Exhibit J

Wetlands and Other Jurisdictional Waters

Nolin Hills Wind Power Project
February 2020

Prepared for

d/b/a Nolin Hills Wind, LLC

Prepared by

Tetra Tech, Inc.

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Acronyms and Abbreviations

Applicant	Nolin Hills Wind, LLC
AW	Arid West
GPS	Global Positioning System
Manual	Wetland Delineation Manual
NHD	National Hydrography Dataset
NRCS	Natural Resources Conservation Service
NWI	National Wetland Inventory
OAR	Oregon Administrative Rule
ODSL	Oregon Department of State Lands
ORS	Oregon Revised Statutes
Project	Nolin Hills Wind Power Project
SDAM	Streamflow Duration Assessment Method
WOS	waters of the State

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1.0 Introduction

Exhibit J provides information pertaining to potential adverse impacts of construction and operation of the proposed Nolin Hills Wind Power Project (Project) on regulated waters of the State (WOS), as required by Oregon Administrative Rule (OAR) 345-021-0010(1)(j) paragraphs (A) through (F).

2.0 Analysis Area

The Analysis Area for wetland and other jurisdictional waters is the area within the Site Boundary (Figure J-1). The Site Boundary is defined in detail in Exhibits B and C, and is shown on Figure J-1.

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

> *OAR 345-021-0010(1)(j)(j) Exhibit 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)(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;*

OAR 345-021-0010(1)(j)(A) requests that Nolin Hills Wind, LLC (the Applicant) provide 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. The following sections describe wetlands and other waters, identified by the Applicant. Maps showing locations of delineated features are provided in Attachment J-1. Descriptions of the wetlands and other waters are presented in Attachment J-2: Wetland Delineation Report.

3.1 Definitions

Oregon Revised Statutes (ORS) 196.800(15) defines WOS as "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 nonnavigable bodies of water in this state and those portions of the ocean shore, as defined in ORS 390.605, where removal or fill activities are regulated under a state-assumed permit program as provided in 33 United States Code 1344(g) of the Federal Water Pollution Control Act, as amended."

The Oregon Department of State Land's (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 regulation. For the Project, several jurisdictional distinctions are important to allow the Applicant to estimate impacts only to jurisdictional wetlands and other waters. These include determinations related to the following:

- Perennial and intermittent streams, which are generally regulated by ODSL, as distinct from ephemeral streams, which generally are not under state jurisdiction.
- Artificially created roadside and farm ditches, which are considered WOS only if they contain food or game fish and are connected to WOS (OAR 141-085-0515(8)).

Ephemeral streams are defined 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" (Nadeau 2015).

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.

Wetlands are defined by the State of Oregon 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" (OAR 141-085-0510(110)).

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

3.3 Desktop Study

Prior to field work, Tetra Tech reviewed the National Wetlands Inventory (NWI; 2019), the National Hydrography Dataset (NHD; 2019), hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described below. Digital maps used in the field contained the NWI, NHD, and recent aerial photograph overlays.

3.4 Delineation of Wetlands and Other Water Features

Field investigations for the delineation of wetlands and other waters included pedestrian surveys within the Analysis Area. Tetra Tech conducted the field delineation on July 17–22, 2017 and September 19–22, 2017. In 2018, field delineations were conducted on April 23–27 and July 17–21. In 2019, field delineations were conducted from July 8–12. Field biologists who worked on the

habitat surveys for this Project geolocated potential wetlands and provided those locations to the wetland and waters delineators. That information and the desktop wetland data were used to focus the wetland delineations, while the desktop surface water data were used to focus the non-wetlands water evaluation, as necessary.

3.4.1 Wetlands

Wetland presence was determined per the methods in the Wetlands Delineation Manual (USACE 1987) and the Arid West (AW) Supplement (USACE 2008). Wetland indicator status for plants was determined using the State of Oregon 2016 Wetland Plant List (Lichvar et al. 2016).

- Details regarding wetlands delineated during the field investigation are included in Attachment J-2.
- Sample plots were established in all features identified by NWI data (Oregon Spatial Data Library 2017). The sample plot was located within the feature that 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 (Attachment J-2).
- 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 classification; the number of sample plots per wetland ranged from one to several.
- Photographs were taken to document wetland and upland conditions at the sample plots, and to document the wetland boundary (Attachment J-2).
- Wetland boundaries were recorded as a polygon using a survey grade Juniper Geode Global Positioning System (GPS) unit.

3.4.2 Non-wetland Water Evaluations

Details regarding non-wetland waters delineated during the field investigation are included in Attachment J-2.

- Flow duration for non-wetland waters was determined using criteria in Streamflow Duration Assessment Method for the Pacific Northwest (SDAM; Nadeau 2015). Details on mapping methods are presented in Section 8.0 of the Wetland Delineation Report (see Attachment J-2).
- The centerline of non-wetland waters less than 6 feet in width was recorded as a line feature, and buffered to the stream width determined in the field.
- Non-wetland waters greater than 6 feet wide were recorded as left and right bank lines.

- Streams that cross the Analysis Area entirely, or that are partially contained within the Analysis Area, were fully delineated.

Full delineations were not performed at a few ephemeral streams within the Analysis Area. These were streams that run long distances parallel to existing, county access roads. These streams were delineated for 50 to 100 feet upstream and downstream on both sides of the road crossings (Attachment J-2, Figures 5.1.72 and 5.1.74,). At these crossings, the Analysis Area is limited to where these stream segments were fully delineated. The continuations of these streams outside of the Analysis Area were observed in the field, but they were not delineated. The Applicant plans to avoid the undelineated portions of these streams, due to their distance from the existing county access roads, or their location within steep ravines adjacent to the roads. If the Applicant later determines that a crossing will be required at a location on an undelineated segment of stream, the proposed work area will be delineated, and the results will be submitted to the ODSL for concurrence.

3.4.3 Methods

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

Wetland and surface water data were also obtained from the Oregon Wetlands Database, which includes NWI and miscellaneous wetland mapping by state and federal agencies, non-governmental organizations, academia, and consultants, and from the NHD (Oregon Spatial Data Library 2017; NWI 2019; NHD 2019). Soils data were also obtained from the Oregon Wetlands Database, which includes statewide polygon cover of hydric, partially hydric, and related wetland soils (Oregon Spatial Data Library 2017), as well as from the Natural Resources Conservation Service (NRCS) Web Soil Survey (NRCS 2019). Tetra Tech used high-resolution National Agriculture Imagery Program data captured during 2016 because it provided recent, 1-meter resolution aerial imagery taken during the peak of the growing season (USDA 2016).

The following guidance documents and procedures were reviewed:

- The AW Supplement (USACE 2008);
- Wetlands Delineation Manual (USACE 1987);
- SDAM (Nadeau 2015);
- Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979); and

- OAR Chapter 141, Division 90, Administrative Rules for Wetland Delineation Report Requirements and for Jurisdictional Determinations for the Purpose of Regulating Fill and Removal within Waters of the State.

3.4.4 Results

Using methods recommended in the Manual and AW Supplement, 19 wetlands and 4 other jurisdictional water features were delineated and documented within the Analysis Area. Table J-1 summarizes wetland features (by wetland types) and other water features. Not all features that were delineated will be impacted by the Project.

Table J-1. Summary of Delineated Wetlands and Other Water Features

Water Type	Number of Features	Acres
Palustrine Emergent Wetlands	14	3.28
Palustrine Emergent/ Palustrine Forested Wetlands	1	0.46
Palustrine Emergent/ Palustrine Scrub-Shrub Wetlands	2	0.39
Palustrine Forested Wetlands	1	0.06
Palustrine Scrub-Shrub/ Palustrine Forested Wetlands	1	0.20
Intermittent Streams	3	0.34
Perennial Streams	1	0.76

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

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

OAR 345-021-0010(1)(j)(B) requests an analysis of any adverse effects on WOS from the Project. The Project will not adversely affect WOS, as defined under OAR 141-085-0510. The Applicant has worked to avoid and minimize potential impacts and will continue to do so through Project construction. This section describes the Applicant's avoidance and minimization activities.

4.1 Avoidance and Minimization

No impacts to WOS will occur for either turbine option. All overhead transmission line support structures and collector circuit poles will span stream beds and wetlands. Underground collector lines will be routed through areas with no WOS, and no changes to the culverts within the County road system will be needed. There will be impacts to three ephemeral streams due to road construction (EPH-009, EPH-022, and EPH-058; see Attachment J-2, Wetland Delineation Report)

but, as described in Attachment J-2, these are not WOS. The Wetland Delineation Report has been provided to the ODSL for concurrence.

No adverse impacts to wetlands and other waters will occur during construction. All proposed facilities and construction areas will be located outside of the boundaries of delineated wetlands and other waters.

Table J-2 details the jurisdictional wetlands and waters within the Analysis Area and the Applicant's plans to avoid impacts to these WOS.

Table J-1. Potentially Jurisdictional Waters Within the Micrositing Corridor

Wetland/ Stream ID	Figure Reference	Nearest Facility	Avoidance Method
INT-001	J-2.1	Transmission Line	Conductor will span over irrigation ditch.
INT-002	J-2.5	Transmission Line	Support structures will not be sited within the stream channel or required buffer.
INT-003	J-2.7	Transmission Line	Support structures will not be sited within the stream channel or required buffer.
Umatilla River	J-2.2	Transmission Line	Conductor will span over the river.
WET-A	J-2.7	Transmission Line	Support structures will not be sited within this wetland or required buffer.
WET-B	J-2.7	Transmission Line	Support structures will not be sited within this wetland or required buffer.
WET-C	J-2.7	County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-D	J-2.9	Crane Path	Path is sited outside of the buffer zone for this wetland.
WET-E	J-2.6	Crane Path, Underground Collector Line	Path and collector lines are sited outside of wetland buffer.
WET-F	J-2.6	Crane Path, Underground Collector Line	Path and collector lines are sited outside of wetland buffer.
WET-G	J-2.6	Crane Path, Underground Collector Line	Path and collector lines are sited outside of wetland buffer.
WET-H	J-2.6	Crane Path, Underground Collector Line	Path and collector lines are sited outside of wetland buffer.
WET-I	J-2.3	County Road 1361	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-J	J-2.5	Transmission Line	Conductor will span canyon where this wetland is located.
WET-K	J-2.8	Underground Collector Line	Collector lines are sited more than half a mile away.
WET-L	J-2.7	Crane Path, Underground Collector Line	Path and collector lines are sited more than half a mile away.
WET-M	J-2.5	County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.

Wetland/ Stream ID	Figure Reference	Nearest Facility	Avoidance Method
WET-N	J-2.7	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-O	J-2.5	County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-P	J-2.5	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-Q	J-2.4	Transmission Lines	Conductor will not be sited near this wetland.
WET-R	J-2.5	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
WET-S	J-2.5	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
POND-1	J-2.7	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.
POND-2	J-2.7	Farm Road off of County Road 1363	No changes will be made to the roadway that would intersect the wetland or buffer.

4.2 Continued Assessment of Impacts

The Applicant will continue to adjust the location of components of the Project to avoid and minimize impacts to WOS to the extent practicable.

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

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

There will be no impacts to WOS from either turbine layout scenario proposed by the Applicant.

There will be no permanent impacts to wetlands or perennial or intermittent streams during the construction of the Project.

5.0 Evidence that Removal-Fill Permit Need Not Be Issued – 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;

None of the ephemeral stream channels with proposed facilities crossings are jurisdictional under the state Removal-Fill Law because ephemeral streams are not included in the definition of WOS as

defined under OAR 141-085-0510. If the streams were considered intermittent, they would not be jurisdictional under state law because only those intermittent streams that provide spawning, rearing, or food-producing areas for food and game fish are jurisdictional, and none of the streams within the Site Boundary meet these criteria (OAR-141-085-0510(46)). There are no fish populations using the ephemeral streams for spawning or rearing and they are not food-producing areas for downstream waters that do support fish because they are either too far upstream from fish-bearing waters or because they do not have a hydrological connection to fish-bearing waters. Therefore, although three ephemeral streams will be disturbed by Project construction, these streams are not WOS. The Project will not disturb stream segments or wetlands considered jurisdictional under OAR 141-085-0515, and the Project does not require a Removal-Fill Permit.

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;

As stated previously, the Project will not require a Removal-Fill Permit and therefore this requirement is not applicable.

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.

No adverse impacts to WOS will occur. The current proposed Project layout was specifically designed to avoid impacts to wetlands and waters. This section describes avoidance and minimization measures used during design and as well as measures that will be used during construction.

7.1 Avoidance and Minimization

The Applicant has worked to avoid potential impacts and will continue to do so through Project construction. Impacts to wetlands and other waters have been and will continue to be avoided

during Project design to the extent practicable. Avoidance and minimization measures include the following:

- The proposed locations of turbine pads and transmission towers were microsited, for both layout options, around wetlands.
- Underground collector lines and access roads have been routed around wetlands and waters that do not span the entire width of the right-of-way.
- Wetlands and other waters have been avoided by spanning the transmission line over these features.
- To avoid new road construction, existing roads leading to proposed turbine locations have been used for Project construction and maintenance purposes to the extent possible.
- To the extent practicable, necessary road widening will take place on the side of the road that does not have an adjacent jurisdictional wetland or other water.

Indirect impacts to wetlands and other waters will be avoided and minimized by employing Best Management Practices for erosion and sediment control listed in the National Pollutant Discharge Elimination System permit required for the Project and the accompanying Erosion and Sediment Control Plan (Exhibit I, Attachment I-1).

7.2 Environmental Training

The following measures will be implemented during construction to avoid impacts:

- The Applicant will develop an environmental awareness course for the construction contractors that will provide information on the sensitive wetland and stream resources present onsite, the exclusion flagging/signing, permit requirements, and other environmental issues.
- Construction site personnel will be required to attend the environmental awareness course in conjunction with hazard and safety training prior to working on-site. The Applicant's construction contractor will maintain a list of on-site construction personnel who have received the training.

8.0 Conclusion

OAR Chapter 345 Division 22 does not provide an approval standard specific to Exhibit J. The Project will not result in impacts to wetlands or WOS.

9.0 References

Cowardin, L.M., V. Carter, F. C. Golet, and E. T. LaRoe. 1979. Classification of Wetlands and Deepwater Habitats of the United States. U.S. Fish and Wildlife Service, Washington, DC. FWS/OBS-79/31.

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Figures

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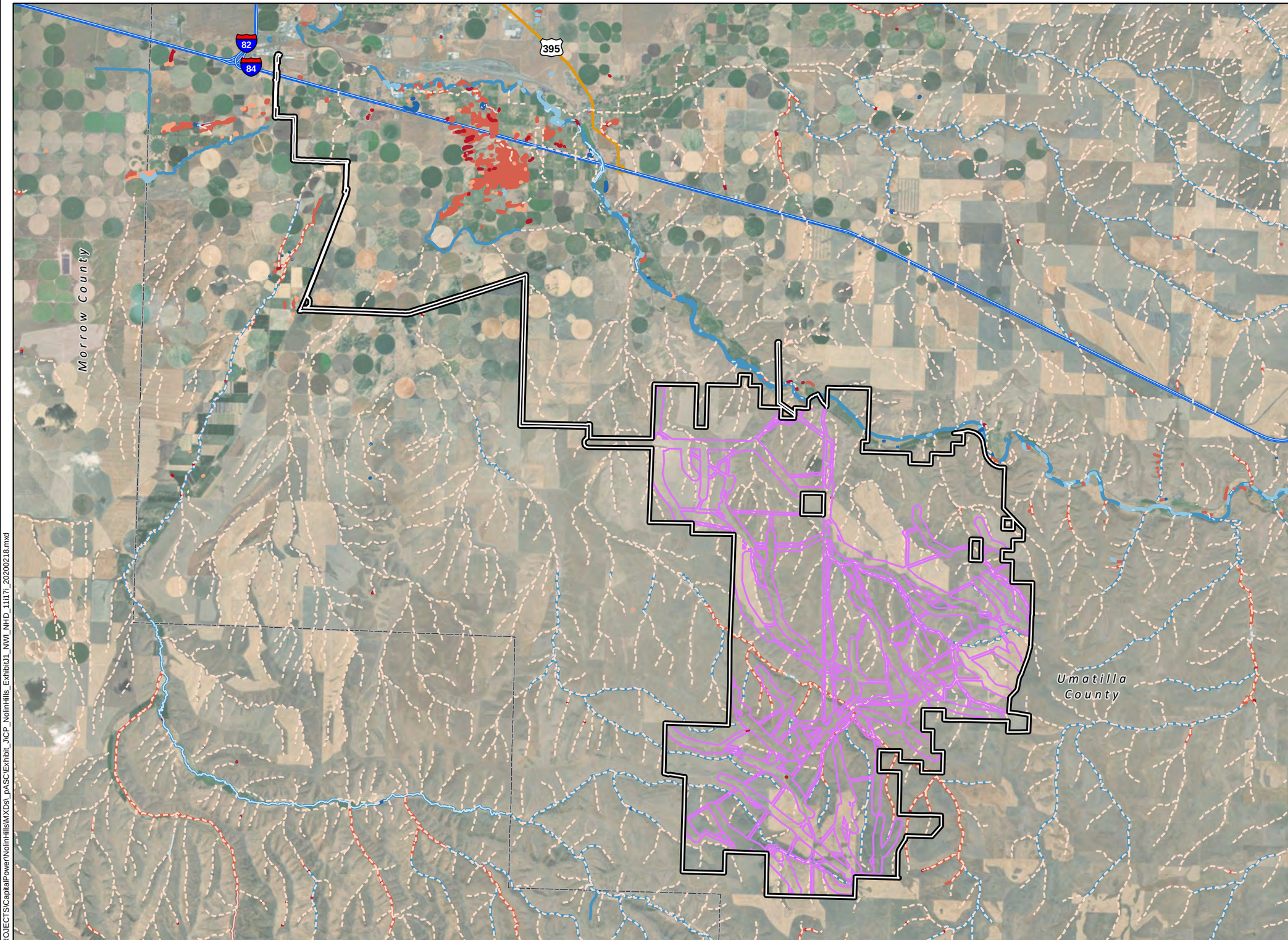
Nolin Hills Wind Power Project

Figure J-1
Overview, NWI and NHD Map

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Interstate Highway
- Secondary Highway
- County Boundary

NHD Streams/Rivers
- Intermittent Stream/River
- Perennial Stream/River

NHD Waterbodies
- Intermittent Lake/Pond
- Perennial Lake/Pond
- <all other values>

NWI Waterbodies
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

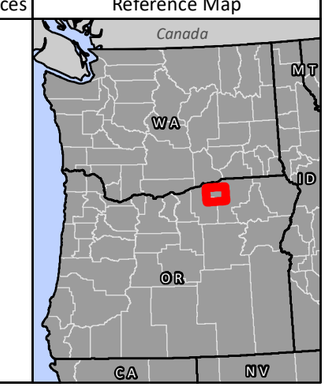
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads; NWI-Wetlands; NHD-Waterbodies

