conditions within the respective wetlands.

4.0 Precipitation Data and Analysis

Precipitation data for the period preceding and during field work were collected from the Arlington, OR Station (NOAA 2024). Data from the NRCS Climate Analysis for Wetlands Tables Station, Arlington, Oregon, were used to compare historical precipitation data with recent water records (NRCS 2024d). Data was not available for many months of 2023 and 2024 in the closer Moro, Oregon station.

For the Water Year October 1, 2023, through July 8, 2024, precipitation was 110 percent of average (Table 3). Based on the precipitation data for the Water Year for the 3 months prior to the site visits, it was estimated that groundwater was slightly below what is usually encountered at this time of year. Precipitation was below average in October and November of 2023, and April, May, June, and July of 2024. The lower precipitation in these months was made up for by the above average precipitation in December 2023 and January and March 2024. Precipitation levels did not affect the delineation of other waters, as determinations of intermittent versus ephemeral streams were made using indicators described in the Streamflow Duration Assessment Method (Nadeau 2015), which relies on multiple indicators independent of the presence or absence of hydrology.

Table 3. Precipitation Data

Precipitation	October 2023	November 2023	December 2023	January 2024	February 2024	March 2024	April 2024	May 2024	June 2024	July 1-8 2024	Water Year Total
Recorded Monthly Precipitation Totals[1] (inches); (Arlington, OR)	0.60	0.92	1.83	2.88	0.92	1.02	0.47	0.46	0.22	0.00	**9.32**
WETS Average Monthly Precipitation[2] (inches); (Arlington, OR)	0.72	1.18	1.61	1.35	0.94	0.79	0.65	0.71	0.41	0.12	**8.48**
Recorded Precipitation Relative to WETS Average Monthly Precipitation	83%	78%	114%	213%	98%	129%	72%	65%	54%	0%	**110%**
Normal Monthly Range of Precipitation[2] (inches)	0.41-0.87	0.65-1.44	0.89-1.96	0.83-1.63	0.50-1.14	0.41-0.97	0.27-0.78	0.38-0.87	0.13-0.46	0.00-0.12	**N/A**

1. Arlington, OR Station (NOAA 2024c)
2. Arlington, OR Station, 1973 to 2023 (NRCS 2024d)

5.0 Methods

5.1 Pre-field Work

In preparation for the field work, Tetra Tech reviewed NWI, NHD, hydric soils data, and historical aerial photographs in Google Earth to identify potential wetlands and other waters, as described in the preceding sections. Tetra Tech prepared digital field maps with these data and uploaded maps onto Samsung Android data collection tablets to assist field staff in identifying the locations of probable wetlands and non-wetland waters within or adjacent to the Study Area.

Wetlands and surface water data were obtained from the U.S. Fish and Wildlife Service NWI (USFWS 2024), which includes NWI and miscellaneous wetland mapping by state and federal agencies, non-governmental organizations, academia and consultants, and from the U.S. Geological Survey NHD (USGS 2024). Soils data were also obtained from the NRCS Web Soil Survey (NRCS 2024c). Tetra Tech used aerial imagery from Google Earth because a wide variety of imagery was available.

The following guidance documents and procedures were reviewed:

- Arid West Supplement (USACE 2008);
- Wetlands Delineation Manual, Technical Report Y-87-1 (the Manual; USACE 1987);
- Streamflow Duration Assessment Method for the Pacific Northwest (Nadeau 2015);
- Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979); and
- Oregon Administrative Rule (OAR) 141-090, Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State.

5.2 Field Work

Pedestrian surveys to delineate wetlands and other waters were performed on July 9 to 12, 2024. The desktop wetland data were used to focus the wetland delineation's field effort while the desktop surface water data were used to focus the non-wetlands water evaluation as necessary.

5.2.1 Wetland Delineations

Wetland presence was determined per methods in the Manual and the Arid West Supplement. Wetland indicator status for the plants was determined using the USACE National Wetland Plant List v3.5 (USACE 2020).

- Sample plots were established in all features identified by NWI data (USGS 2024). The sample plot was located within the feature where it was judged most likely to have wetland characteristics (i.e., the lowest or most green place).

- Paired sample plots were established in logical locations to document wetland boundaries.
- The number of sample plots established in wetlands was commensurate with the size and complexity of the wetland, and whether the wetland was bordered by upland or another wetland with a different Cowardin et al. (1979) classification; the number of sample plots per wetland ranged from one to several. Wetland datasheets are provided in Appendix A.
- Photographs were taken to document wetland and upland conditions at the wetland boundary. Photographs were also taken at sample plots documenting upland conditions at locations that NHD mapped as streams (Appendix B).
- Each wetland boundary was recorded as a polygon using Juniper Geode Global Positioning System (GPS) units which typically have an accuracy below one meter (2018).

5.2.2 Non-Wetland Waters Delineations.

Flow duration for non-wetland waters was determined using criteria in the Streamflow Duration Assessment Methodology (Nadeau 2015). The centerline of all non-wetland waters less than or equal to 6 feet wide was recorded using the Juniper Geodes as a line feature and buffered to the stream width determined in the field. No streams were greater than 6 feet wide within the Study Area.

6.0 Description of Wetlands and Other Non-Wetland Waters

The following sections describe the characteristics of the wetlands and waters within the Study Area.

6.1 Wetlands

There are three wetlands within the Study Area, two palustrine emergent (PEM) and one riverine. The PEM wetlands occur in an excavated quarry area in the southern part of the Study Area (photo points 30 and 31 in the attached photolog).

The western PEM wetland was full of foxtail barley and had redox in the soils while the eastern-most wetland was holding standing water and had a fringe of tule and common reed growing on the northern edge.

The riverine wetland is in Biglow Canyon in the northeastern part of the Study Area and continues outside of the Study Area to the northeast where it connects with the John Day River. This wetland had flowing water and, in most sections, had reed canary grass in the bed and on the banks choking out any historical floodplain conditions. There was an absence of the reed canary grass where the riparian canopy (walnut and black locust) shaded the entire waterway.

Table 4 contains a description of each field-delineated wetland including their Cowardin classifications. There are no Aquatic Resources of Special Concern identified within the Study Area.

Table 4. Wetlands Mapped in the Project Study Area

Wetland Name	Cowardin Classification	Acres	General Conditions
WT01	PEM	0.15	Relatively flat topography at bottom of basin vegetated with dense stand of *Hordeum jubatum*. No standing water and soils were dry but had redox.
WT02	PEM	0.22	Pond with wetland vegetation (*Myriophyllum verticillatum*) across water surface and *Phragmites australis* and *Schoenoplectus acutus* at edges.
WT03	Riverine	4.21	Wetland has riparian canopy made up of silver maple, walnut, and black locust in some locations but is mostly vegetated by reed canary grass (*Phalaris arundinacea*) and speedwell (*Veronica americana*). This wetland system is inside Biglow Canyon. The associated waterway is intermittent and appears to dry up downstream before it connects with the John Day River.

6.2 Non-wetland Waters

There are two Essential Salmonid Habitat (ESH) waters within the Study Area: the Middle Columbia-Hood ESH and the Middle Columbia – Lake Wallula ESH. However, none of the ephemeral or intermittent waterways within the Study Area are considered to be ESH streams (NOAA 2024).

There are four waterways within the Study Area. One was delineated using desktop imagery (ST04) due to access issues. Surveyors could see the stream from the canyon edge and determined that it is intermittent. Stream ST04 is narrow and has sagebrush in the riparian area. Three ephemeral streams drain into the riverine wetland WT03, which has water running in segments but not the entirety of the wetland area within the Study Area.

7.0 Results and Conclusions

A total of two PEM wetlands, one riverine wetland, three ephemeral waterways, and one desktop delineated intermittent waterway were found within the Study Area. These are depicted in Figure 5 and summarized in Table 5.

Table 5. Summary of Wetlands and Other Water Features

Feature	Number of Features	Measurement
Palustrine Emergent Wetlands	2	0.37 acres
Riverine wetland	1	4.21 acres
Wetland Total	**3**	**4.58 acres**
Ephemeral Waterway	3	576.31 feet
Intermittent Waterway	1	2,949.84 feet
Other Waters Total	**4**	**3,526.15 feet**

8.0 Disclaimer

This disclaimer is included according to OAR 141-090-0035(12)(j): "This report documents the investigation, best professional judgment, and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055."

9.0 References

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scale 1:1,500,000). Available online at: https://www.epa.gov/eco-research/ecoregion-download- files-state-region-10#pane-35. Accessed August 2024.

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Figures

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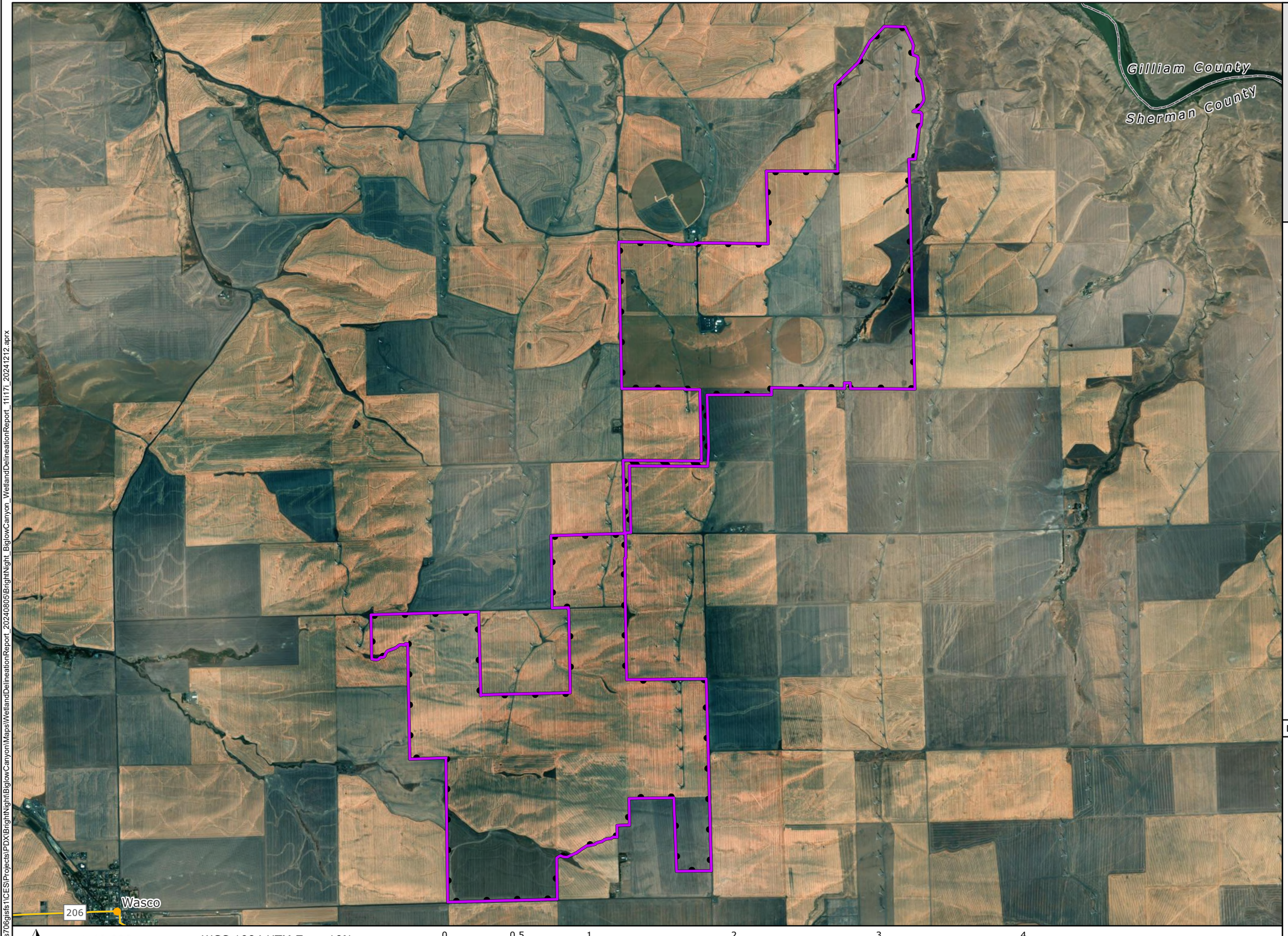
Biglow Canyon Wind Farm Request for Amendment 4

Figure 1
Project Location

SHERMAN COUNTY, OR



- Solar Micrositing Area
- Survey Area
- City/Town
- County Boundary
- State Highway

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Topographic	

1:40,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 2
Tax Lots

SHERMAN COUNTY, OR

- Map Grid
- Study Area
- Taxlot Boundary
- Section
- Township
- City/Town
- Interstate Highway
- US Highway
- State Highway
- Local Roads