Reference Map



1:140,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 5 Miles

NOT FOR CONSTRUCTION

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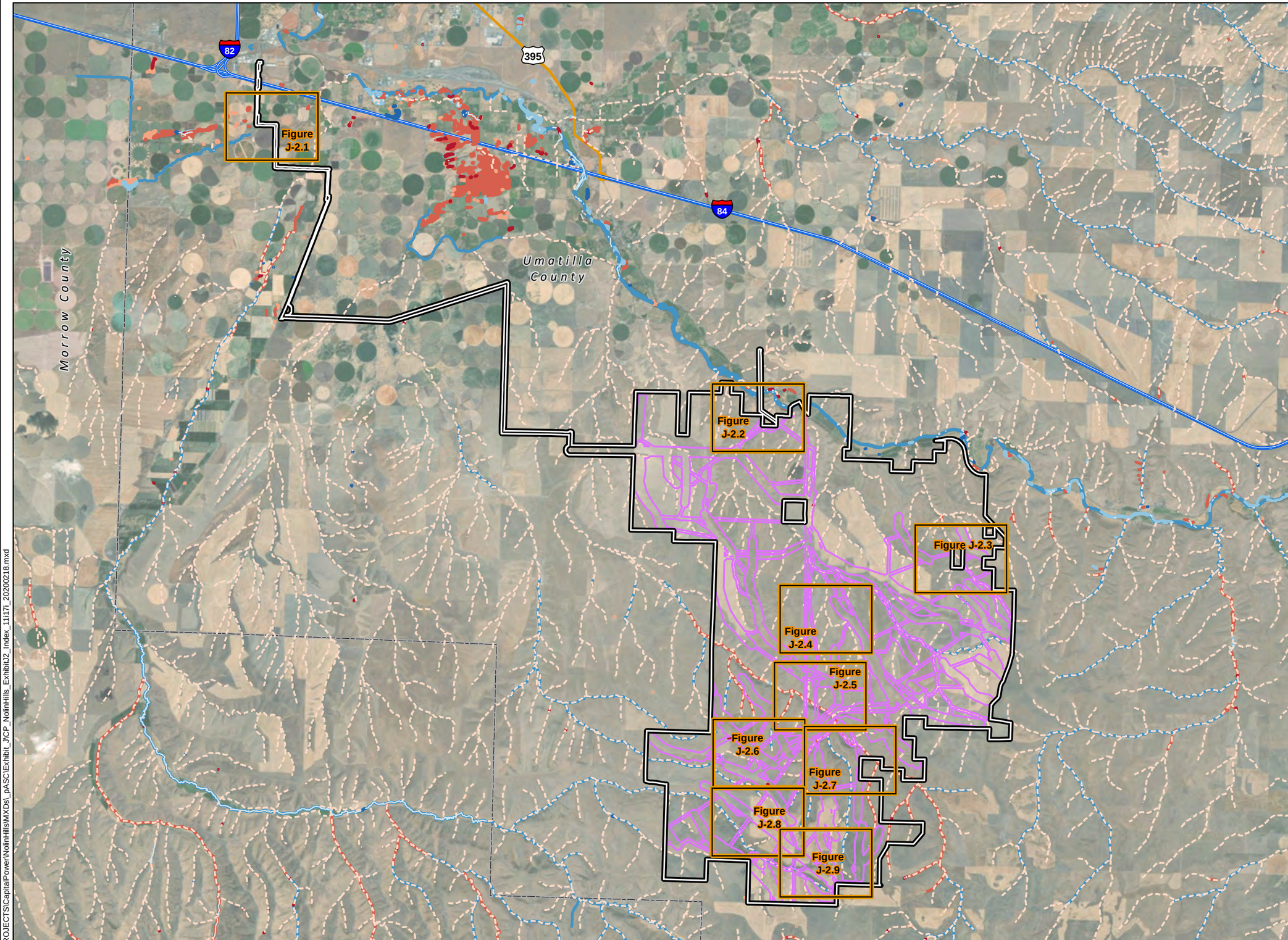
Nolin Hills Wind Power Project

Figure J-2
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



Map Grid
Proposed Site Boundary
Micrositing Corridor
Interstate Highway
Secondary Highway
County Boundary

NHD Streams/Rivers
Intermittent Stream/River
Perennial Stream/River

NHD Waterbodies
Intermittent Lake/Pond
Perennial Lake/Pond

NWI Waterbodies
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine

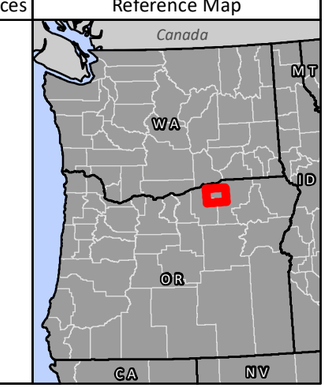
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads; NWI-Wetlands; NHD-Waterbodies

Reference Map



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Nolin Hills Wind Power Project

Figure J-2.1
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON

Proposed Site Boundary
Micrositing Corridor
Proposed UEC Transmission Line Route, 230-kV
Limits of Temporary Disturbance
No Access (7/9/2019)

Delineated Features
Stream-Delineated (Maximum OWHL Width)
Wetland-Delineated

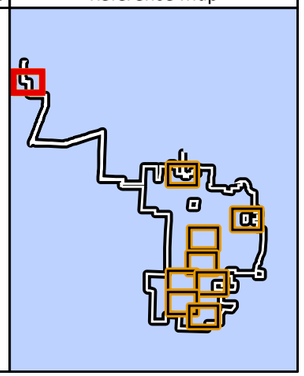
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure J-2.2
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON

- Proposed Site Boundary
- Micrositing Corridor
- Proposed BPA Stanfield Transmission Line Route, 230-kV
- Proposed UEC Transmission Line Route, 230-kV
- Limits of Temporary Disturbance
- No Access (7/9/2019)

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

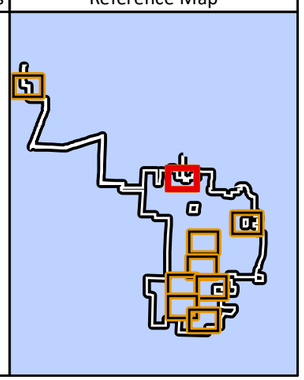
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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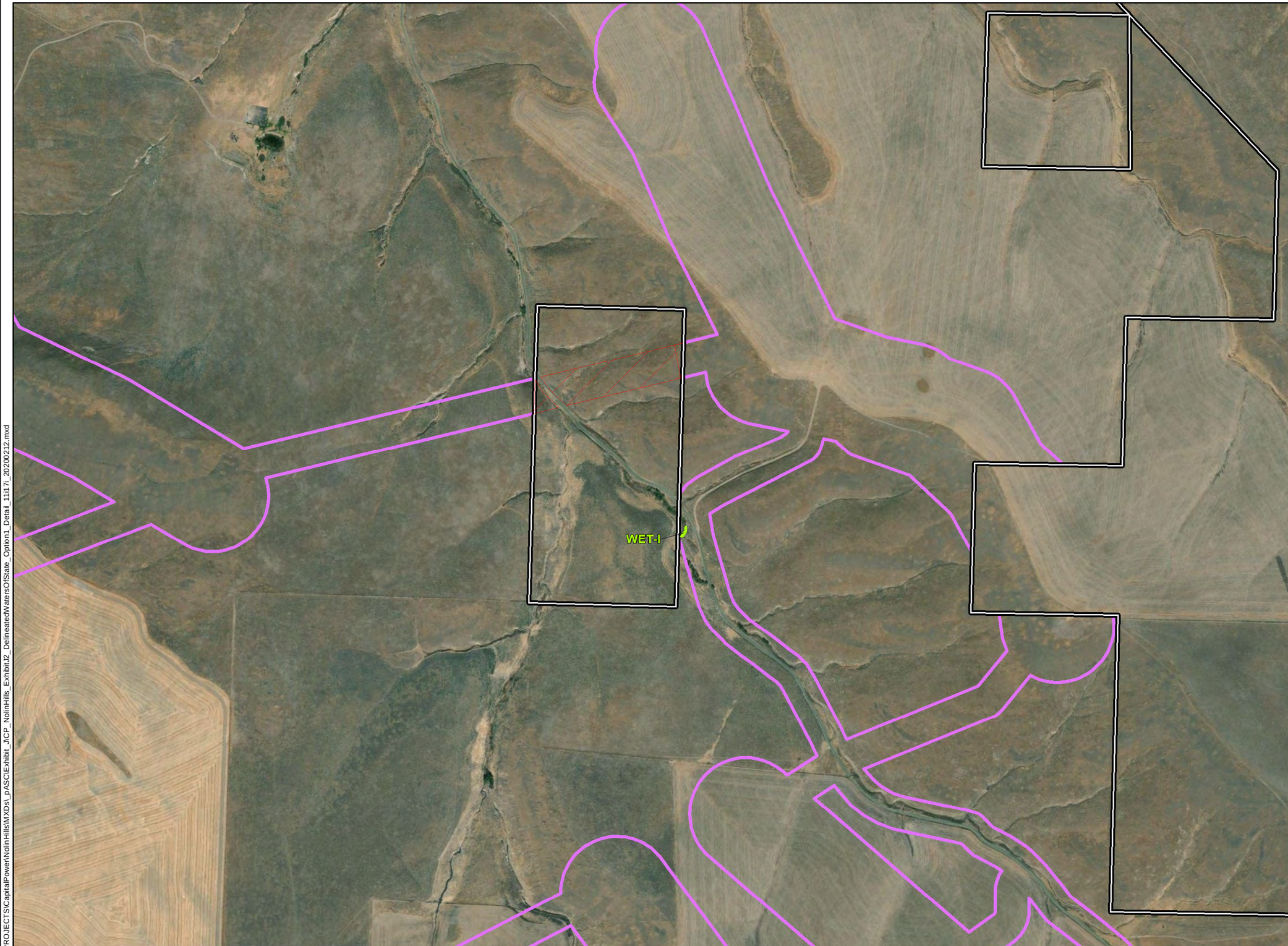
Nolin Hills
Wind Power Project

Figure J-2.3
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



Proposed Site Boundary
Micrositing Corridor
No Access (7/9/2019)

Delineated Features
Stream-Delineated (Maximum OWHL Width)
Wetland-Delineated

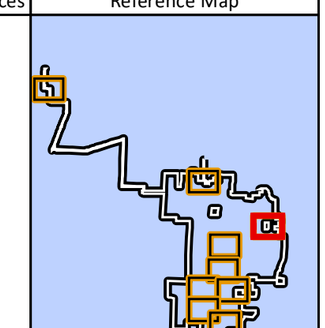
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure J-2.4
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON

Proposed Site Boundary
Micrositing Corridor
Access Road (Improve Existing)
Proposed Transportation Route
Overhead Collector Line
Proposed Project Substation Connector, 230-kV
Limits of Temporary Disturbance

Delineated Features
Stream-Delineated (Maximum OWHL Width)
Wetland-Delineated

TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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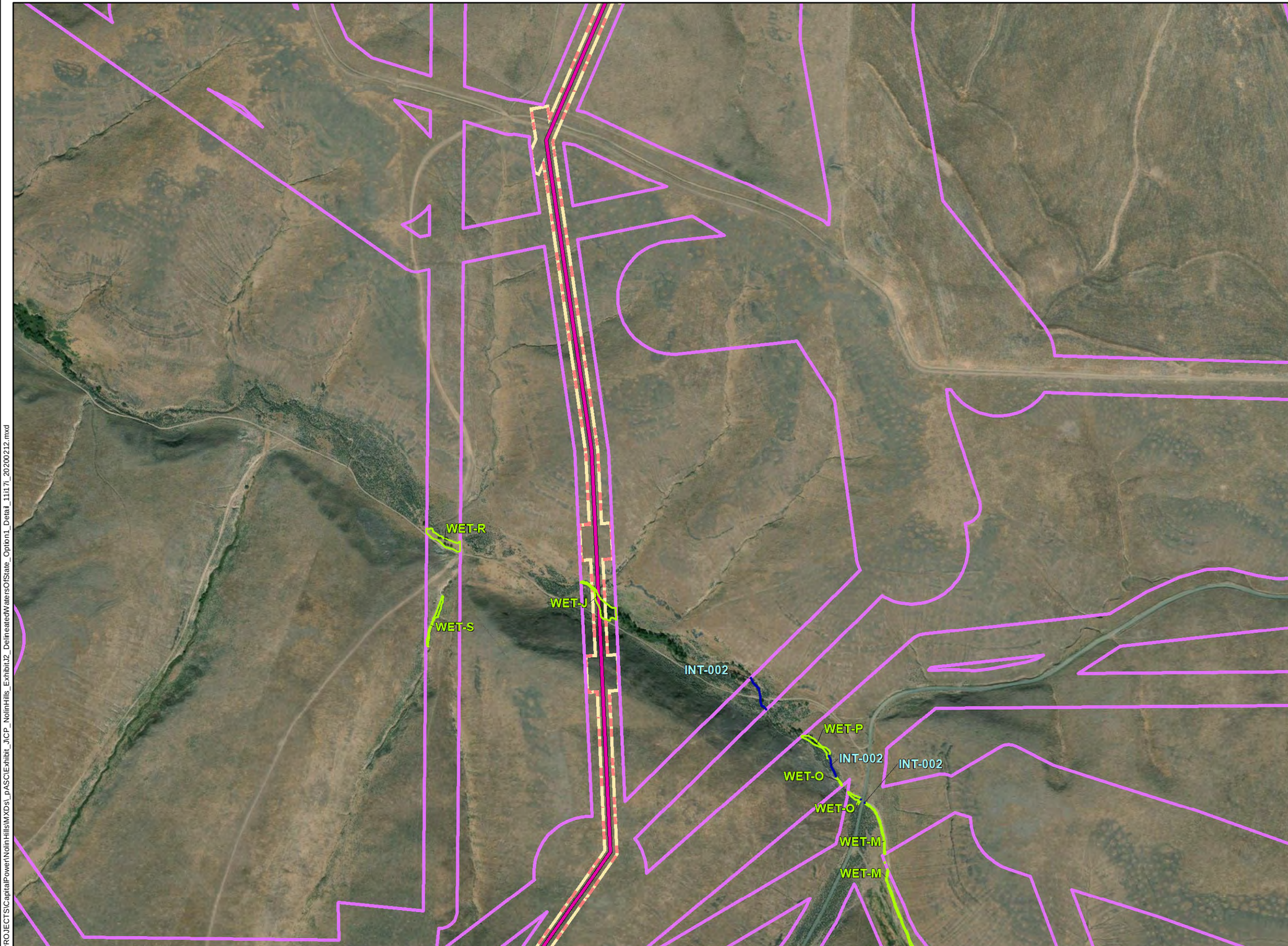
Nolin Hills Wind Power Project

Figure J-2.5
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



Proposed Site Boundary
Micrositing Corridor
Proposed Project Substation Connector, 230-kV
Limits of Temporary Disturbance

Delineated Features
Stream-Delineated (Maximum OWHL Width)
Wetland-Delineated

TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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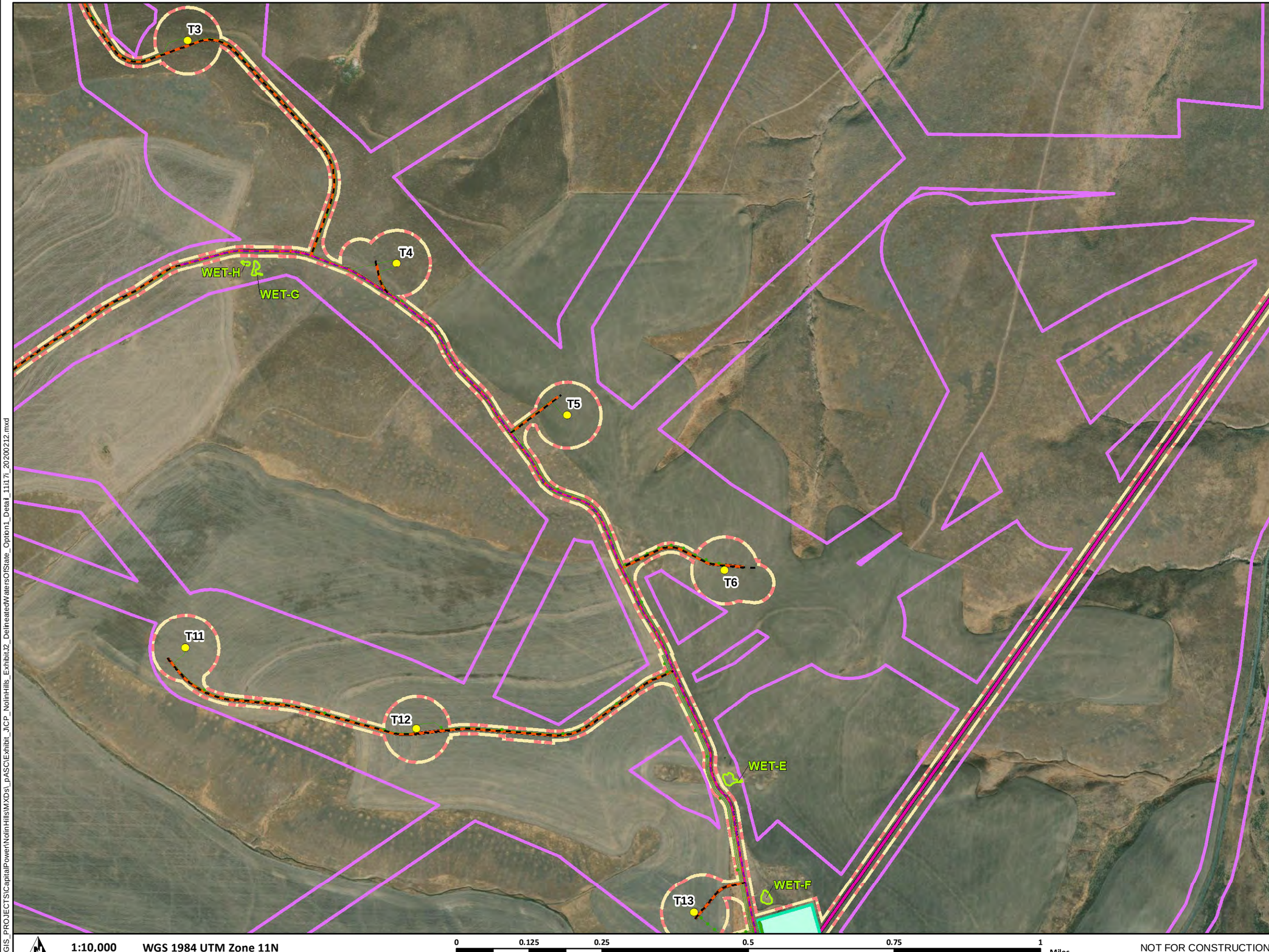
Nolin Hills Wind Power Project

Figure J-2.6
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Project Substation Connector, 230-kV
- Proposed Substation
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