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Sherman County-Taxlots

Reference Map

Figure 2.1

Figure 2.2

1:60,000

WGS 1984 UTM Zone 10N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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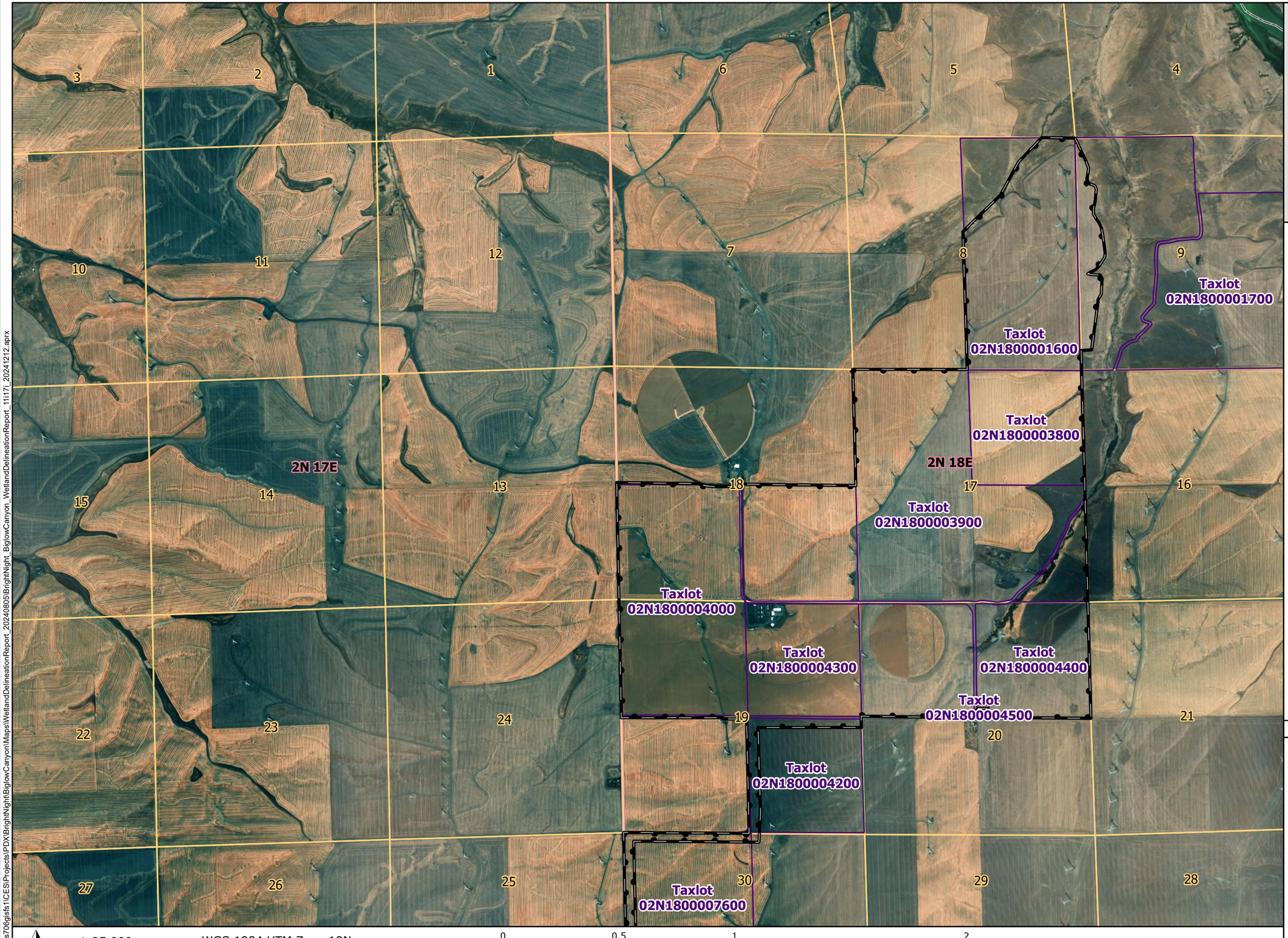
Biglow Canyon Wind Farm Request for Amendment 4

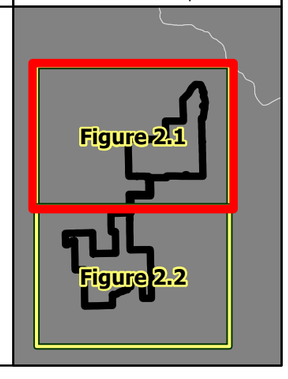
Figure 2.1
Tax Lot Detail Map

SHERMAN COUNTY, OR



- Study Area
- Taxlot Boundary
- Section
- Township
- County Boundary

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Sherman County-Taxlots	

1:25,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 2.2
Tax Lot Detail Map

SHERMAN COUNTY, OR

Taxlot 02N1800007600
Taxlot 02N1700005100
Taxlot 02N1700008201
Taxlot 02N1700008100
Taxlot 02N1700008300
Taxlot 02N1700008200
Taxlot 02N1800007900
Taxlot 01N1800001600
Taxlot 01N170000200
Taxlot 01N170000100
Taxlot 01N1800001601

2N 17E
2N 18E
1N 17E
1N 18E

27 26 25 30 29 28
34 35 36 31 32 33
3 2 1 6 5 4
10 11 12 7 8 9
15 14 13 18 17 16

- Study Area
- Taxlot Boundary
- Section
- Township
- County Boundary

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Sherman County-Taxlots	Figure 2.1 Figure 2.2

1:25,000 WGS 1984 UTM Zone 10N 0 0.5 1 2 Miles NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 3
National Wetlands Inventory and National Hydrography Dataset

SHERMAN COUNTY, OR

Figure 3.1

Figure 3.2

- Map Grid
- Study Area
- City/Town
- Interstate Highway
- US Highway
- State Highway

Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)
- Perennial Stream (NHD)

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Topo; USGS-NHD; USFWS-NWI

Reference Map

1:60,000

WGS 1984 UTM Zone 10N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 3.1
National Wetlands Inventory and National Hydrography Dataset

SHERMAN COUNTY, OR

- Study Area

Wetlands and Waters

- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Topo; USGS-NHD; USFWS-NWI	Figure 2.1, Figure 2.2

1:25,000 WGS 1984 UTM Zone 10N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 3.2
National Wetlands Inventory and National Hydrography Dataset

SHERMAN COUNTY, OR

- Study Area
- State Highway

Wetlands and Waters

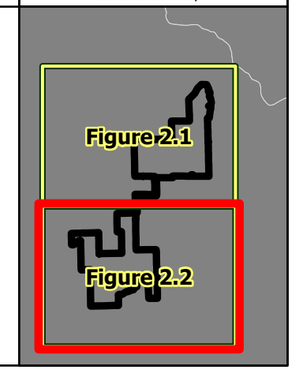
- Freshwater Emergent Wetland (NWI)
- Freshwater Forested/ Shrub Wetland (NWI)
- Freshwater Pond (NWI)
- Riverine (NWI)
- Lake/Pond (NHD)
- Intermittent Stream (NHD)
- Perennial Stream (NHD)

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Topo; USGS-NHD; USFWS-NWI

Reference Map



1:25,000 WGS 1984 UTM Zone 10N

0 0.25 0.5 1 1.5 2 Miles

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 4
Soils

SHERMAN COUNTY, OR

1:40,000 WGS 1984 UTM Zone 10N 0 0.5 1 2 3 4 Miles NOT FOR CONSTRUCTION

Study Area
City/Town
Hydric Rating
No
Yes

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Soils-NRCS

Reference Map

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NRCS Soils
Mapunit Symbol - Map Unit Name

16D,Lickskillet very stony loam, 7 to 40 percent south slopes
18E,Lickskillet-Rock outcrop complex, 40 to 70 percent south slopes
1B,Anderly silt loam, 1 to 7 percent slopes
1C,Anderly silt loam, 7 to 15 percent slopes
21E,Nansene-Rock outcrop complex, 35 to 70 percent north slopes
31B,Walla Walla silt loam, 1 to 7 percent slopes
31C,Walla Walla silt loam, 7 to 15 percent slopes
32D,Walla Walla silt loam, 15 to 35 percent north slopes
33D,Walla Walla silt loam, 15 to 35 percent south slopes
3D,Anderly silt loam, 15 to 35 percent south slopes

Biglow Canyon Wind Farm Request for Amendment 4

Figure 4a
Soils Legend

SHERMAN COUNTY, OR

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial; Soils-NRCS	

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5
Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Figure 5.1
Figure 5.2
Figure 5.3
Figure 5.4
Figure 5.5
Figure 5.6
Figure 5.7
Figure 5.8
Figure 5.9
Figure 5.10
Figure 5.11
Figure 5.12
Figure 5.13
Figure 5.14
Figure 5.15
Figure 5.16
Figure 5.17
Figure 5.18
Figure 5.19
Figure 5.20
Figure 5.21
Figure 5.22
Figure 5.23
Figure 5.24
Figure 5.25
Figure 5.26
Figure 5.27
Figure 5.28