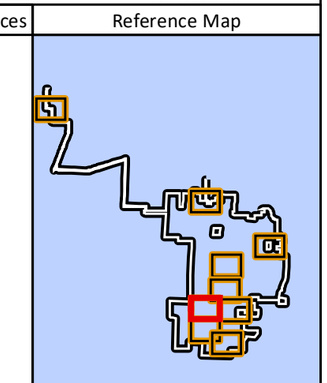
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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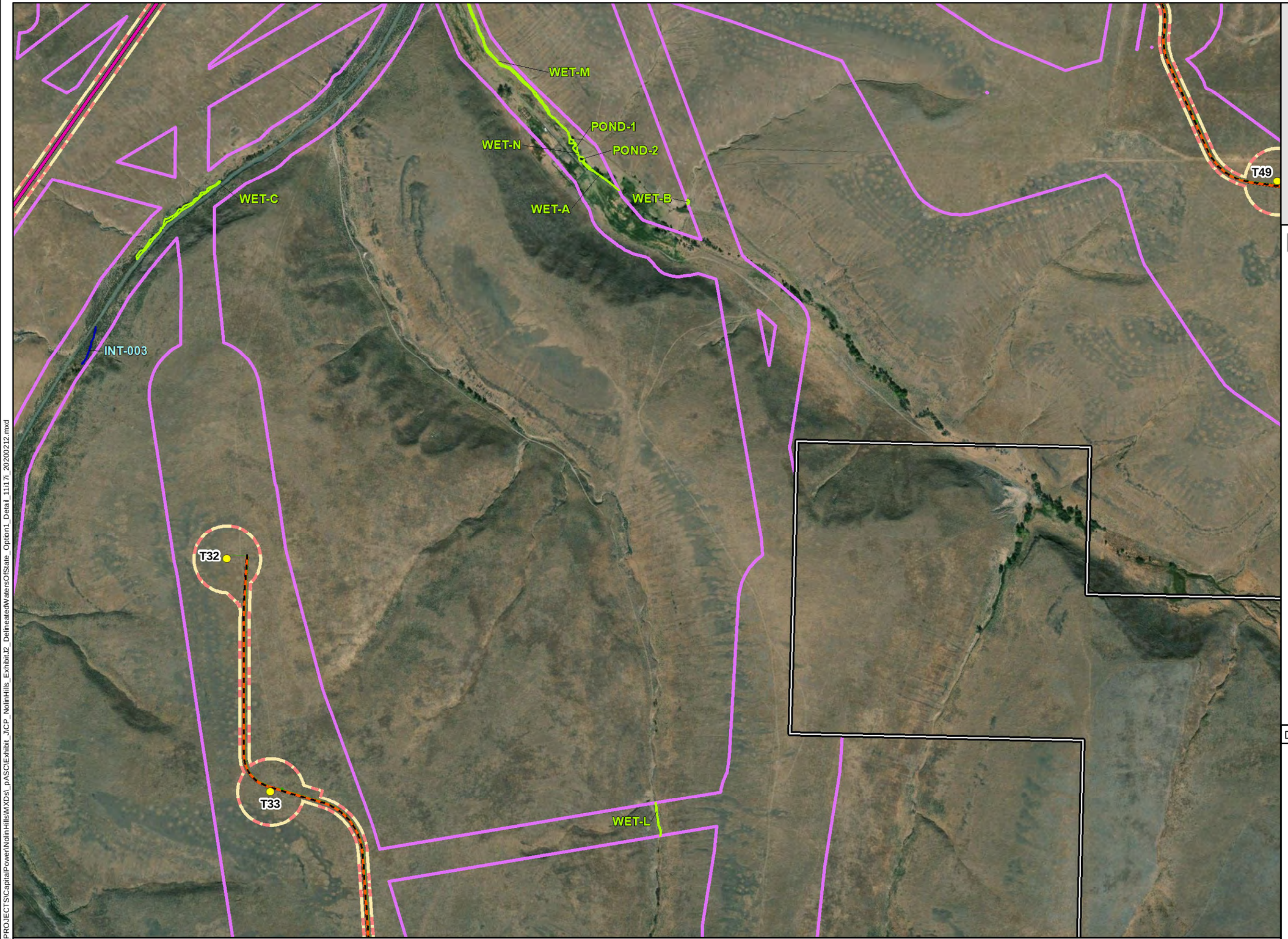
Nolin Hills Wind Power Project

Figure J-2.7
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Underground Collector Line
- Proposed Crane Path
- Proposed Project Substation Connector, 230-kV
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

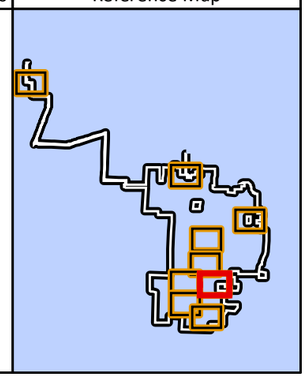
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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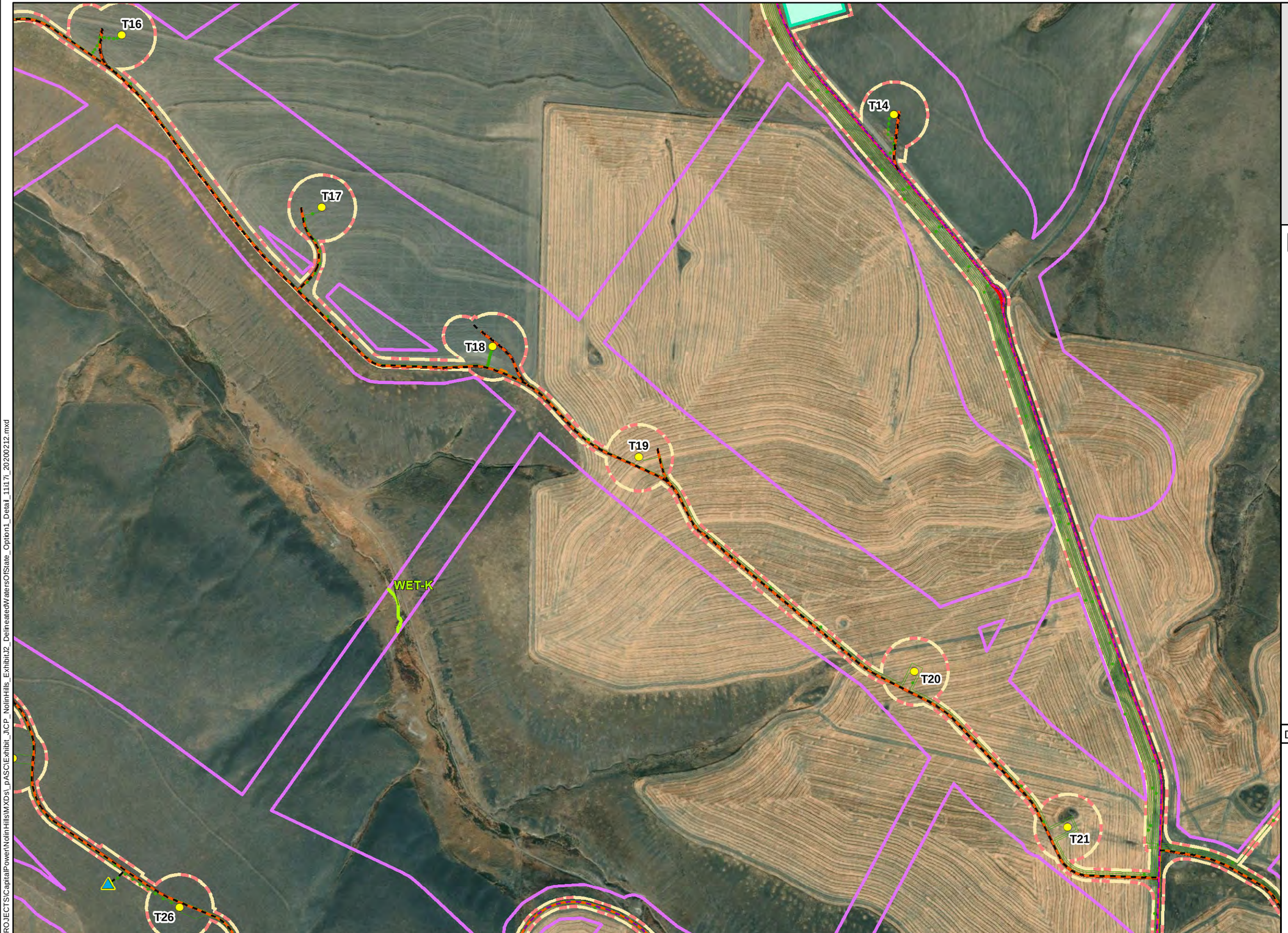
Nolin Hills Wind Power Project

Figure J-2.8
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Met Tower
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Substation
- Proposed Intersections
- Proposed Laydown Area
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

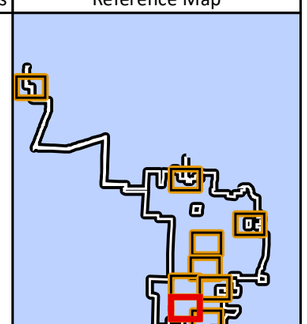
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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NOT FOR CONSTRUCTION

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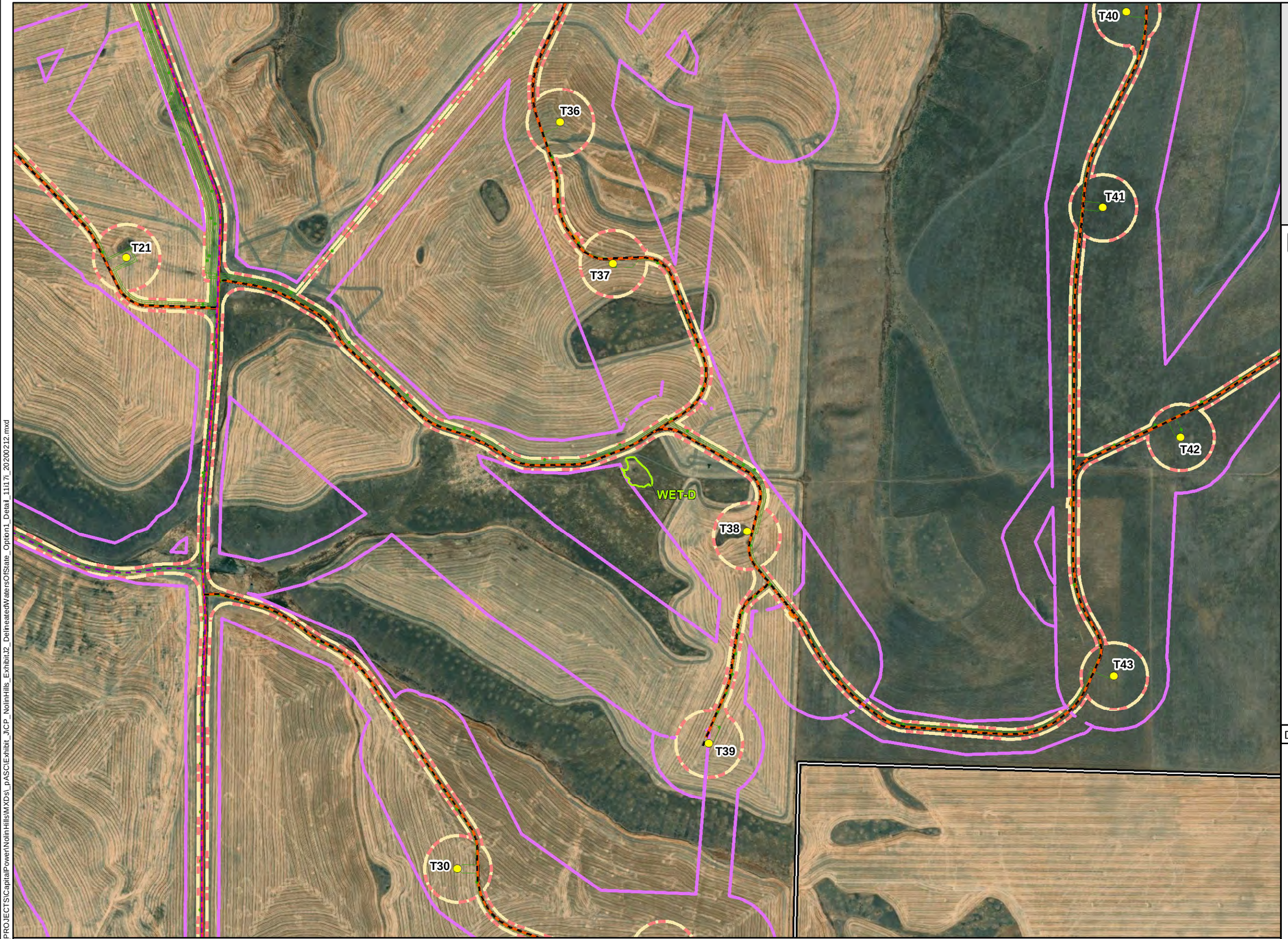
Nolin Hills Wind Power Project

Figure J-2.9
Delineated Waters of the State
Turbine Option 1

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Laydown Area
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

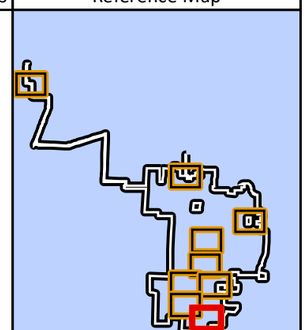
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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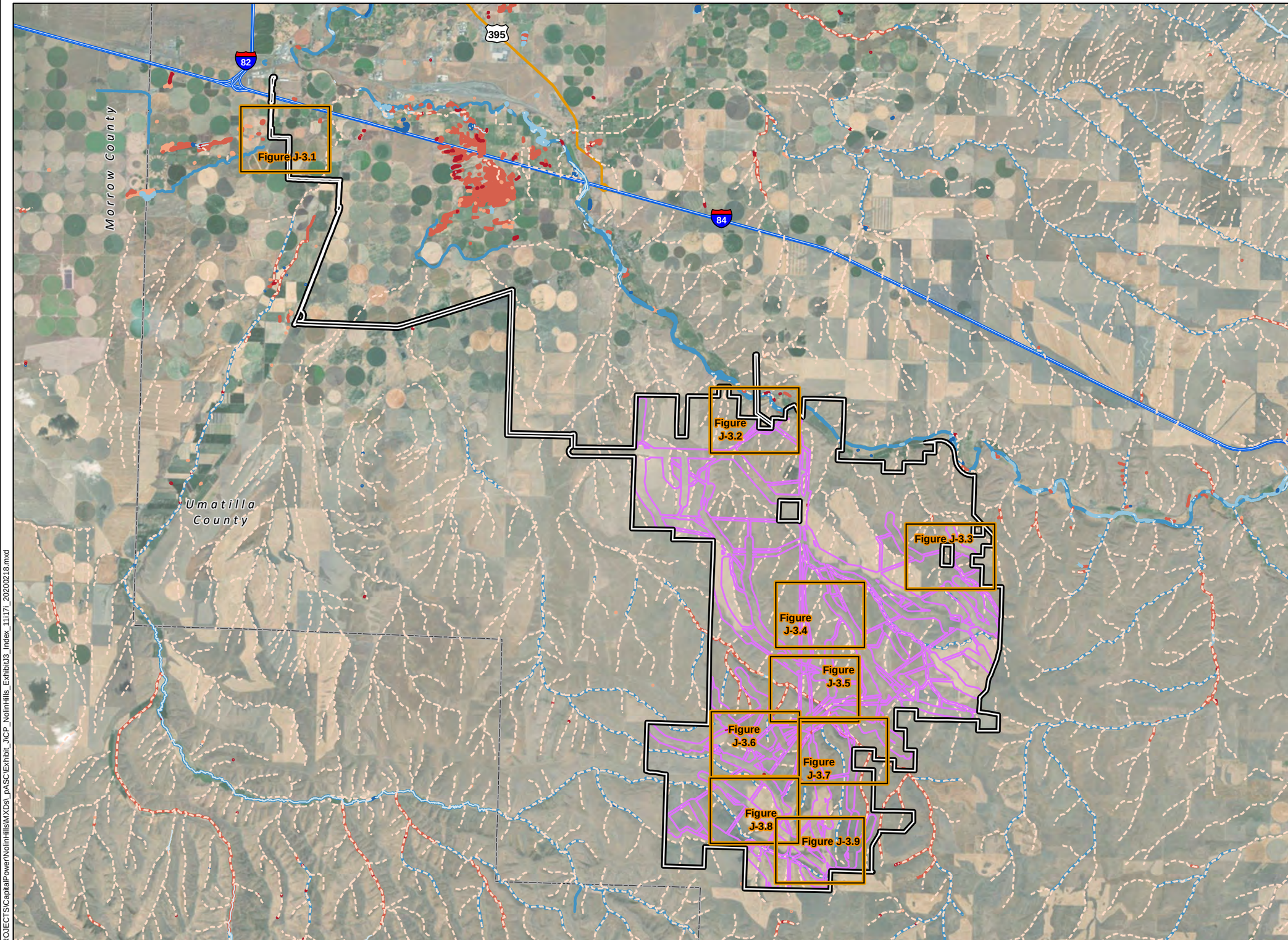
Nolin Hills Wind Power Project

Figure J-3
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



Map Grid
Proposed Site Boundary
Micrositing Corridor
Interstate Highway
Secondary Highway
County Boundary

NHD Streams/Rivers
Intermittent Stream/River
Perennial Stream/River

NHD Waterbodies
Intermittent Lake/Pond
Perennial Lake/Pond

NWI Waterbodies
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Freshwater Pond
Riverine

TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads; NWI-Wetlands; NHD-Waterbodies

Reference Map

1:145,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 5 Miles

NOT FOR CONSTRUCTION

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Nolin Hills
Wind Power Project

Figure J-3.1
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON

- Proposed Site Boundary
- Micrositing Corridor
- Proposed UEC Transmission Line Route, 230-kV
- Limits of Temporary Disturbance
- No Access (7/9/2019)