Gilliam County
Sherman County

- Map Grid
- Study Area
- Taxlot Boundary
- County Boundary
- Photo Point
- Sample Plot
- Intermittent
- Ephemeral

Field Delineated Wetlands (Cowardin; HGM)

- PEM; Flats
- PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	CANADA, WA, OR, CA, NV

1:40,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 3 4 Miles

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.1 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

ST04

Taxlot
02N1800001600

Study Area
Taxlot Boundary
Intermittent

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

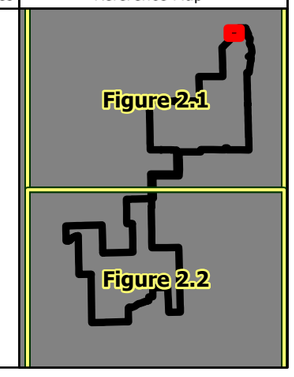
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.2 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point
- Intermittent

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH

BRIGHTNIGHT
Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

\\cess706glsfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\WetlandDelineationReport_2024080\BrightNight_BiglowCanyon_WetlandDelineationReport_11i17i_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.3 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point
- Intermittent

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

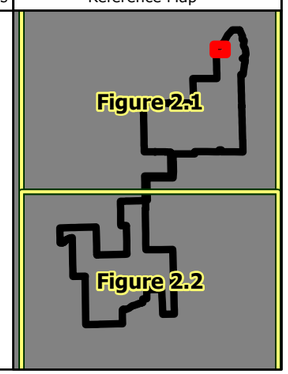
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.4
Wetlands and Waters Delineation Map

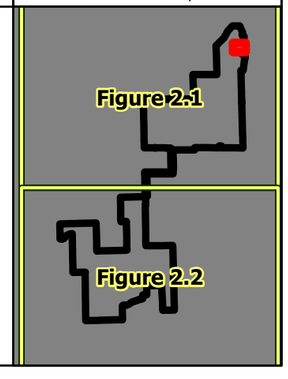
SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.5 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.6 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area

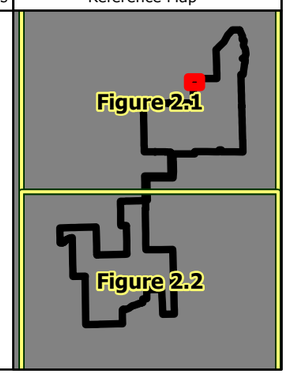
Taxlot Boundary

Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.7 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area

Taxlot Boundary

Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH

BRIGHTNIGHT
Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.8 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Taxlot
02N1800001600

(#6)

Taxlot
02N1800003800

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

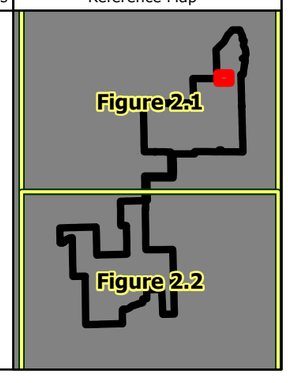
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.9 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

ST02

Taxlot 02N1800001600

Taxlot 02N1800001700

(#34)

Taxlot 02N1800003800

Taxlot 02N1800003700

(#33)

- Study Area
- Taxlot Boundary
- Photo Point
- Ephemeral

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1; Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.10 Wetlands and Waters Delineation Map

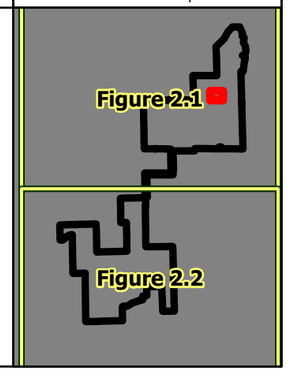
SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.11 Wetlands and Waters Delineation Map

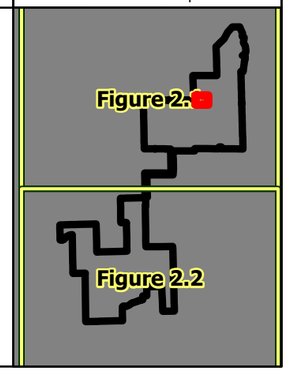
SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet NOT FOR CONSTRUCTION

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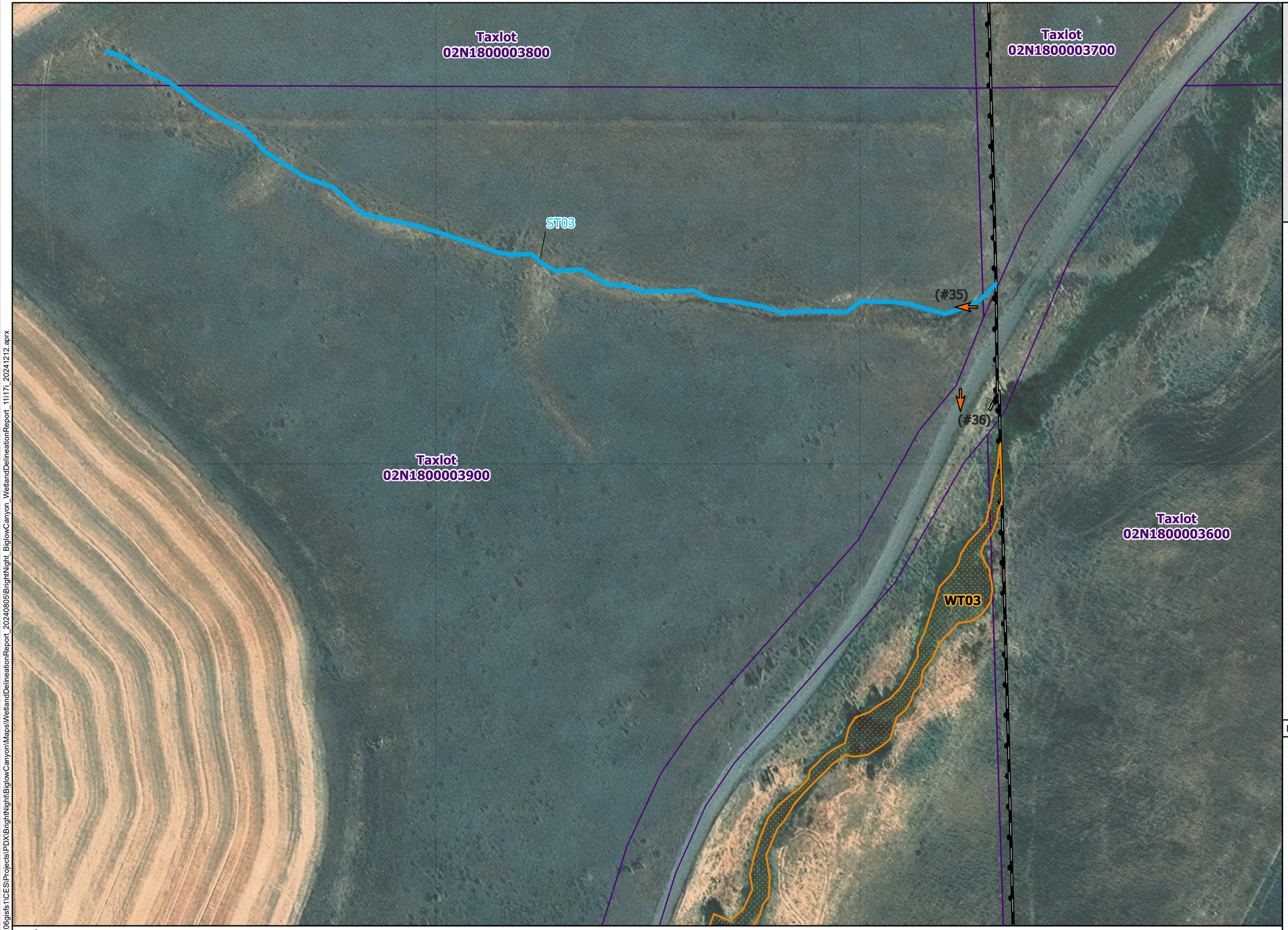

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.12
Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point
- Ephemeral

Field Delineated Wetlands (Cowardin; HGM)

- PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH

BRIGHTNIGHT
Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.13 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

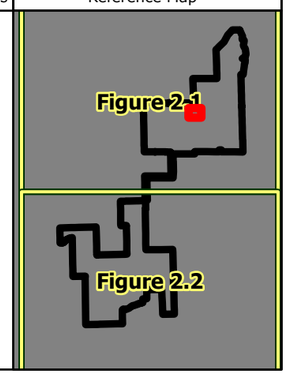
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.14 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point
Sample Plot
Field Delineated Wetlands (Cowardin; HGM)
PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.15 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area

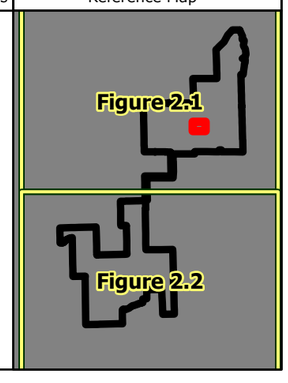
Taxlot Boundary

Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.16 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

ST01
(#13)
(#14)
WT03
Taxlot
02N1800003900
Taxlot
02N1800004400

Study Area
Taxlot Boundary
Photo Point
Ephemeral
Field Delineated Wetlands (Cowardin; HGM)
PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

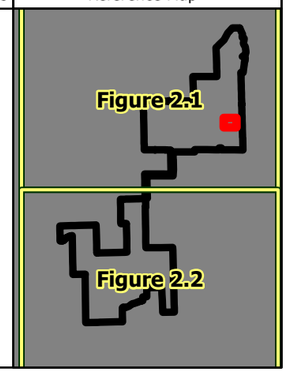
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH
BRIGHTNIGHT
Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.17 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

WT03

Taxlot
02N1800004400

(#15)

(#16)

(#17)

- Study Area
- Taxlot Boundary
- Photo Point

Field Delineated Wetlands (Cowardin; HGM)

- PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.18 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point

Field Delineated Wetlands (Cowardin; HGM)

- PSS; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.19 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Taxlot
02N1800004400

(#19)

(#18)

Taxlot
02N1800004600

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.20 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Taxlot 02N1800004100

Taxlot 02N1800004200

(#20)

(#21)

Taxlot 02N1800007600

Taxlot 02N1800007500

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 / Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.21 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Taxlot
02N1700005100

(#22)

Taxlot
02N1700008300

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

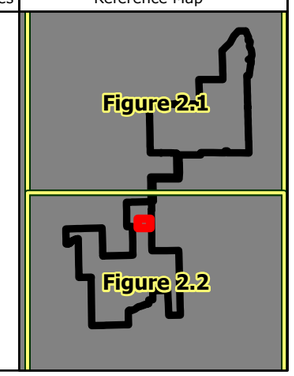
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.22 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

(#24)

(#25)

Taxlot 02N1700008200

Taxlot 02N1700008201

Study Area

Taxlot Boundary

Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

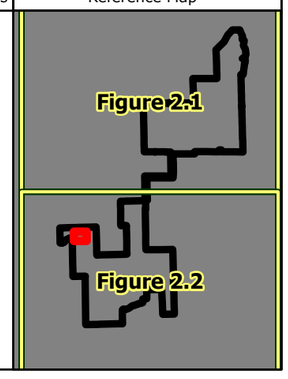
TETRA TECH

BRIGHTNIGHT
Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200

WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.23 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

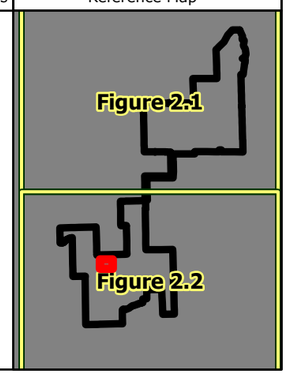
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

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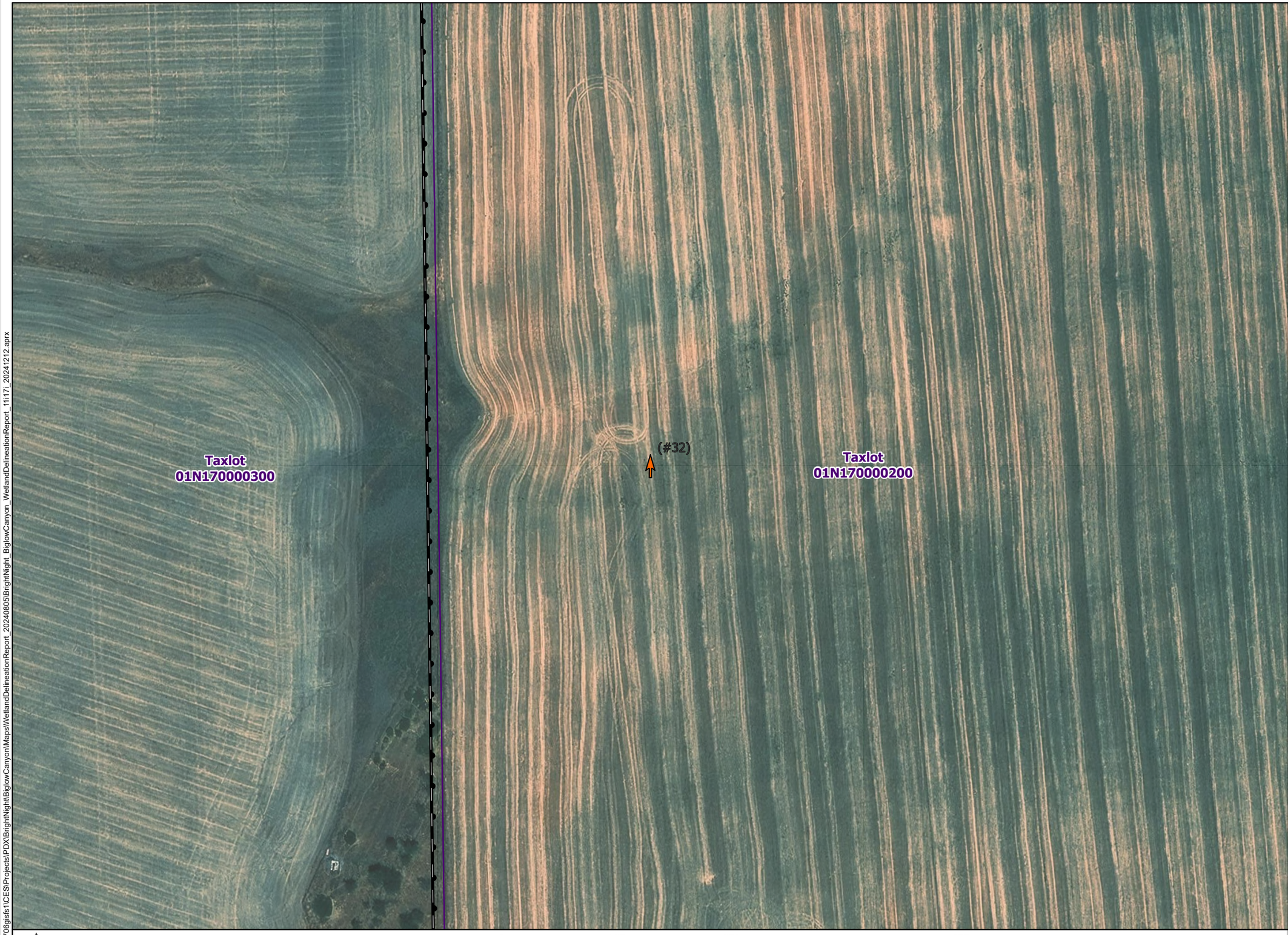
Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.24 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