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

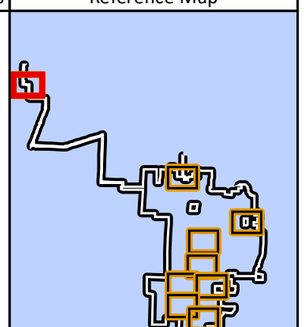
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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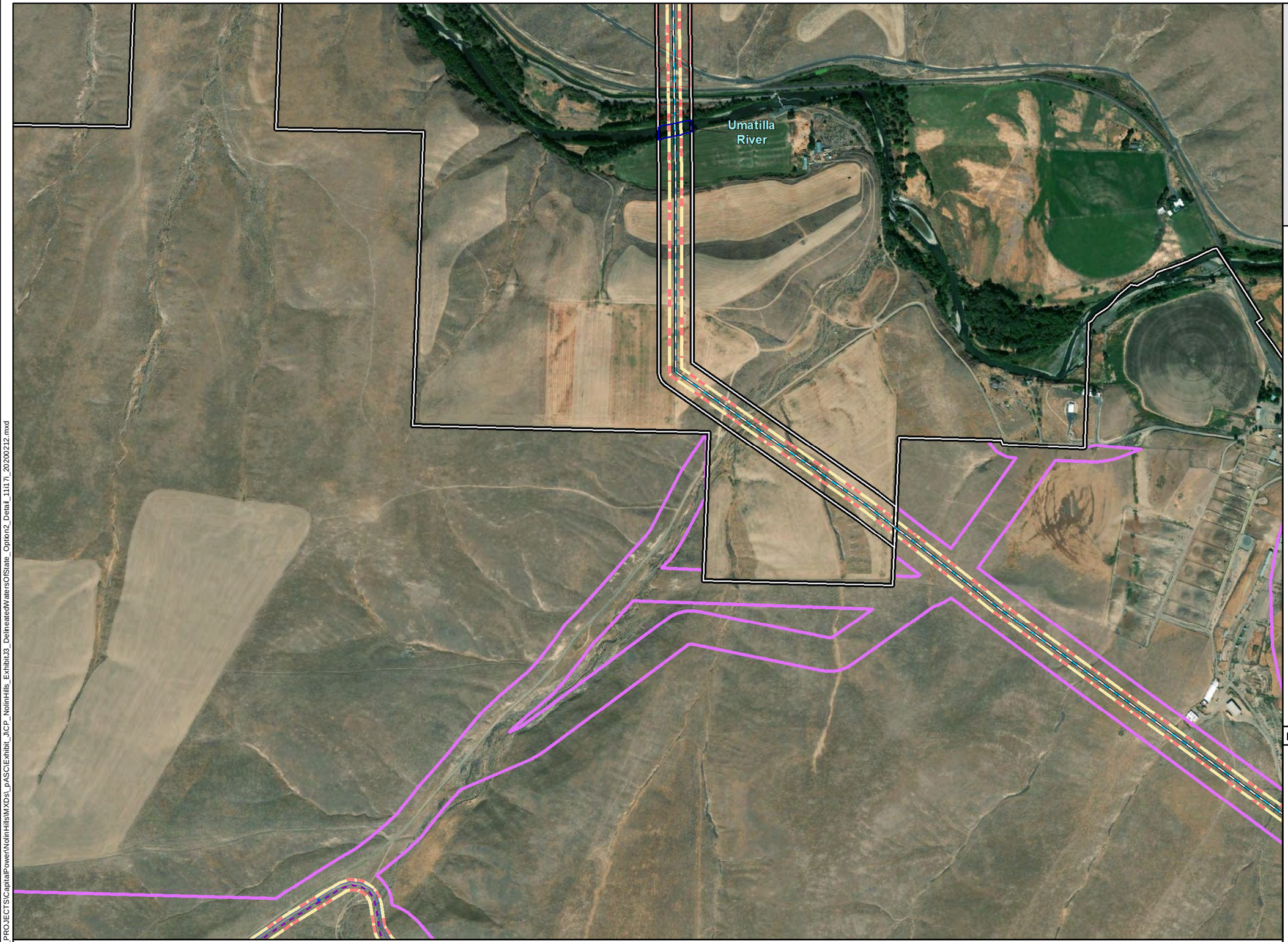
Nolin Hills Wind Power Project

Figure J-3.2
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed BPA Stanfield Transmission Line Route, 230-kV
- Proposed UEC Transmission Line Route, 230-kV
- Access Road (Improve Existing)
- Proposed Transportation Route
- Overhead Collector Line
- Limits of Temporary Disturbance
- No Access (7/9/2019)

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

1:10,000 WGS 1984 UTM Zone 11N

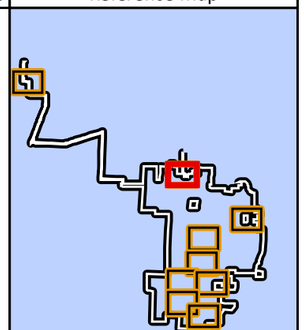
0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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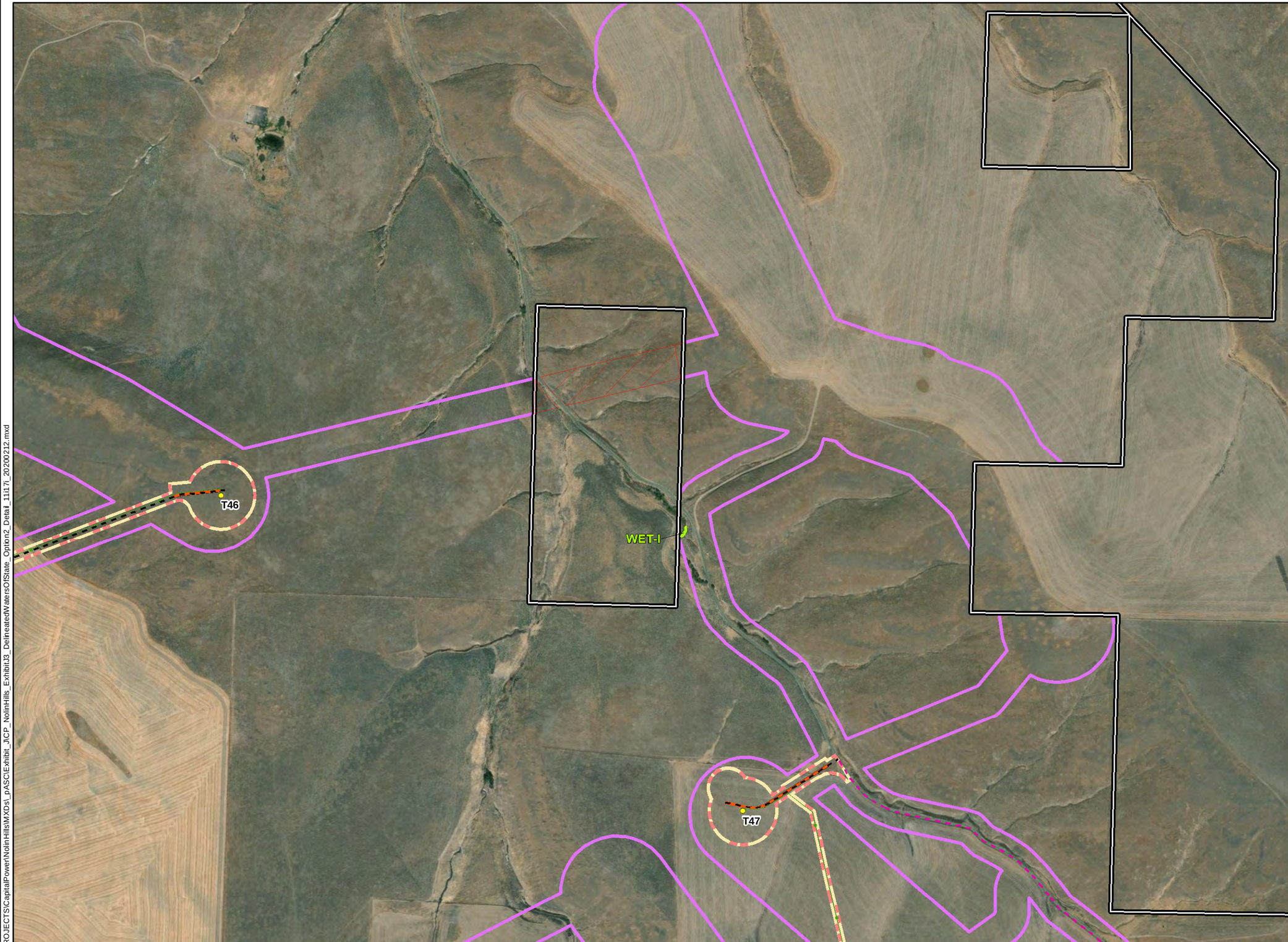
Nolin Hills Wind Power Project

Figure J-3.3
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Limits of Temporary Disturbance
- No Access (7/9/2019)

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

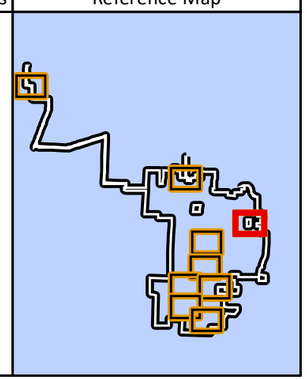
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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NOT FOR CONSTRUCTION

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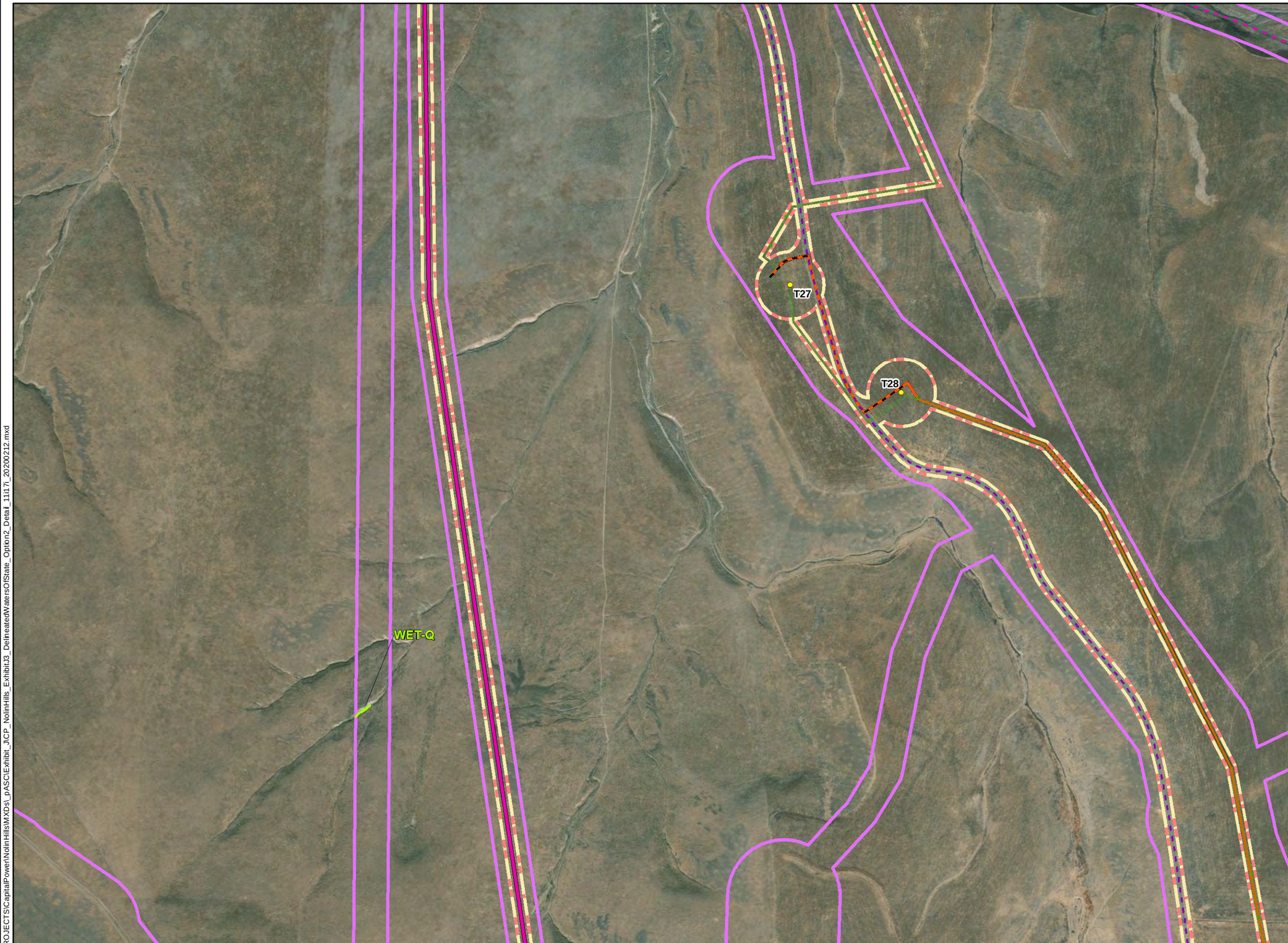
Nolin Hills Wind Power Project

Figure J-3.4
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Project Substation Connector, 230-kV
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

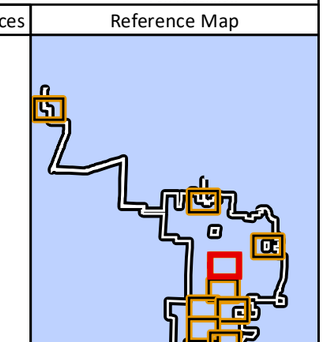
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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NOT FOR CONSTRUCTION

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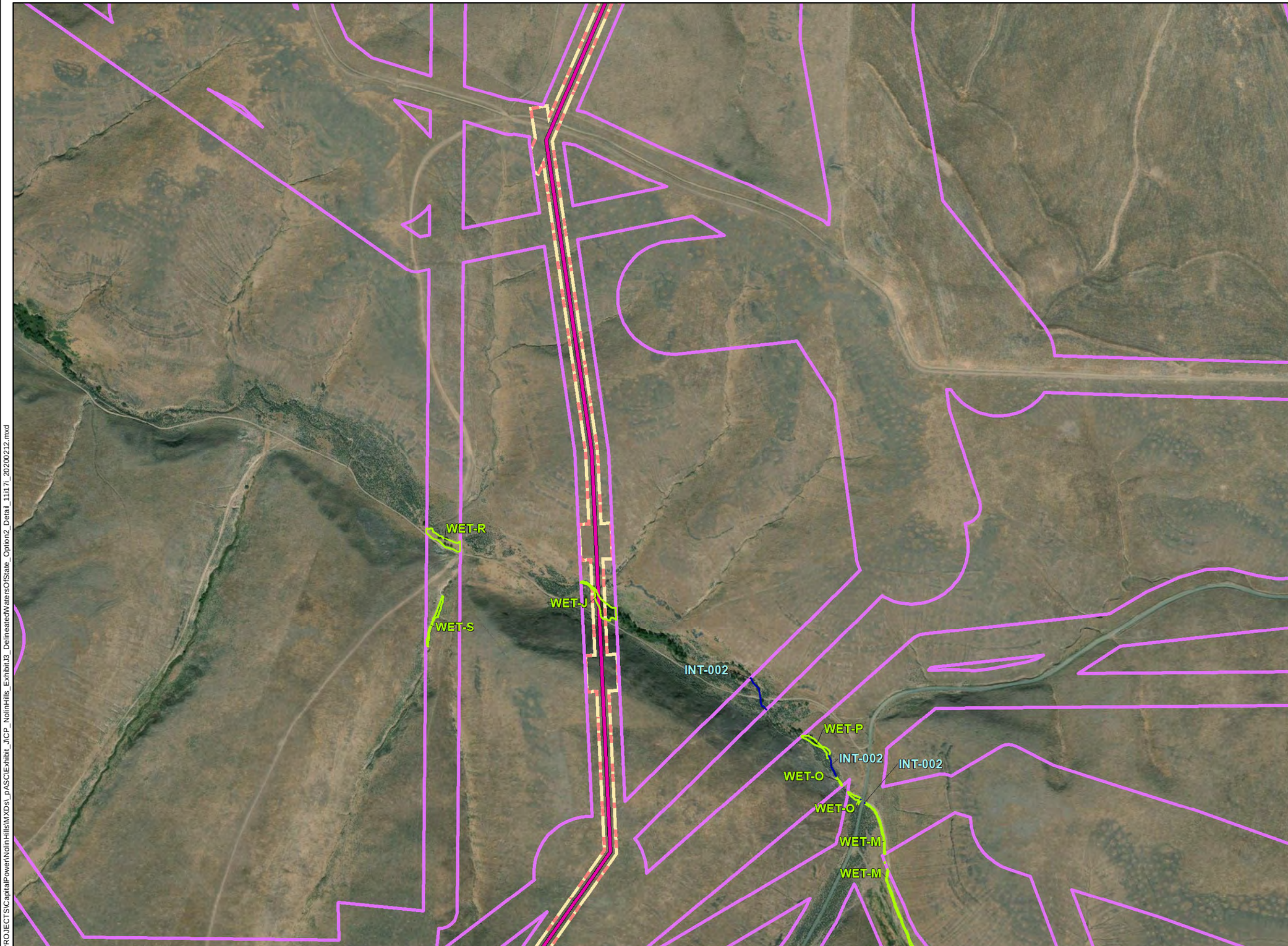
Nolin Hills Wind Power Project

Figure J-3.5
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



Proposed Site Boundary
Micrositing Corridor
Proposed Project Substation Connector, 230-kV
Limits of Temporary Disturbance

Delineated Features
Stream-Delineated (Maximum OWHL Width)
Wetland-Delineated

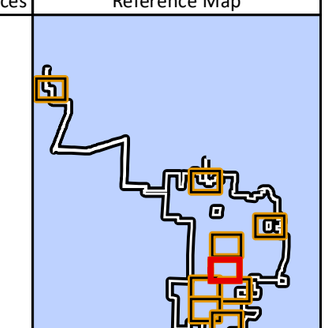
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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NOT FOR CONSTRUCTION

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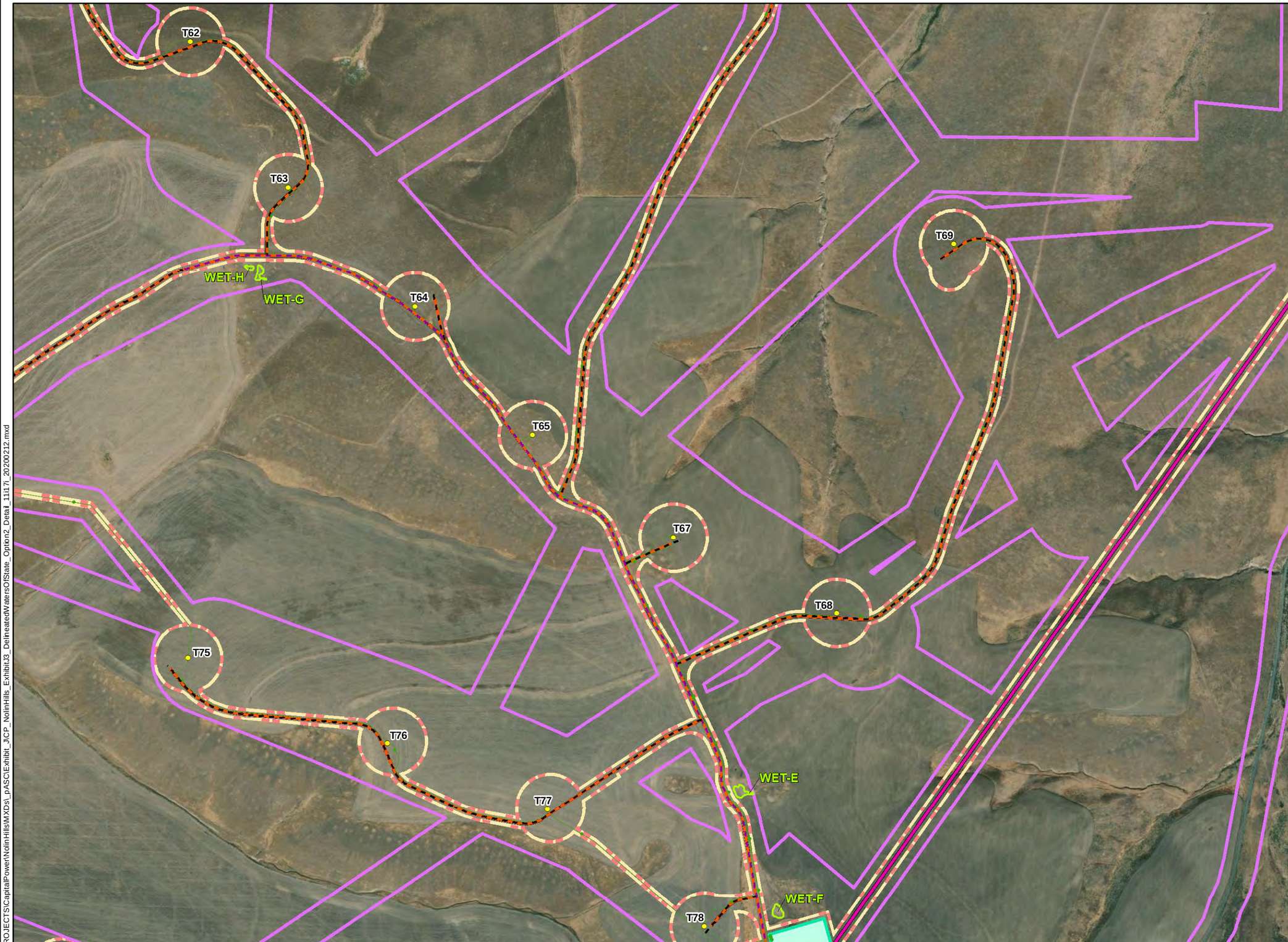
Nolin Hills Wind Power Project