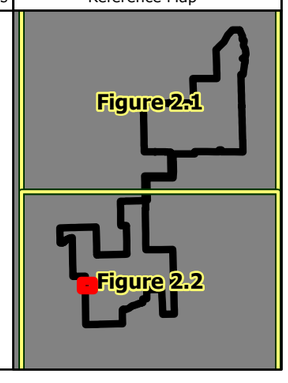


- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

\\cess706glsfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\WetlandDelineationReport_2024080\5\BrightNight_BiglowCanyon_WetlandDelineationReport_11x17i_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.25 Wetlands and Waters Delineation Map

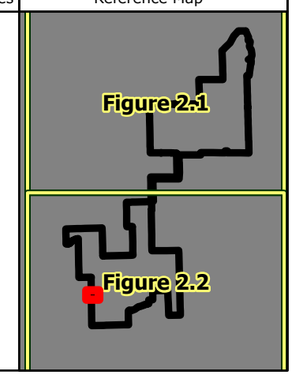
SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

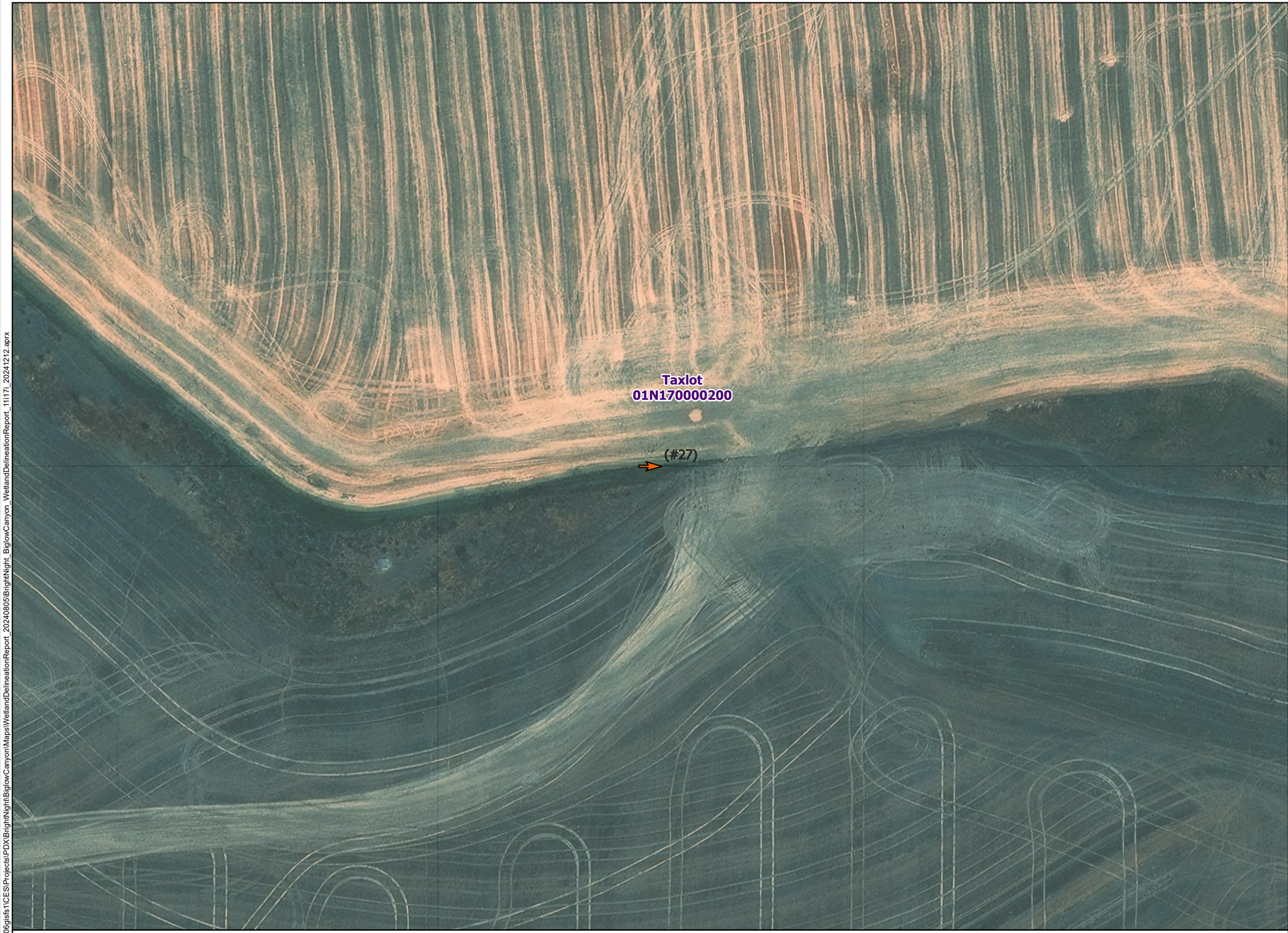
NOT FOR CONSTRUCTION

\\cess706gisfs1\CES\Projects\PDX\BrightNightBiglowCanyon\Maps\WetlandDelineationReport_20240805\BrightNight_BiglowCanyon_WetlandDelineationReport_11x17i_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.26 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

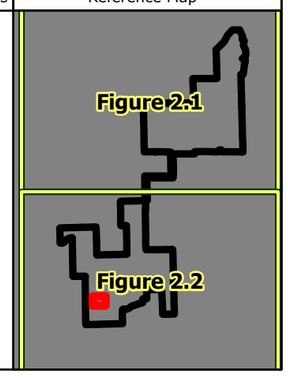


- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	

1:1,200 WGS 1984 UTM Zone 10N

0 125 250 500 US Feet

NOT FOR CONSTRUCTION

\\cess706glsfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\WetlandDelineationReport_2024080\5\BrightNight_BiglowCanyon_WetlandDelineationReport_11i17i_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.27 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

Study Area
Taxlot Boundary
Photo Point
Sample Plot
Field Delineated Wetlands (Cowardin; HGM)
PEM; Flats

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

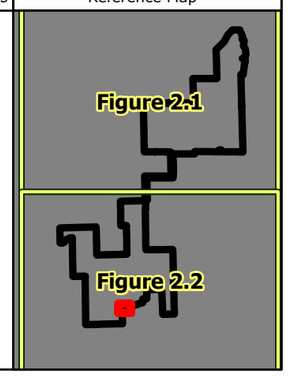
Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources

BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial

Reference Map



1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet

NOT FOR CONSTRUCTION

\\cess706glsfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\WetlandDelineationReport_2024080\BrightNight_BiglowCanyon_WetlandDelineationReport_11x17i_20241212.aprx

Biglow Canyon Wind Farm Request for Amendment 4

Figure 5.28 Wetlands and Waters Delineation Map

SHERMAN COUNTY, OR

- Study Area
- Taxlot Boundary
- Photo Point

All delineated wetlands and waters are considered to extend outside of the study area unless otherwise noted

Wetland boundaries, sample plots, and photo points were collected using a sub-meter grade GPS device collecting real-time, sub-meter GNSS data. Mapped features are </= 1 meter of the ground location.

TETRA TECH BRIGHTNIGHT Power when you need it

Data Sources	Reference Map
BrightNight-Project Infrastructure; Tiger-Roads; ESRI-Aerial	Figure 2.1 Figure 2.2

1:1,200 WGS 1984 UTM Zone 10N 0 125 250 500 US Feet NOT FOR CONSTRUCTION

\\cess706glsfs1\CES\Projects\PDX\BrightNight\BiglowCanyon\Maps\WetlandDelineationReport_2024080\BrightNight_BiglowCanyon_WetlandDelineationReport_11x17i_20241212.aprx

Appendix A. USACE Datasheets

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WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-10

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt01a

Investigator(s): Jess Taylor, Katie Pyne Section, Township, Range: sec 01 T001N R017E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.596336 Long: -120.634739 Datum: WGS84

Soil Map Unit Name: Lickskillet very stony loam, 7 to 40 percent south slopes NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Excavated pit wetland

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Hordeum jubatum*	80	Y	FAC
2. *Galium aparine*	10	N	FACU
3. *Lactuca serriola*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
	100.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum _____ % 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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	80.00	x 3 =	240.00
FACU species	20.00	x 4 =	80.00
UPL species	0.00	x 5 =	0.00
Column Totals:	100.00 (A)		320.00 (B)

Prevalence Index = B/A = 3.2

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
Fox tail dominated

SOIL

Sampling Point: wt01a

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

Depth (inches)	Matrix Color (moist)	%	Redox Features Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 2/2	90	7.5YR 4/4	10	C	PL	SIL	

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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** _____

Remarks:

Hydric soil

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 ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

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

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

Remarks:

Hydric soil

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-10

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt01b

Investigator(s): Jess Taylor, Katie Pyne Section, Township, Range: sec 01 T001N R017E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Convex Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.596310 Long: -120.634759 Datum: WGS84

Soil Map Unit Name: Lickskillet very stony loam, 7 to 40 percent south slopes NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Upland plot

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Bromus tectorum*	50	Y	NI
2. *Galium aparine*	20	Y	FACU
3. *Lactuca serriola*	20	Y	FACU
4.			
5.			
6.			
7.			
8.			
	90.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 10 % 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: 0.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	0.00	x 3 =	0.00
FACU species	40.00	x 4 =	160.00
UPL species	0.00	x 5 =	0.00
Column Totals:	40.00 (A)		160.00 (B)

Prevalence Index = B/A = 4.0

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Upland veg

SOIL

Sampling Point: wt01b

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 ✓

Remarks:

Not hydric

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 ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-10

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt02a

Investigator(s): Jess Taylor, Katie Pyne Section, Township, Range: sec 01 T001N R017E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.596263 Long: -120.633945 Datum: WGS84

Soil Map Unit Name: Lickskillet very stony loam, 7 to 40 percent south slopes NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
excavated pond in bedrock/quarry

VEGETATION – Use scientific names of plants.

	Absolute % Cover	Dominant Species?	Indicator Status
Tree Stratum (Plot size: 30)			
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Schoenoplectus acutus*	50	Y	OBL
2. *Phragmites australis*	50	Y	FACW
3. *Myriophyllum verticillatum*	35	Y	OBL
4.			
5.			
6.			
7.			
8.			
	135.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum _____ % 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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	85.00	x 1 =	85.00
FACW species	50.00	x 2 =	100.00
FAC species	0.00	x 3 =	0.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	135.00 (A)		185.00 (B)

Prevalence Index = B/A = 1.37

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
excavated pond with aquatic vegetation

SOIL

Sampling Point: wt02a

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ✓ Hydrogen Sulfide (A4)
- ___ 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: Bedrock

Depth (inches): 2

Hydric Soil Present? Yes ✓ No ___

Remarks:

almost no soils

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 ___ Depth (inches): 36

Water Table Present? Yes ___ No ✓ Depth (inches): ___

Saturation Present? (includes capillary fringe) Yes ___ No ✓ Depth (inches): ___

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

unknown depth in pond, milfoil growing throughput

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-11

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt02b

Investigator(s): Katie Pyne, Jess Taylor Section, Township, Range: sec 01 T001N R017E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.596278 Long: -120.634003 Datum: WGS84

Soil Map Unit Name: Lickskillet very stony loam, 7 to 40 percent south slopes NWI classification: _____

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Upland plot

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1.			
2.			
3.			
4.			
5.			
	0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Bromus tectorum*	50	Y	NI
2. *Hordeum jubatum*	20	Y	FAC
3. *Lactuca serriola*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
	80.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20 % 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: 50.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	20.00	x 3 =	60.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	30.00 (A)		100.00 (B)

Prevalence Index = B/A = 3.33

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Upland veg

SOIL

Sampling Point: wt02b

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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: Rock

Depth (inches): 1

Hydric Soil Present? Yes _____ No ✓

Remarks:

Not hydric

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 ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-11

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt03a

Investigator(s): Jess Taylor, Katie Pyne Section, Township, Range: sec 17 T002N R018E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.651375 Long: -120.585324 Datum: WGS84

Soil Map Unit Name: Walla Walla silt loam, 7 to 15 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 _____	**Is the Sampled Area within a Wetland?** Yes ✓ No _____
Hydric Soil Present?	Yes ✓ No _____	
Wetland Hydrology Present?	Yes ✓ No _____	

Remarks:
Reed canarygrass wetland in drainage

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0 = Total Cover		
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer saccharinum*	40	Y	FAC
2.			
3.			
4.			
5.			
	40.0 = Total Cover		
Herb Stratum (Plot size: 5)			
1. *Phalaris arundinacea*	80	Y	FACW
2. *Veronica americana*	20	Y	OBL
3.			
4.			
5.			
6.			
7.			
8.			
	100.0 = Total Cover		
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0 = Total Cover		

% Bare Ground in Herb Stratum 10 % 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: 100.00 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	20.00	x 1 =	20.00
FACW species	80.00	x 2 =	160.00
FAC species	40.00	x 3 =	120.00
FACU species	0.00	x 4 =	0.00
UPL species	0.00	x 5 =	0.00
Column Totals:	140.00 (A)		300.00 (B)

Prevalence Index = B/A = 2.14

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes ✓ No _____

Remarks:
Reed canarygrass dominant

SOIL

Sampling Point: wt03a

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 ___

Remarks:

Hydric soil

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 ✓ Depth (inches): _____

Water Table Present? Yes ___ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes ✓ No ___ Depth (inches): 0

Wetland Hydrology Present? Yes ✓ No ___

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

Remarks:

Saturated soils, flowing water observed

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: _____ City/County: Sherman County Sampling Date: 2024-07-11