Figure J-3.6
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Project Substation Connector, 230-kV
- Proposed Substation
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

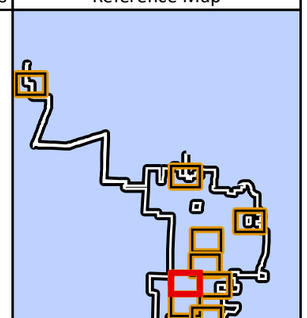
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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NOT FOR CONSTRUCTION

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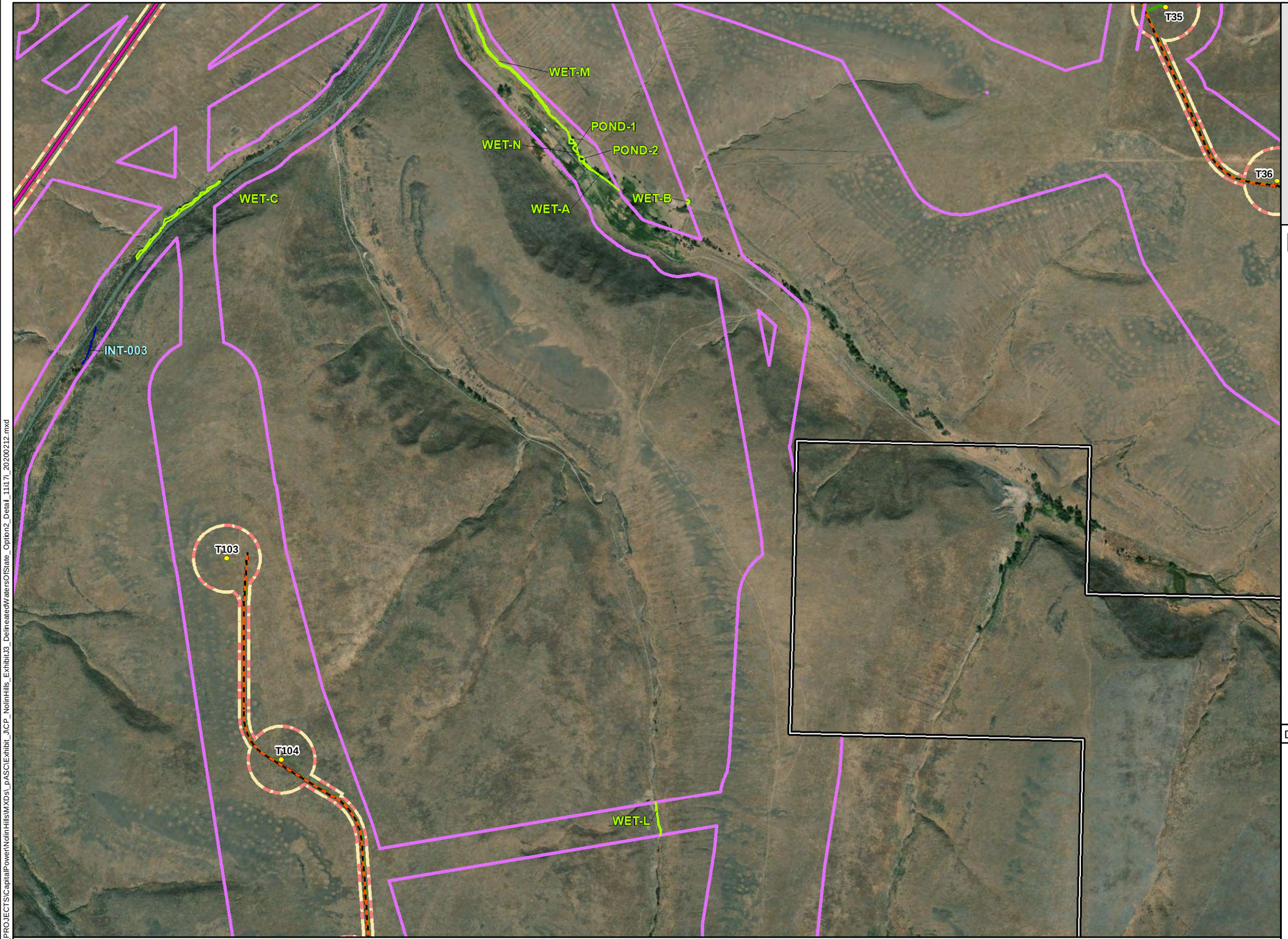
Nolin Hills Wind Power Project

Figure J-3.7
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Access Road (New)
- Underground Collector Line
- Proposed Crane Path
- Proposed Project Substation Connector, 230-kV
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

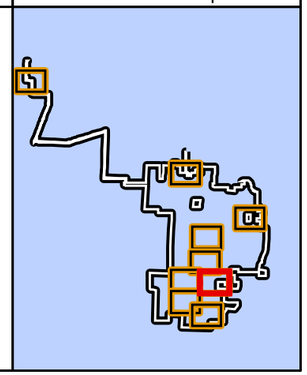
TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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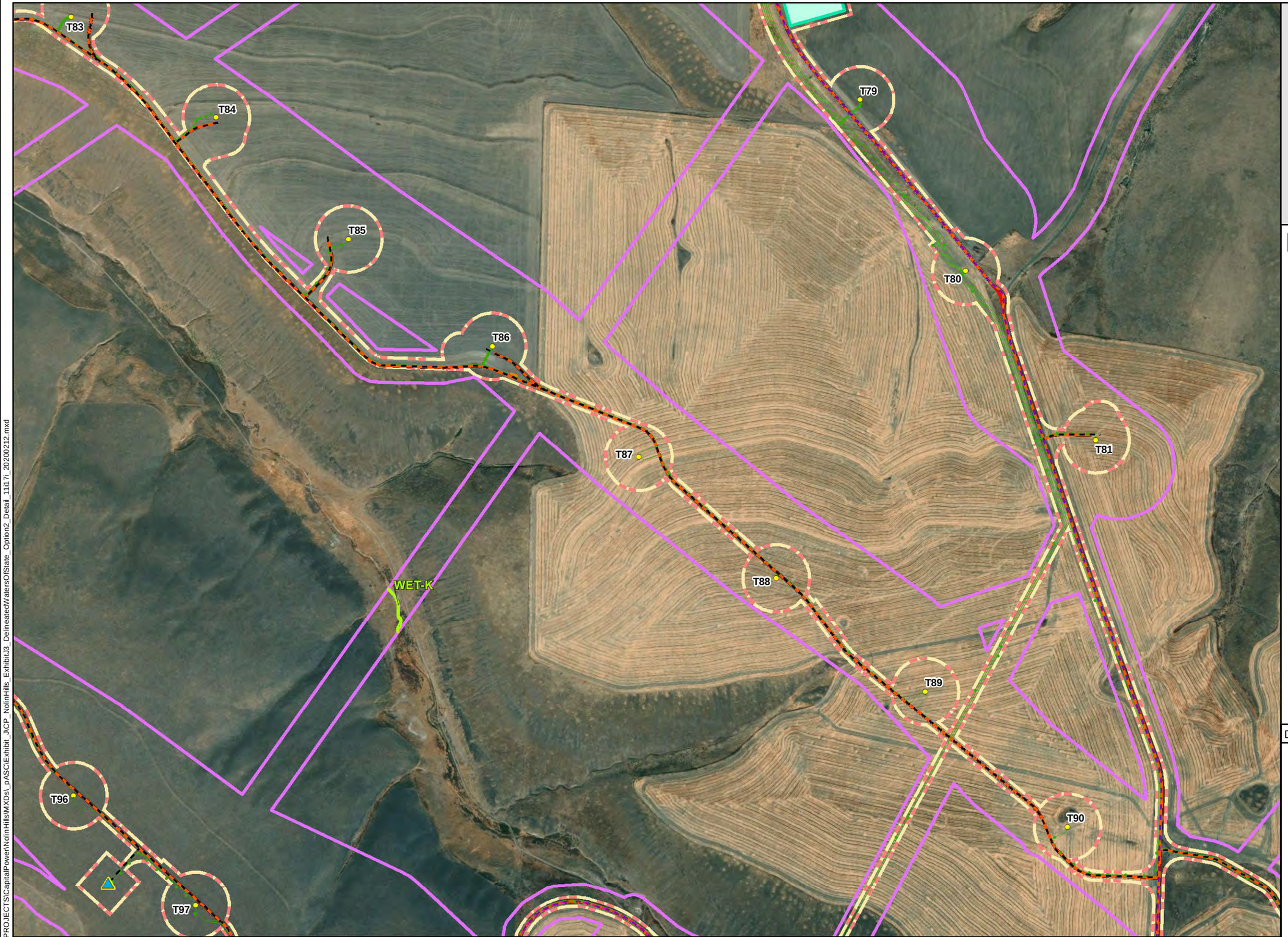
Nolin Hills Wind Power Project

Figure J-3.8
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



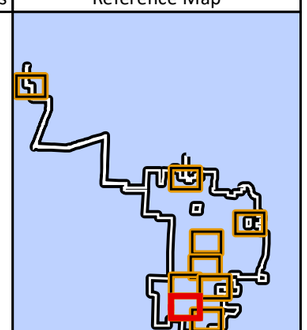
- Proposed Site Boundary
- Micrositing Corridor
- Proposed Turbines
- Met Tower
- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
- Proposed Crane Path
- Proposed Substation
- Proposed Intersections
- Proposed Laydown Area
- Limits of Temporary Disturbance

Delineated Features

- Stream-Delineated (Maximum OWHL Width)
- Wetland-Delineated

TETRA TECH

Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:10,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

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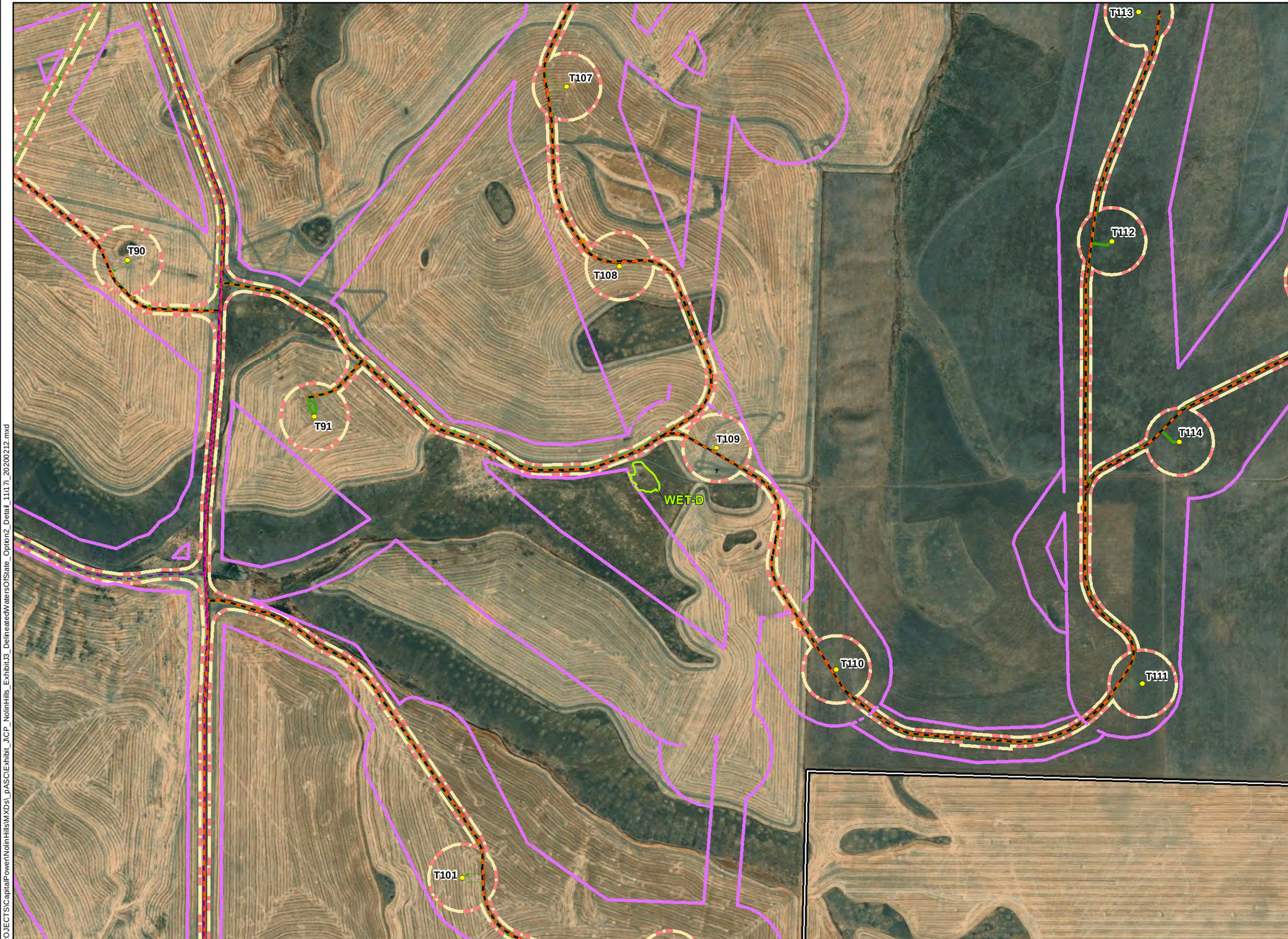
Nolin Hills Wind Power Project

Figure J-3.9
Delineated Waters of the State
Turbine Option 2

UMATILLA COUNTY, OREGON



- Proposed Site Boundary
- Micrositing Corridor
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- Access Road (New)
- Access Road (Improve Existing)
- Proposed Transportation Route
- Underground Collector Line
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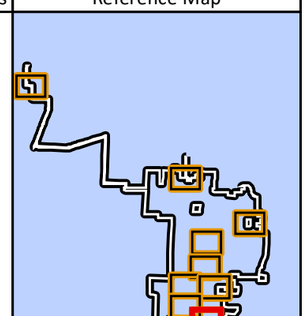
Capital Power
RESPONSIBLE ENERGY FOR TOMORROW

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:10,000 WGS 1984 UTM Zone 11N

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Attachment J-1: Wetlands and Other Waters Characteristics Tables

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Table 1. Summary of Delineated Wetlands

Feature Name	Map Number	Cowardin	HGM	Latitude	Longitude	Additional Notes
WET-A	J-2.7, J-3.7	PFO	Riverine flow through	45.57305908	-119.0770798	Boundary determination method: Abrupt break in soil, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the East.
WET-B	J-2.7, J-3.7	PEM	Slope (headwater)	45.57232666	-119.0736694	Boundary determination method: Abrupt break in soil, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the Southwest.
WET-C	J-2.7, J-3.7	PEM_PSS	Slope (valley)	45.5717659	-119.0915527	Boundary determination method: Abrupt break in hydrology. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-D	J-2.9, J-3.9	PEM	Depressional	45.53010178	-119.0856934	Boundary determination method: Abrupt break in hydrology, gradual break in soil, vegetation. Wetlands of Conservation Concern. Wetland continues off site to the West.
WET-E	J-2.6, J-3.6	PEM	Depressional	45.55949783	-119.1160049	Boundary determination method: Abrupt break in hydrology. Wetlands of Conservation Concern. Wetland continues off site to the East.
WET-F	J-2.6, J-3.6	PEM	Depressional	45.55658722	-119.1146088	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Analysis Area.
WET-G	J-2.6, J-3.6	PEM	Depressional	45.57184601	-119.133194	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Analysis Area.
WET-H	J-2.6, J-3.6	PEM	Depressional	45.57197189	-119.1335526	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Analysis Area.
WET-I	J-2.3, J-3.3	PEM	Slope (valley)	45.63411713	-119.0223236	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-J	J-2.5, J-3.5	PEM	Riverine flow through	45.58389282	-119.0917435	Boundary determination method: Abrupt break in topography, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the East, West.
WET-K	J-2.8, J-3.8	PEM	Riverine flow through	45.5395546	-119.127533	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the North, South.
WET-L	J-2.7, J-3.7	PEM	Riverine flow through	45.55705643	-119.0741577	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the North, South.
WET-M	J-2.5, J-2.7, J-3.5, J-3.7	PEM	Riverine flow through	45.57391357	-119.077919	Boundary determination method: Abrupt break in hydrology, vegetation. Gradual break in topography. Visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-N	J-2.7, J-3.7	PEM_PSS	Slope (headwater)	45.573452	-119.0775986	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-O	J-2.5, J-3.5	PEM	Depressional	45.57952499	-119.0829697	Boundary determination method: Abrupt break in topography, soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-P	J-2.5, J-3.5	PSS_PFO	Riverine flow through	45.58082581	-119.0843887	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-Q	J-2.4, J-3.4	PEM	Slope (valley)	45.60773087	-119.098381	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
WET-R	J-2.5, J-3.5	PEM_PFO	Depressional	45.58551788	-119.0974655	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the West, North.

Feature Name	Map Number	Cowardin	HGM	Latitude	Longitude	Additional Notes
WET-S	J-2.5, J-3.5	PEM	Riverine flow through	45.58387375	-119.09758	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Analysis Area.
POND-1	J-2.7, J-3.7	PUBx	Depressional	45.57357407	-119.0776749	Boundary determination method: Abrupt break in topography, soil, hydrology, vegetation. Excavated. Excavated Push Up Dam. Excavated pond. Wetland occurs entirely within Analysis Area.
POND-2	J-2.7, J-3.7	PUBx	Depressional	45.5733223	-119.077446	Boundary determination method: Abrupt break in hydrology, vegetation. Excavated. Wetland occurs entirely within Analysis Area.

Table 2. Summary of Delineated Other Waters

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Additional Notes
INT-001	J-2.1, J-3.1	45.777473	-119.366615	Intermittent	SW	6	Channel is single thread. Flow direction is southwest. Feature flows in and out of the Analysis Area. Feature is a constructed irrigation canal.
INT-002	J-2.5, J-3.5	45.582230	-119.086563	Intermittent	NW	2	Channel is single thread. Flow direction is northwest. Feature flows in and out of the Analysis Area. Riparian vegetation within and adjacent to the channel. Grazed, Mowed, Herbicided: Recent.
INT-003	J-2.7, J-3.7	45.568283	-119.094582	Intermittent	N	3	Channel is single thread. Flow direction is north. Feature flows into the Analysis Area. Riparian vegetation is in the bed and banks: Moderate density. OHWL field indicators: change in vegetation. Grazed, Mowed, Herbicided: Recent.
Umatilla River	J-2.2, J-3.2	45.690338	-119.123306	Perennial	NW	17	Channel is single thread. Flow direction is west. Feature flows in out of the Analysis Area. Only the south bank of the river was delineated. Access to the north bank was restricted.

Attachment J-2: Wetland Delineation Report

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Nolin Hills Wind Power Project
Wetland Delineation Report

Prepared For
Nolin Hills Wind, LLC

Prepared By

TETRA TECH

Tetra Tech, Inc.

November 2019

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Acronyms and Abbreviations

AW Supplement	Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West (Version 2.0)
FAC	Facultative
FACU	Facultative Upland
FACW	Facultative Wetland
GPS	Global Positioning System
LRR	Land Resource Region
Manual	Wetlands Delineation Manual, Technical Report Y-87-1
NAIP	National Agriculture Imagery Program
NHD	National Hydrography Dataset
NI	No Indicator
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OAR	Oregon Administrative Rule
OBL	Obligate
PEM	Palustrine Emergent
PFO	Palustrine Forested
Project	Nolin Hill Wind Power Project
PSS	Palustrine Scrub-Shrub
SDAM	Streamflow Duration Assessment Method for the Pacific Northwest
Study Area	Wetland Delineation Study Area
Tetra Tech	Tetra Tech, Inc.
UPL	Upland
WETS	Climate Analysis for Wetlands Tables

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1.0 Introduction

Nolin Hills Wind, LLC (Nolin Hills) is proposing to construct the Nolin Hills Wind Power Project (Project) in Umatilla County, Oregon (Figure 1). The Site Boundary demarcates a perimeter within which all Project facilities will be located. The Site Boundary (dated 6/25/2019) encompasses approximately 48,159 acres of private land near the town of Nolin in Umatilla County, Oregon. The Wetland Delineation Study Area (Study Area) is approximately 13,767 acres and consists of the micrositing corridor, which includes areas where Project components are proposed; however, in some areas where Project access roads parallel streams, only the potential stream crossings were included in the Study Area. The majority of the Project is located on land disturbed by livestock grazing and croplands. Nolin Hills contracted Tetra Tech, Inc. (Tetra Tech) to perform a wetland delineation in the areas where wetlands and streams may potentially be impacted by the Project.

2.0 Landscape Setting and Land Use

2.1 Study Area

The Study Area was evaluated for wetlands and other potentially jurisdictional waters (Figure 1). The Study Area is coincident with the micrositing and transmission-line corridors, except for specific areas described in Section 5.2.2. Micrositing corridors are the specific, continuous areas of land within the Site Boundary where the construction of facility components has been planned. The Study Area covers a mix of Conservation Reserve Program lands, sagebrush-steppe, and mixed perennial and annual grasslands. Land use includes active croplands (primarily wheat) and grazing lands. Nolin Hills will use existing roadways in addition to constructing additional access roads and other infrastructure to support Project construction. Figure 2A shows the tax lots crossed by the Study Area and Figure 2B shows the areas within the larger Study Area where access has not yet been granted. A wetland and other waters delineation of those “No Access” areas will be completed and submitted before any construction takes place. Table 1 shows the tax map and tax lot numbers within the Study Area.

Table 1. Tax Map and Tax Lot Numbers within the Project Study Area

Tax Map	Tax Lot Numbers
1N 29E	00100, 00500
1N 30E	00100, 00201, 00300, 00400, 00401, 00500, 00700, 01001, 01100, 01800
2N 28E	00100
2N 29E	00100, 00200, 00400, 00500, 00600, 00700, 00800, 00900, 01000, 01300, 01400
2N 30E	00400, 00500, 00600, 01600, 02500, 02800, 03300, 03301, 03400, 03900, 04000, 04100, 04200, 04500, 04600, 04700, 04800
2N 31E	03500
3N 27E	00100
3N 28E	02300, 02302, 02303, 02304, 02401, 02500, 02501, 02600, 02601, 02700, 02801, 02805, 05801, 05900, 05905, 06501, 06701, 07402, 07403, 07404, 07500, 08100, 08102, 08105, 08600, 09300, 00900, 01000, 00300, 00400, 00500, 00700, 01200
3N 29E	01700, 01800, 01900, 02000, 02100, 02600, 02700, 08500, 11100, 11200
4N 27E	00600, 00700, 01500, 01600, 01700
4N 28E	00402, 01100, 01800, 02000, 02100, 02203, 02300, 02400

2.2 Landscape Setting

The Project is located within the Level III Columbia Plateau Ecoregion, and within the Level IV Umatilla Plateau and Pleistocene Lake Basins ecoregions (Thorson et al. 2003). In addition, the Project is within U.S. Department of Agriculture's Land Resource Region (LRR) B, Northwest Wheat and Range Region (NRCS 2006). The LRR B, Northwest Wheat and Range Region is equivalent to the LRR B Columbia/Snake River Plateau Region in the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Version 2.0) (AW Supplement; USACE 2008).

The dominant plant species within the Study Area are described below, along with their associated wetland indicator status ratings according to the State of Oregon 2016 Wetland Plant List (Lichvar et al. 2016). The wetland indicator ratings refer to the percent likelihood of the species occurring in wetlands, and include, ordered from most likely to least likely to occur in a wetland, Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Species not included in Lichvar et al. (2016) are labeled NI (No Indicator) and considered to be UPL species.

Dominant shrub species found in the Study Area included basin big sagebrush (*Artemisia tridentata,* NI), yellow rabbitbrush (*Chrysothamnus viscidiflorus,* UPL), rubber rabbitbrush (*Ericameria nauseosa,* UPL), Wood's rose (*Rosa woodsii,* FACU), and common snowberry (*Symphoricarpos albus,* FACU).

Dominant grass species found within the Study Area included the following: wheat (*Triticum x aestivum*, NI), Intermediate wheatgrass (*Agropyron intermedium*, UPL), Idaho fescue (*Festuca idahoensis*, FACU), bluebunch wheatgrass (*Pseudoroegneria spicata*, UPL), tall fescue (*Schedonorus arundinacea*, FACU), cheat grass (*Bromus tectorum*, NI), bulbous bluegrass (*Poa bulbosa*, FACU), soft brome (*Bromus hordeaceus*, FACU), medusahead (*Taeniatherum caput-medusae*, NI), cereal rye (*Secale cereal*, NI), jointed goatgrass (*Aegilops cylindrica*, NI), and ventenata (*Ventenata dubia*, NI).

Dominant herbaceous species documented in the Study Area included the following: common yarrow (*Achillea millefolium*, FACU), Indian-consumption-plant (*Lomatium nudicaule*, UPL), nineleaf biscuitroot (*Lomatium triternatum*, NI), sulphur-flower buckwheat (*Eriogonum umbellatum*, NI), arrowleaf balsamroot (*Balsamorhiza sagittata*, NI), tall hedge-mustard (*Sisymbrium altissimum*, FACU), lamb's-quarters (*Chenopodium album*, FACU), gypsyflower (*Cynoglossum officinale*, FACU), burningbush (*Bassia scoparia*, FAC), curly-cup gumweed (*Grindelia squarrosa*, FACU), mountain tarweed (*Madia glomerata*, FACU), diffuse knapweed (*Centaurea diffusa*, NI), prickly Russian thistle (*Salsola tragus*, FACU), and Canadian horseweed (*Conyza canadensis*, NI)

2.3 NWI, NRCS Soils, and NHD Mapped Features

Prior to field work, Tetra Tech reviewed the National Wetlands Inventory (NWI 2019), the National Hydrography Dataset (NHD 2019), hydric soils data, and aerial photographs to identify potential wetlands and other waters, as described below. Digital maps used in the field contained the NWI, NHD, and recent aerial photograph overlays. Fifty-two soil map units occur in the Project Study Area (Table 2; Figure 3). Six of these soils are only partially hydric (NRCS 2019a, NRCS 2019b). Figure 4 exhibits NWI-mapped features in the Study Area (NWI 2019, NHD 2019).

Table 2. Soils Mapped in the Project Study Area

Map Unit Code	Map Unit Name	Acres[1]	Percent of Study Area[1]	Percent Hydric Soil
125F	Wrentham-Rock outcrop complex, 35 to 70 percent slopes	2.23	0.02	0
126A	Xerofluvents, 0 to 3 percent slopes	2.62	0.02	2
128A	Yakima silt loam, 0 to 3 percent slopes	3.13	0.02	0
15B	Burke silt loam, 1 to 7 percent slopes	654.47	4.75	0
15C	Burke silt loam, 7 to 12 percent slopes	6.91	0.05	0
15E	Burke silt loam, 12 to 30 percent slopes	11.38	0.08	0
16B	Cantala silt loam, 1 to 7 percent slopes	28.51	0.21	0
16C	Cantala silt loam, 7 to 12 percent slopes	242.15	1.76	0
16D	Cantala silt loam, 12 to 20 percent slopes	375.10	2.72	0
16E	Cantala silt loam, 20 to 35 percent slopes	13.17	0.10	0
18B	Condon silt loam, 1 to 7 percent slopes	1431.23	10.40	0
18C	Condon silt loam, 7 to 12 percent slopes	1394.35	10.13	0
18E	Condon silt loam, 20 to 35 percent slopes	80.56	0.59	0
19D	Condon silt loam, 12 to 20 percent north slopes	225.27	1.64	0
1B	Adkins fine sandy loam, 0 to 5 percent slopes	213.41	1.55	0
20D	Condon silt loam, 12 to 20 percent south slopes	69.96	0.51	0
21D	Condon-Bakeoven complex, 2 to 20 percent slopes	1013.80	7.36	0
42A	Kimberly fine sandy loam, 0 to 3 percent slopes	133.66	0.97	0
43A	Kimberly silt loam, 0 to 3 percent slopes	32.97	0.24	0
48E	Lickskillet very stony loam, 7 to 40 percent slopes	1318.61	9.58	0
49F	Lickskillet-Nansene association, 35 to 70 percent slopes	17.14	0.12	0
50F	Lickskillet-Rock outcrop complex, 40 to 70 percent slopes	235.65	1.71	0
54B	Mikkalo silt loam, 2 to 7 percent slopes	1102.04	8.00	0
54C	Mikkalo silt loam, 7 to 12 percent slopes	281.80	2.05	0
54D	Mikkalo silt loam, 12 to 20 percent slopes	110.40	0.80	0

Map Unit Code	Map Unit Name	Acres[1]	Percent of Study Area[1]	Percent Hydric Soil
54E	Mikkalo silt loam, 20 to 35 percent slopes	19.30	0.14	0
56B	Morrow silt loam, 1 to 7 percent slopes	1947.87	14.15	0
56C	Morrow silt loam, 7 to 12 percent slopes	211.67	1.54	0
56E	Morrow silt loam, 20 to 35 percent slopes	83.20	0.60	0
57D	Morrow silt loam, 12 to 20 percent north slopes	153.91	1.12	0
58D	Morrow silt loam, 12 to 20 percent south slopes	28.09	0.20	0
59D	Morrow-Bakeoven complex, 2 to 20 percent slopes	363.41	2.64	0
60F	Nansene silt loam, 35 to 70 percent slopes	40.67	0.30	0
72A	Powder silt loam, 0 to 3 percent slopes	9.02	0.07	1
73D	Prosser silt loam, 12 to 20 percent slopes	76.20	0.55	0
73E	Prosser silt loam, 20 to 40 percent slopes	16.21	0.12	0
74B	Quincy fine sand, 0 to 5 percent slopes	3.01	0.02	3
75B	Quincy loamy fine sand, 0 to 5 percent slopes	65.17	0.47	2
75E	Quincy loamy fine sand, 5 to 25 percent slopes	16.48	0.12	0
76B	Quincy loamy fine sand, gravelly substratum, 0 to 5 percent slopes	24.11	0.18	5
80B	Ritzville silt loam, 2 to 7 percent slopes	296.61	2.15	0
80C	Ritzville silt loam, 7 to 12 percent slopes	269.34	1.96	0
80D	Ritzville silt loam, 12 to 25 percent slopes	133.15	0.97	1
81E	Ritzville silt loam, 25 to 40 percent north slopes	38.97	0.28	0
87B	Sagehill fine sandy loam, 2 to 5 percent slopes	142.85	1.04	0
89B	Shano silt loam, 2 to 7 percent slopes	495.29	3.60	0
89C	Shano silt loam, 7 to 12 percent slopes	202.84	1.47	0
89D	Shano silt loam, 12 to 25 percent slopes	77.82	0.57	0
92A	Stanfield silt loam, reclaimed, 0 to 3 percent slopes	1.82	0.01	0

Map Unit Code	Map Unit Name	Acres[1]	Percent of Study Area[1]	Percent Hydric Soil
95B	Taunton fine sandy loam, 1 to 7 percent slopes	48.81	0.35	0
W	Water	0.74	0.01	0

3.0 Site Alterations

Site alterations are activities that could 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 feature boundaries. Land use in the Study Area is generally dominated by large-scale grain crop production and livestock grazing. Permanent gravel farm roads and other drainage alterations associated with land development, including agricultural use, may have affected the geographic size and/or the hydroperiod of wetlands and other waters.

Where livestock are present on agricultural lands, wetlands and streams have been altered by compacting soils, trampling and grazing of existing vegetation (especially in 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, but they do not generally affect the geographic area of the wetlands.

4.0 Precipitation Data and Analysis

Tetra Tech collected precipitation data for the period immediately preceding and during field work, and compared this to historical data (1980 to 2010). The recent water records were collected from the NRCS Wetland (WETS) Climate Station for Pendleton, OR (Tables 3, 4, and 5, NRCS 2019).

4.1 July and September 2017 Site Visits

For the 10-day span preceding the initial field work, which occurred July 17 – 22, 2017, only a trace of precipitation was measured (NOAA 2017, Table 3). For the 10-day span preceding field work for the second mobilization, which occurred September 19 – 22, 2017, 0.11 inches of precipitation were measured (NOAA 2017). Precipitation in June 2017 was above average, and outside the normal range for that period. Monthly precipitation in July 2017 was below average, and below the normal range for that period. Precipitation in September 2017 was above average, and outside of the normal range for that period.

For the Water Year, October 1, 2016 – September 30, 2017, precipitation was 102 percent of average, largely due to above average precipitation in October and December 2016, and February, March, April, June, and September 2017. Recorded precipitation in July and August 2017 was significantly below average, and below the normal range; however, leading up to the site visit, precipitation in September 2017 was above average. Based on the precipitation data for the overall 2016 – 2017 Water Year, through September 2017, Tetra Tech estimated that groundwater was typical or slightly above what is usually encountered at that time of year (Table 3).

4.2 April and July 2018 Site Visits

For the 10-day span preceding field work for the first mobilization in 2018, which occurred April 23 – 27), 2018, 0.47 inches of precipitation were measured (NOAA 2018). No precipitation was measured for the 10-day span preceding field work for the second mobilization, which occurred July 17 – 21, 2018 (NOAA 2018). Monthly precipitation in April 2018, was above average, but within the normal range for that period. Monthly precipitation in July 2018 was well below average, and well below the normal range for that period.

For the Water Year, October 1, 2017 – September 30, 2018, precipitation was 65 percent of average, largely due to below average precipitation in all months except for October 2017 and April 2018. Based on the precipitation data for the overall 2017 – 2018 Water Year, Tetra Tech estimated that groundwater was likely below what is usually encountered at that time of year (Table 4).

4.3 July 2019 Site Visit

For the 10-day span preceding field work which occurred from July 8 to 12, 2019, 0.02 inches of precipitation were measured (NOAA 2019). Monthly precipitation in June 2019 was below average and below the normal range for that period. Monthly precipitation in July 2019 was well below average, and well below the normal range for that period.

For the Water Year to date, October 1, 2018 – July 30, 2019, precipitation was 116 percent of average, largely due to above average precipitation in October 2018 and February 2019. Based on the precipitation data for the 2018- 2019 Water Year through July 30, 2019, Tetra Tech estimated that groundwater was likely above what is usually encountered at that time of year (Table 5).

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Table 3. 2017 Precipitation Data – Current and Historical (Inches)

Precipitation	Oct 2016	Nov 2016	Dec 2016	Jan 2017	Feb 2017	Mar 2017	Apr 2017	May 2017	Jun 2017	Jul 2017	Aug 2017	Sep 2017	Water Year To-Date (July 30, 2018) Total
Recorded Monthly Precipitation Totals[1] (inches); (Pendleton, OR)	2.32	0.91	2.29	1.65	2.27	2.35	1.94	0.94	2.15	T	0.07	0.92	**17.81**
WETS Average Monthly Precipitation[2] (inches); (Pendleton, OR)	1.31	2.40	2.03	2.00	1.60	2.00	1.63	1.80	1.24	0.32	0.45	0.68	**17.46**
Recorded Precipitation Relative to WETS Average Monthly Precipitation	177%	38%	113%	83%	142%	118%	119%	52%	173%	0%	16%	135%	**102%**
Normal Monthly Range of Precipitation[2] (inches)	0.73–1.58	1.79–2.81	1.41–2.42	1.43–2.37	1.08–1.91	1.51–2.33	1.17–1.93	1.18–2.16	0.78–1.49	0.13–0.36	0.12–0.45	0.32–0.77	**N/A**

1. NOAA 2018
2. WETS Table for Pendleton, Oregon.

Table 4. 2018 Precipitation Data – Current and Historical (Inches)

Precipitation	Oct 2017	Nov 2017	Dec 2017	Jan 2018	Feb 2018	Mar 2018	Apr 2018	May 2018	Jun 2018	Jul 2018	Water Year To-Date (July 30, 2018) Total
Recorded Monthly Precipitation Totals[1] (inches); (Pendleton, OR)	1.41	1.56	1.22	1.59	0.74	1.38	1.71	0.65	0.42	0.00	**10.68**
WETS Average Monthly Precipitation[2] (inches); (Pendleton, OR)	1.31	2.40	2.03	2.00	1.60	2.00	1.63	1.80	1.24	0.32	**16.33**
Recorded Precipitation Relative to WETS Average Monthly Precipitation	108%	65%	60%	80%	46%	69%	105%	36%	34%	0%	**65%**
Normal Monthly Range of Precipitation[2] (inches)	0.73–1.58	1.79–2.81	1.41–2.42	1.43–2.37	1.08–1.91	1.51–2.33	1.17–1.93	1.18–2.16	0.78–1.49	0.13–0.36	**N/A**

1. NOAA 2018
2. WETS Table for Pendleton, Oregon.

Table 5. 2019 Precipitation Data – Current and Historical (Inches)

Precipitation	Oct 2018	Nov 2018	Dec 2018	Jan 2019	Feb 2019	Mar 2019	Apr 2019	May 2019	Jun 2019	Jul 2019	Water Year To-Date (July 30, 2019) Total
Recorded Monthly Precipitation Totals[1] (inches); (Pendleton, OR)	1.63	0.72	1.66	2.07	2.78	1.23	1.68	1.52	0.29	0.04	**13.62**
WETS Average Monthly Precipitation[2] (inches); (Pendleton, OR)	1.31	2.40	2.03	2.00	1.60	2.00	1.63	1.80	1.24	0.32	**11.71**
Recorded Precipitation Relative to WETS Average Monthly Precipitation	124%	30%	82%	104%	174%	62%	103%	84%	23%	13%	**116%**
Normal Monthly Range of Precipitation[2] (inches)	0.73–1.58	1.79–2.81	1.41–2.42	1.43–2.37	1.08–1.91	1.51–2.33	1.17–1.93	1.18–2.16	0.78–1.49	0.13–0.36	**N/A**

1. NOAA 2019
2. WETS Table for Pendleton, Oregon.

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5.0 Methods

5.1 Pre-field Work

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

Wetland and surface water data were also obtained from the Oregon Wetlands Database, which includes NWI and miscellaneous wetland mapping by state and federal agencies, non-governmental organizations, academia, and consultants, and from the NHD (Oregon Spatial Data Library 2017, NWI 2019, NHD 2019). Soils data were also obtained from the Oregon Wetlands Database, which includes statewide polygons demarcating hydric, partially hydric, and related wetland soils (Oregon Spatial Data Library 2017), as well as from the NRCS Web Soil Survey (NRCS 2018). Tetra Tech used high-resolution National Agriculture Imagery Program data captured during 2016 because it provided recent, 1-meter resolution aerial imagery taken during the peak of the growing season (USDA 2016).