Applicant/Owner: Bright Night State: Oregon Sampling Point: wt03b

Investigator(s): Jess Taylor, Katie Pyne Section, Township, Range: sec 17 T002N R018E

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): None Slope (%): 0-2

Subregion (LRR): LRR B, MLRA 8 Lat: 45.651360 Long: -120.585498 Datum: WGS84

Soil Map Unit Name: Walla Walla silt loam, 7 to 15 percent slopes NWI classification: None

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

Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? Are "Normal Circumstances" present? Yes ✓ 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 ✓	**Is the Sampled Area within a Wetland?** Yes _____ No ✓
Hydric Soil Present?	Yes _____	No ✓	
Wetland Hydrology Present?	Yes _____	No ✓	

Remarks:
Upland plot

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 30)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15)			
1. *Acer saccharinum*	20	Y	FAC
2.			
3.			
4.			
5.			
	20.0	= Total Cover	
Herb Stratum (Plot size: 5)			
1. *Secale cereale*	40	Y	NI
2. *Bromus tectorum*	40	Y	NI
3. *Lactuca serriola*	10	N	FACU
4.			
5.			
6.			
7.			
8.			
	90.0	= Total Cover	
Woody Vine Stratum (Plot size: 30)			
1.			
2.			
	0	= Total Cover	

% Bare Ground in Herb Stratum 20 % 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: 33.33 (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0.00	x 1 =	0.00
FACW species	0.00	x 2 =	0.00
FAC species	20.00	x 3 =	60.00
FACU species	10.00	x 4 =	40.00
UPL species	0.00	x 5 =	0.00
Column Totals:	30.00 (A)		100.00 (B)

Prevalence Index = B/A = 3.33

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, unless disturbed or problematic.

Hydrophytic Vegetation Present? Yes _____ No ✓

Remarks:
Upland veg

SOIL

Sampling Point: wt03b

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

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

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

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

- ___ Histosol (A1)
- ___ Histic Epipedon (A2)
- ___ Black Histic (A3)
- ___ Hydrogen Sulfide (A4)
- ___ 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 ✓

Remarks:

Not hydric

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 ✓ Depth (inches): _____

Water Table Present? Yes _____ No ✓ Depth (inches): _____

Saturation Present? (includes capillary fringe) Yes _____ No ✓ Depth (inches): _____

Wetland Hydrology Present? Yes _____ No ✓

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

Remarks:

No hydrology

Appendix B. Photolog

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Photo 1. No stream on NHD line. Looking NW. Taken: 8/1/2024. Lat/Long: 45.67370876, -120.5858201.

Photo 2. No stream on NHD line. Looking S. Taken: 8/1/2024. Lat/Long: 45.673035, -120.588737.

Photo 3. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.67191709, -120.5831251.

Photo 4. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.66986035, -120.5813976.

Photo 5. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.66775626, -120.5821508.

Photo 6. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.66379158, -120.5893587.

Photo 7. No feature. Looking S. Taken: 8/1/2024. Lat/Long: 45.66292687, -120.5964107.

Photo 8. No feature. Looking NW. Taken: 8/1/2024. Lat/Long: 45.66303412, -120.6021023.

Photo 9. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.65773761, -120.5927307.

Photo 10. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.65655511, -120.5990304.

Photo 11. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.65371238, -120.6021184.

Photo 12. No feature. Looking NE. Taken: 8/1/2024. Lat/Long: 45.64966163, -120.6004556.

Photo 13. Stream does not continue upstream. Looking W. Taken: 8/1/2024. Lat/Long: 45.65086585, -120.5875421.

Photo 14. Ephemeral drainage (ST01) and trash dump. Looking E. Taken: 8/1/2024. Lat/Long: 45.65083958, -120.5872565.

Photo 15. No feature. Looking S. Taken: 8/1/2024. Lat/Long: 45.64630558, -120.5886697.

Photo 16. No feature. Looking SE. Taken: 8/1/2024. Lat/Long: 45.64608484, -120.5879319.

Photo 17. No feature. Looking E. Taken: 8/1/2024. Lat/Long: 45.64624031, -120.5865338.

Photo 18. No feature. Looking NE. Taken: 8/1/2024. Lat/Long: 45.64206824, -120.5960246.

Photo 19. No feature. Looking NE. Taken: 8/1/2024. Lat/Long: 45.64232889, -120.597512.

Photo 20. No stream on NHD line. Looking N. Taken: 8/1/2024. Lat/Long: 45.63561843, -120.612511.

Photo 21. No stream on NHD line. Looking W. Taken: 8/1/2024. Lat/Long: 45.63508701, -120.61293.

Photo 22. No feature. Looking W. Taken: 8/1/2024. Lat/Long: 45.62166132, -120.6275088.

Photo 23. No feature. Looking W. Taken: 8/1/2024. Lat/Long: 45.60955928, -120.6415328.

Photo 24. No bed or banks. Looking W. Taken: 8/1/2024. Lat/Long: 45.61901641, -120.6522578.

Photo 25. No bed or banks. Looking W. Taken: 8/1/2024. Lat/Long: 45.61716878, -120.6523781.

Photo 26. No bed or banks. Looking SE. Taken: 8/1/2024. Lat/Long: 45.60088557, -120.6501372.

Photo 27. No bed or banks. Looking E. Taken: 8/1/2024. Lat/Long: 45.59871188, -120.6449891.

Photo 28. Bed or banks start here. Looking NW. Taken: 8/1/2024. Lat/Long: 45.60087661, -120.6504188.

Photo 29. No bed or banks. Looking E. Taken: 8/1/2024. Lat/Long: 45.59610875, -120.6114409.

Photo 30. Wetland (WT01) in abandoned quarry. Looking NE. Taken: 8/1/2024. Lat/Long: 45.59626347, -120.63479.

Photo 31. Excavated pond (WT02) with aquatic vegetation. Looking NE. Taken: 8/1/2024. Lat/Long: 45.5960984, -120.6340865.

Photo 32. No bed or banks on NHD line. Looking N. Taken: 8/1/2024. Lat/Long: 45.60336615, -120.6497698.

Photo 33. No bed or banks on NHD line. Looking SW. Taken: 8/1/2024. Lat/Long: 45.66289848, -120.5797626.

Photo 34. Ephemeral drainage (ST02). Looking W. Taken: 8/1/2024. Lat/Long: 45.66452678, -120.5803496.

Photo 35. Ephemeral drainage (ST03). Looking W. Taken: 8/1/2024. Lat/Long: 45.65556268, -120.5822976.

Photo 36. Wetland (WT03) overview. Looking S. Taken: 8/1/2024. Lat/Long: 45.65528326, -120.5823342.

Photo 37. No bed or banks. Looking E. Taken: 8/1/2024. Lat/Long: 45.65220047, -120.58426.

Photo 38. Wetland (WT03). Looking S. Taken: 8/1/2024. Lat/Long: 45.65246908, -120.5847785.

Photo 39. Wetland (WT03). Looking SE. Taken: 8/1/2024. Lat/Long: 45.65167303, -120.5853484.

Photo 40. Wetland (WT03). Looking NE. Taken: 8/1/2024. Lat/Long: 45.64627835, -120.5923663.

Photo 41. Wetland (WT03). Looking W. Taken: 8/1/2024. Lat/Long: 45.64623691, -120.5923711.

Photo 42. No bed or banks. Looking W. Taken: 8/1/2024. Lat/Long: 45.59519882, -120.6135049.