The following guidance documents and procedures were reviewed:

- The AW Supplement (USACE 2008);
- Wetlands Delineation Manual, Technical Report Y-87-1 (Manual; USACE 1987);
- Streamflow Duration Assessment Method for the Pacific Northwest (SDAM; 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

Field investigations for the delineation of wetlands and other waters included pedestrian surveys within those portions of the Study Area where land access was granted. Tetra Tech conducted the field delineation July 17 – 22 and September 19 – 22 of 2017. In 2018, field delineations were conducted April 23 – 27 and July 17 – 21. In 2019, field delineations were conducted July 8 – 12. The desktop wetland data were used to focus the wetland delineation field effort, while the desktop surface water data were used to focus the non-wetlands water evaluation, as necessary.

5.2.1 Wetland Delineations

Tetra Tech determined wetland presence per the methods in the Manual and the Arid West Supplement. Wetland indicator status for plants was determined using the State of Oregon 2016 Wetland Plant List (Lichvar et al. 2016).

- Details regarding wetlands delineated during the field investigation are included in Appendix A, Table D-1.
- Sample plots were established in all features identified by NWI data (Oregon Spatial Data Library 2017). The sample plot was located within the feature that Tetra Tech 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 (Appendix B).
- 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 classification; the number of sample plots per wetland range from one to several.
- Photographs were taken to document wetland and upland conditions at the sample plots, and to document the wetland boundary (Appendix C).
- Wetland boundaries were recorded as a polygon using a survey grade Juniper Geode global positioning system (GPS) unit. Details on mapping methods are presented in Section 8.0.

5.2.2 Non-wetland Water Evaluations

- Details regarding non-wetland waters delineated during the field investigation are included in Appendix A, Table D-2.
- Flow duration for non-wetland waters was determined using criteria in SDAM (Nadeau 2015). SDAM data forms were prepared for a representative selection of stream reaches (Appendix B). Details on mapping methods are presented in Section 8.0.
- The centerline of non-wetland waters less than 6 feet in width was recorded as a line feature and buffered to the stream width determined in the field.
- Non-wetland waters greater than 6 feet wide were recorded as left and right bank lines.
- Streams that cross the micrositing corridor entirely, or that are partially contained within the Study Area, were fully delineated.
- Full delineations were not performed at a few streams within the Study Area that run long distances parallel to existing County access roads. For these streams, Tetra Tech delineated the feature 50 to 100 feet upstream and downstream on both sides of the road crossings. At these crossings, the Study Area is limited to where these segments of stream were fully

delineated. See examples of delineated stream segments on Figures 5.1.2, 5.1.4, 5.1.10, 5.1.25, 5.1.67 and 5.1.83. The continuations of these features (upstream and downstream), of the segments that were fully delineated, were observed in the field, but not delineated. The Project plans to avoid the undelineated portions of these streams due to their distance from the existing access roads that will be used by the Project, or because their locations are where Project infrastructure cannot be built due to engineering constraints due to the steep ravines adjacent to the access roads. If the Project later determines that a crossing will be required at a location on an undelineated segment of stream, the proposed work area will be delineated, and the results will be submitted to the Oregon Department of State Lands for concurrence.

6.0 Description of Wetlands and Other Non-wetland Waters

Wetlands and non-wetland waters evaluated within the Study Area are depicted in Figure 5.

6.1 Wetlands

The dominant herbaceous vegetation observed in the PEM wetlands include needle-leaf pinchushion-plant (*Navarretia intertexta*, FACW), yard knotweed (*Polygonum aviculare*, FAC), tall woolyheads (*Psilocarphus elatior*, FACW), lamp rush (*Juncus effusus*, FACW), western goldentop (*Euthamia occidentalis*, FACW), poison hemlock (*Conium maculatum*, FACW), broadleaf cattail, (*Typha latifolia*, OBL), Baltic rush (*Juncus balticus*, FACW), lamp rush (*Juncus effusus*, FACW), American brooklime (*Veronica americana*, OBL), watercress (*Nasturtium officinale*, OBL), foxtail barley (*Hordeum jubatum*, FAC), and seaside barley (*Hordeum marinum*, FAC).

Woody vegetation documented in delineated wetlands was primarily peach-leaf willow (*Salix amygdaloides*, FACW).

6.2 Non-wetland Waters

Most non-wetland waters delineated during field investigations were determined to be ephemeral, and are described in detail in Appendix A.

6.3 Other Features

Appendix A lists other features - viewed on aerial photos and NHD maps - that were examined within the Study Area during field investigations. These features did not meet the wetlands or waters criteria, and typically were upland swales, or erosional features that lacked channel structure and a defined OHWM.

7.0 Deviations from NWI and Local Wetland Inventories

Deviations are features that are mapped by the NWI that differ from field observations. Appendix A provides a list of the wetlands and waters delineated as deviations. The Study Area does not cross mapped local wetland inventory areas (ODSL 2019).

8.0 Mapping Methods

Wetland boundaries, photograph locations, and sample plot locations were recorded using a Juniper Geode series GPS unit, configured to differentially correct positions in real-time using the Satellite Based Augmentation System, which typically results in positional error of less than 1 meter (Juniper Systems 2017).

Wetland boundaries were recorded as polygon features using GPS units that were set to collect vertices every 2 seconds. Field staff walked the perimeter of the wetland with the GPS unit in hand, at a pace consistent with creating an accurate representation of the wetland feature. The location of sample plots was recorded as a point feature consisting of the average of 30 GPS recorded positions.

Delineated wetlands and streams that are completely contained within the Study Area are noted by feature name in the legend of the Figure 5 map set. Otherwise, all other delineated wetlands and streams extend outside of the Study Area.

9.0 Results and Conclusions

Using methods recommended in the Manual and AW Supplement, 19 wetlands and 78 other water features were delineated and documented within the Study Area. Table 6 summarizes wetland features by wetland types. Table 7 summarizes the other water features delineated by water type.

Table 6. Summary of Identified Wetland Features

Wetland Type	Number of Features	Acres
PEM	16	3.36
PEM_PFO	1	0.46
PEM_PSS	2	0.39
PFO	1	0.06
PSS_PFO	1	0.2
TOTAL	**19**	**4.47**

Table 7. Summary of Identified Other Waters Features

Feature	Number of Features	Acres
Ephemeral	74	7.05
Intermittent	3	0.34
Perennial	1	0.76
TOTAL	**78**	**8.15**

10.0 Disclaimer

This disclaimer is included per 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.

11.0 References

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Figures

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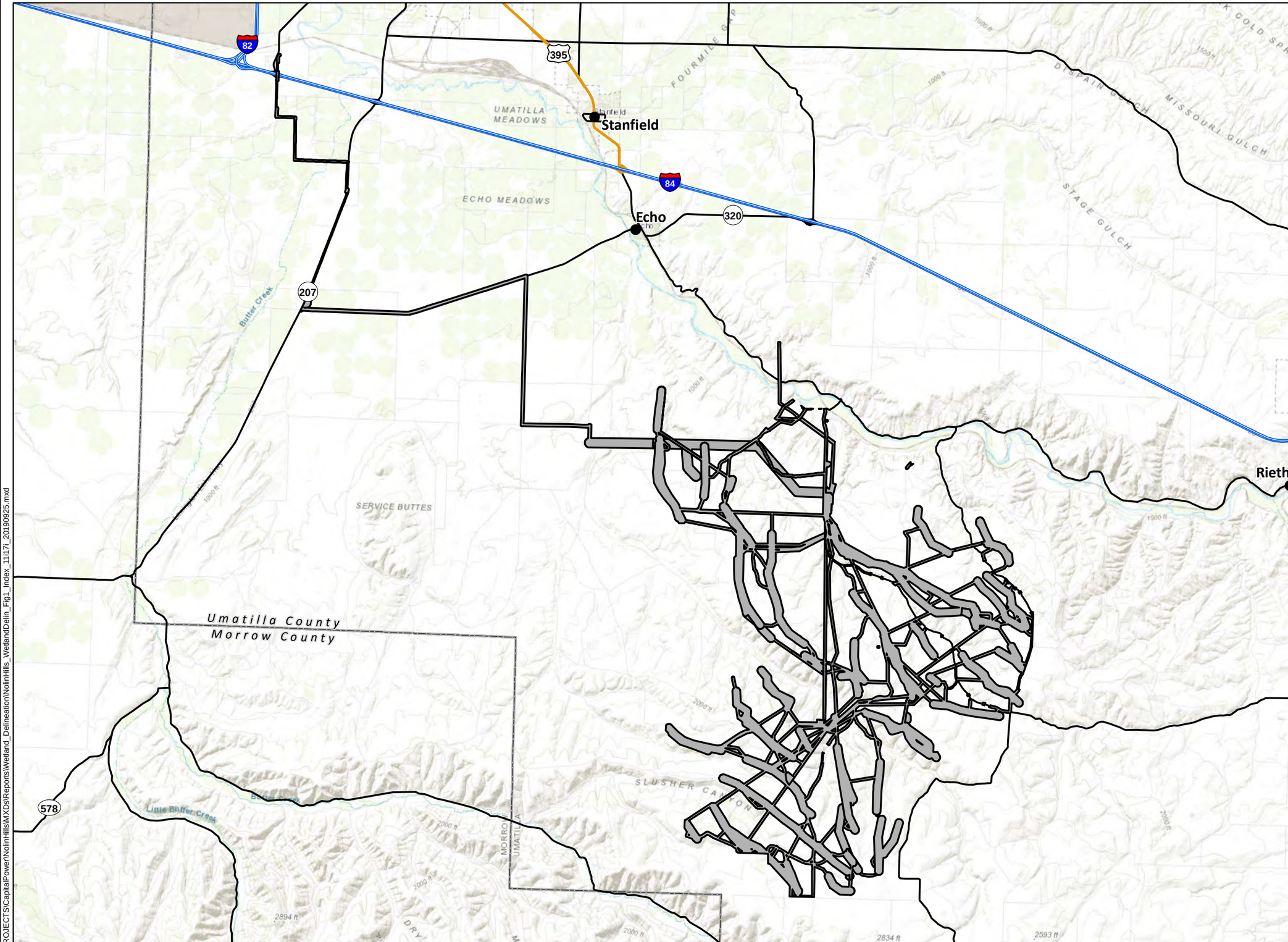
Nolin Hills Wind Power Project

Figure 1
Project Overview
Index Map

UMATILLA COUNTY, OREGON



Wetlands and Waters Study Area
City/Town
County Boundary
Interstate Highway
Secondary Highway
Secondary Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:140,000 WGS 1984 UTM Zone 11N

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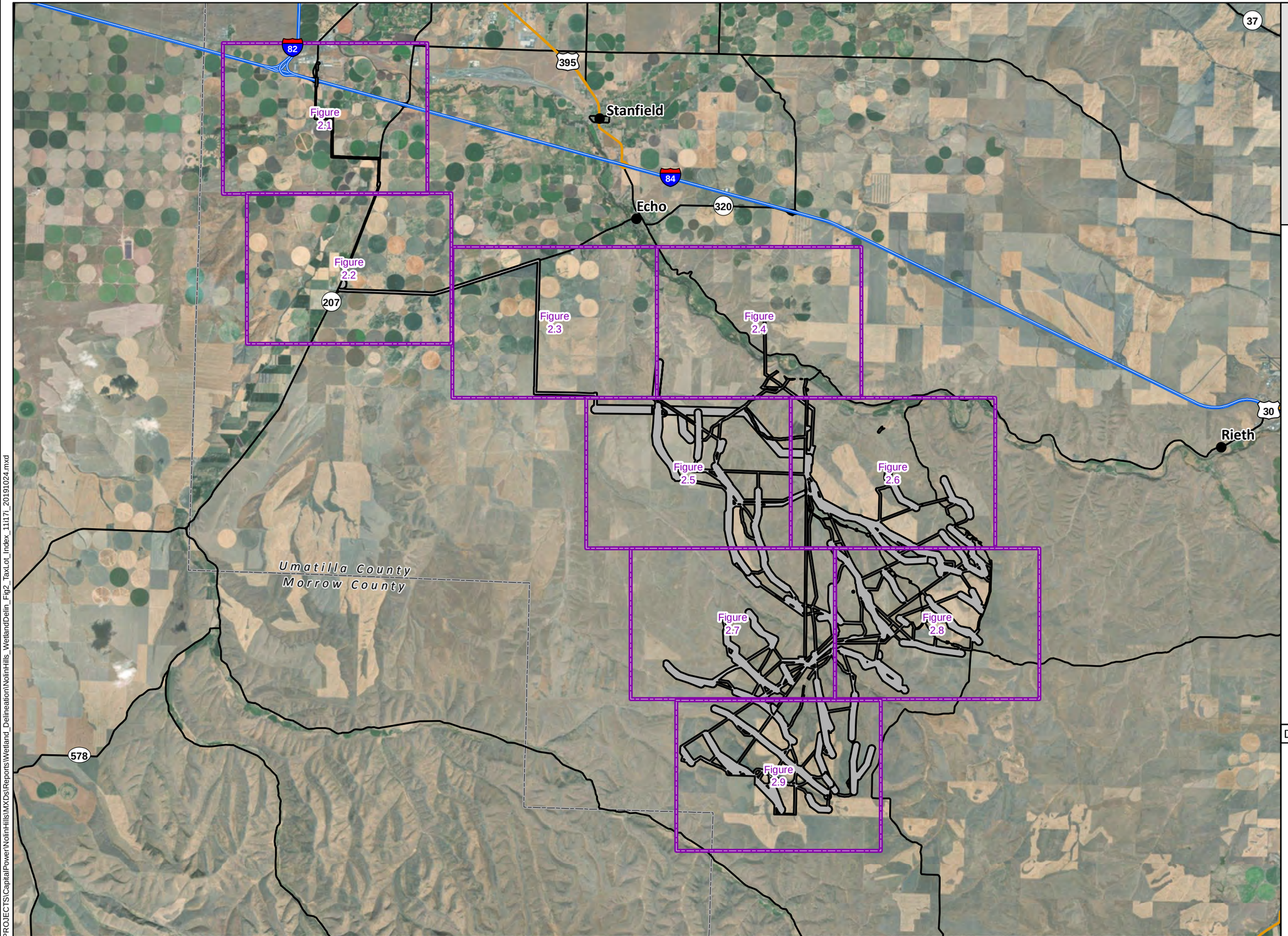
Nolin Hills Wind Power Project

Figure 2A
Tax Lot Index Map

UMATILLA COUNTY, OREGON



- Map Grid
- Wetlands and Waters Study Area
- City/Town
- County Boundary
- Interstate Highway
- Secondary Highway
- Secondary Road

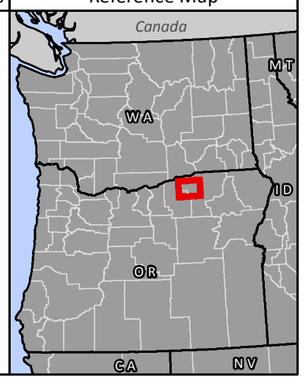
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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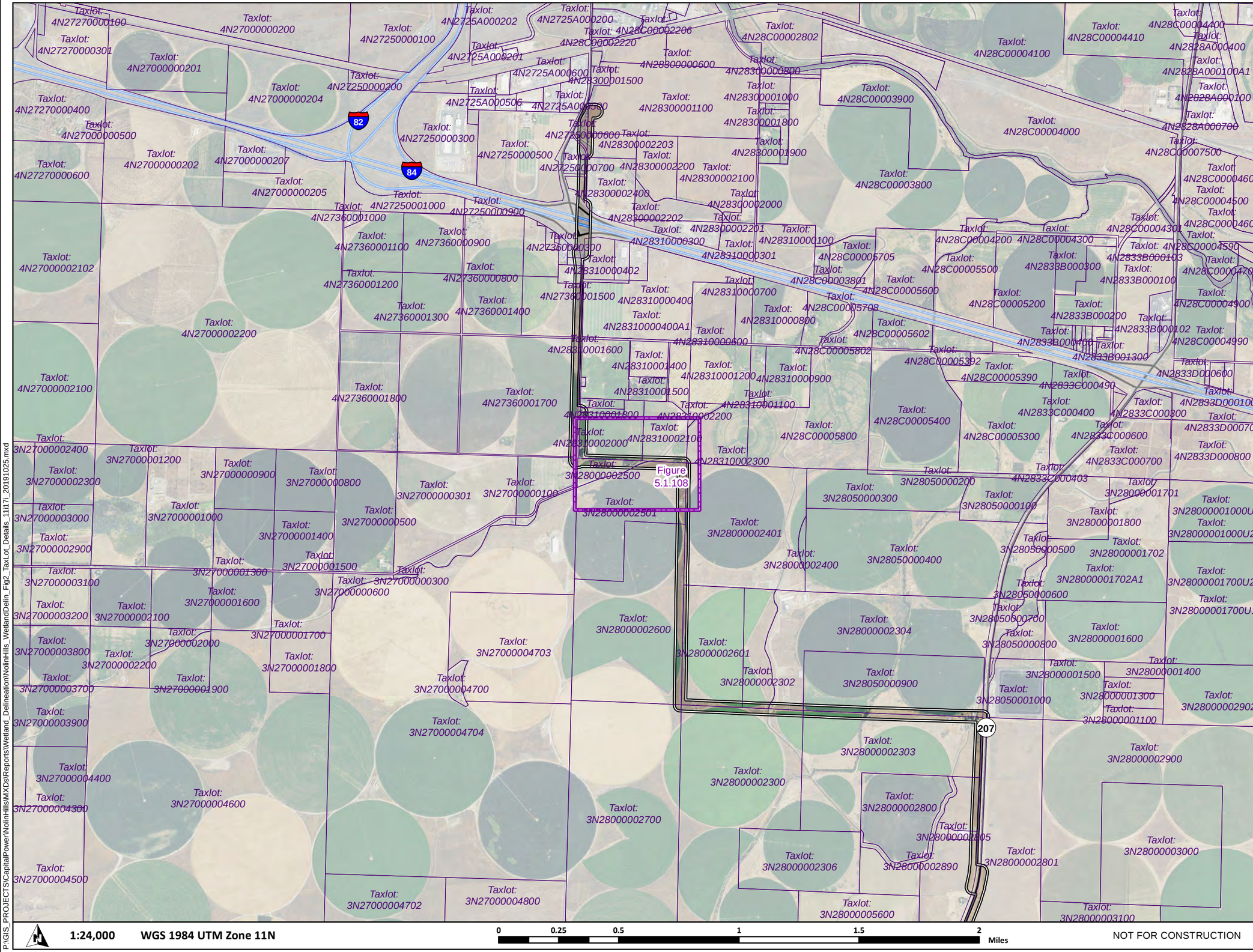
Nolin Hills Wind Power Project

Figure 2.1
Tax Lot Map

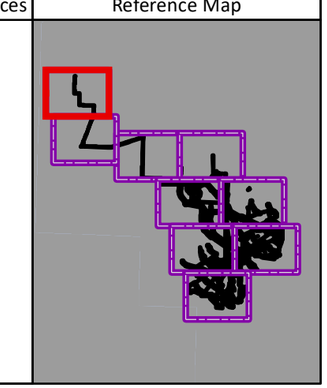
UMATILLA COUNTY, OREGON



- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Taxlot Boundary
- Interstate Highway
- Secondary Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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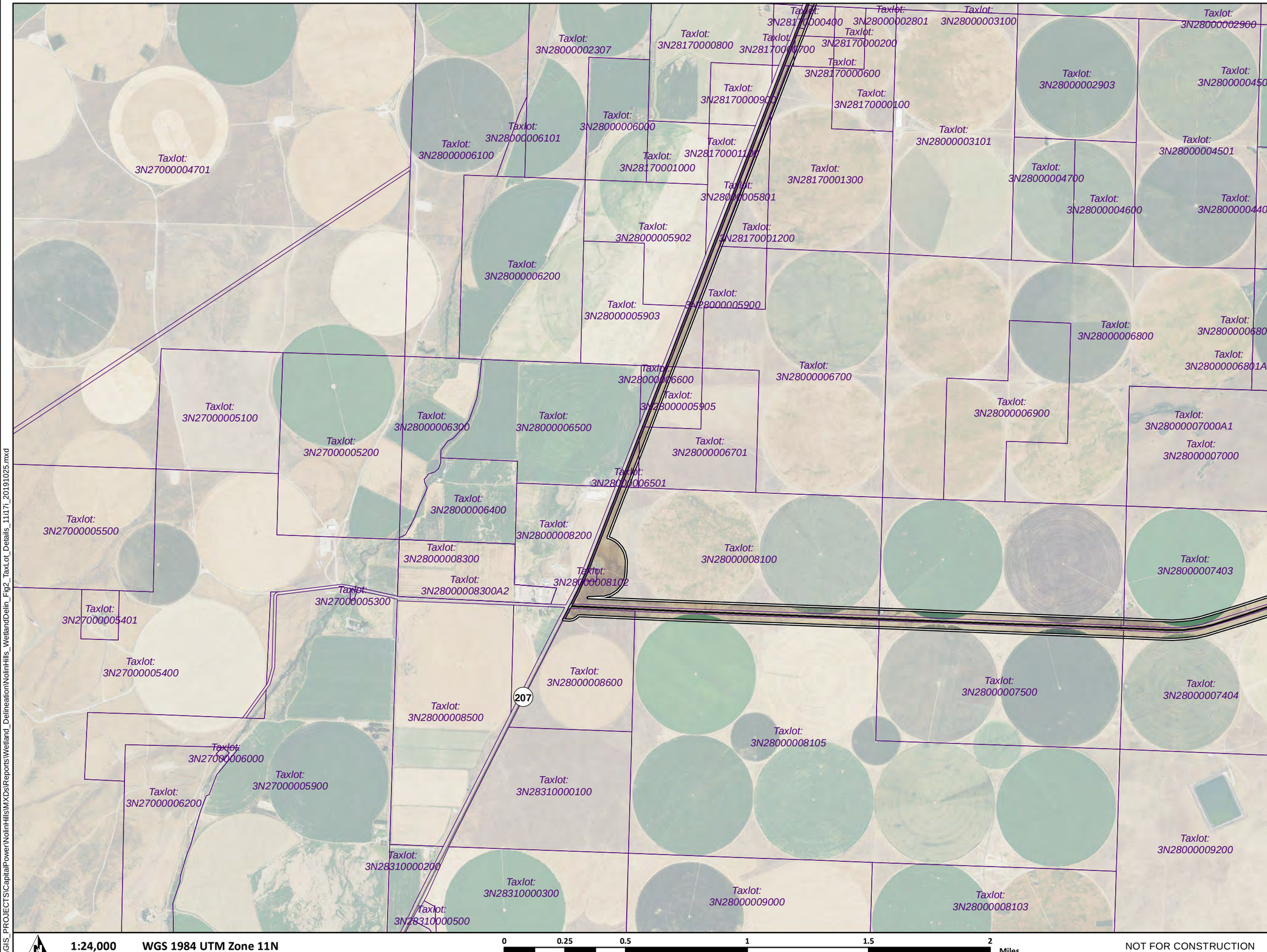
Nolin Hills Wind Power Project

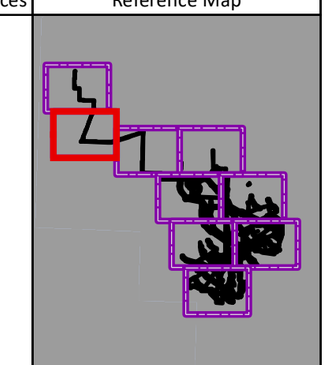
Figure 2.2
Tax Lot Map

UMATILLA COUNTY, OREGON



Wetlands and Waters Study Area
Taxlot Boundary
Secondary Road

TETRA TECH
Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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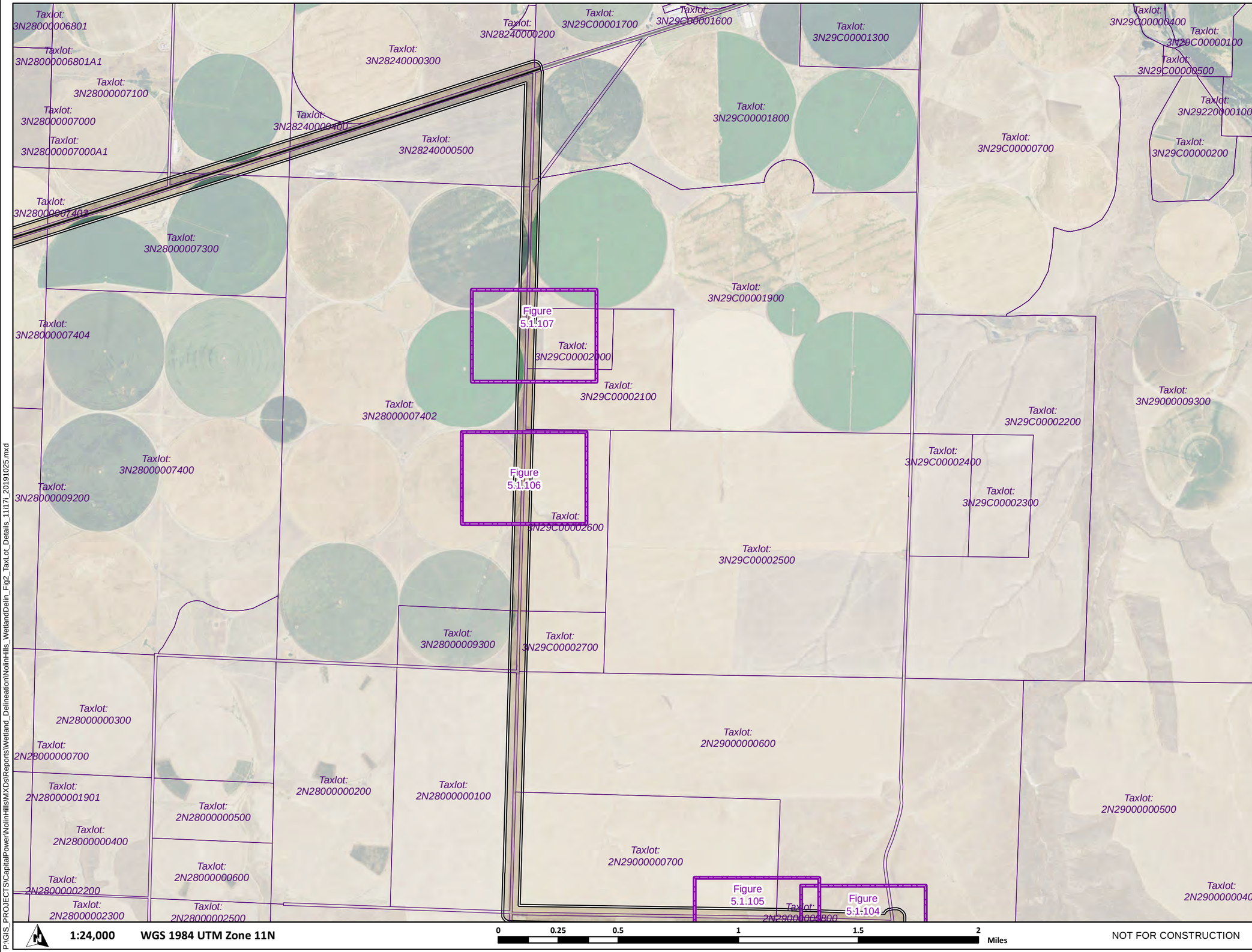
Nolin Hills Wind Power Project

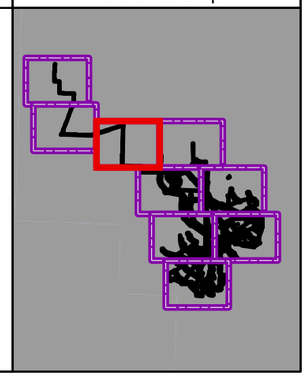
Figure 2.3
Tax Lot Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary
Secondary Road

TETRA TECH
Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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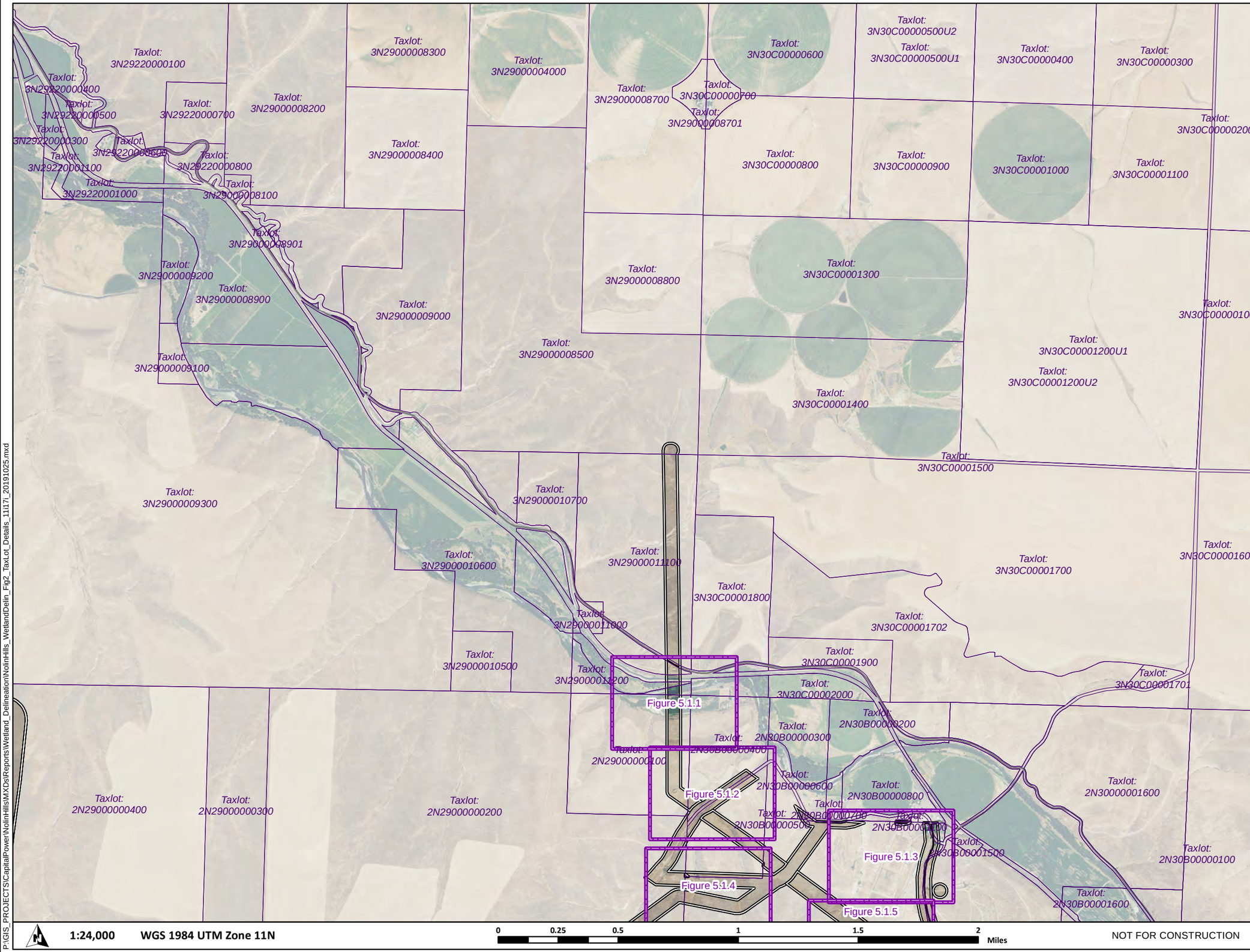
Nolin Hills Wind Power Project

Figure 2.4
Tax Lot Map

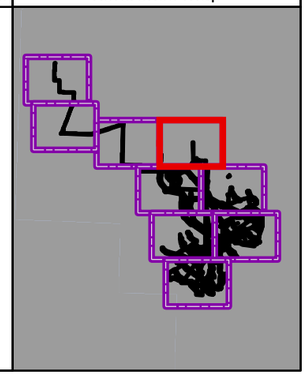
UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary
Secondary Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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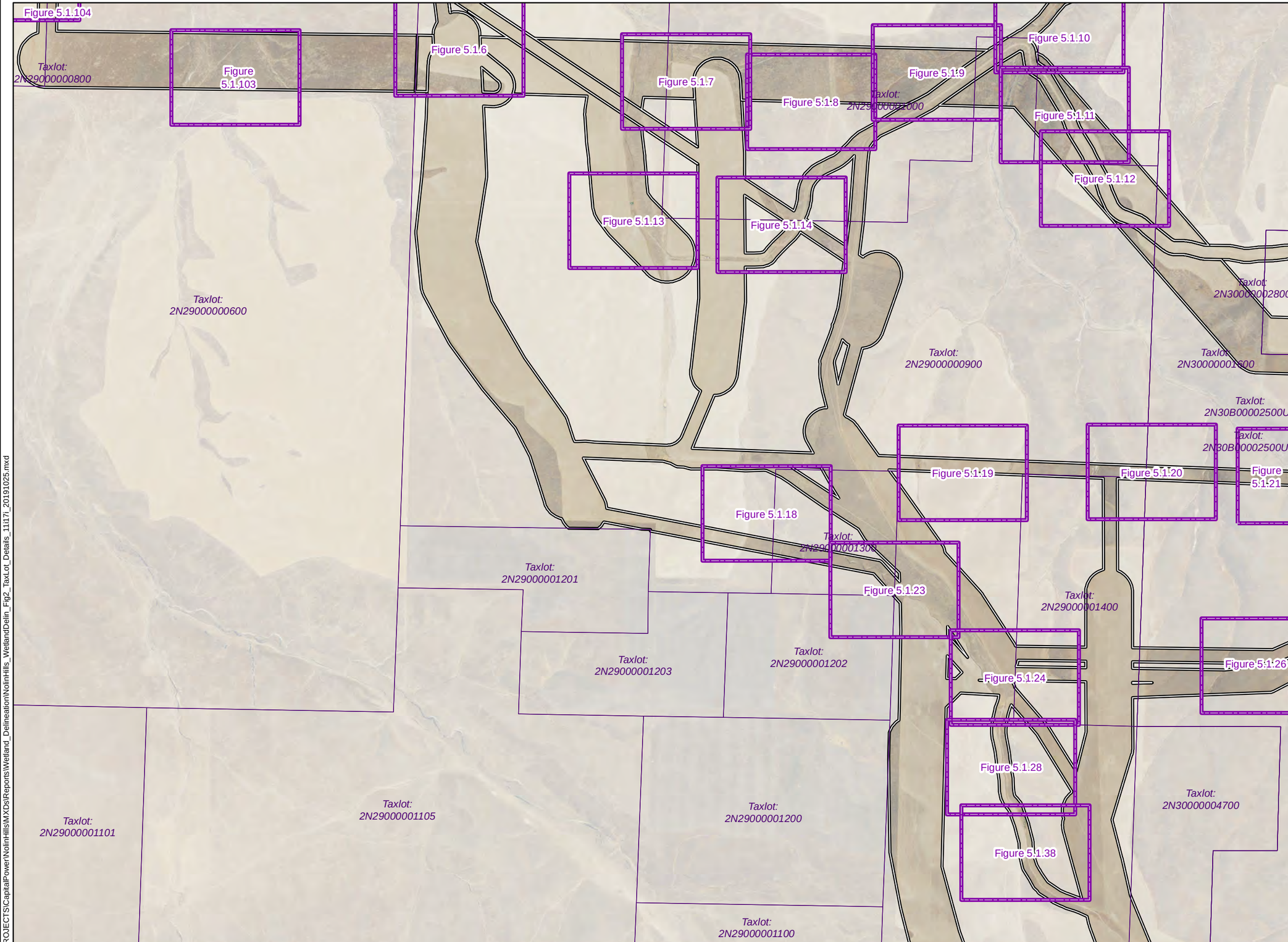
Nolin Hills Wind Power Project

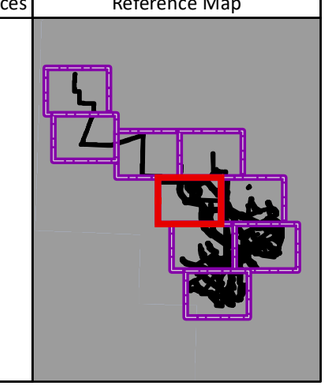
Figure 2.5
Tax Lot Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary

TETRA TECH
Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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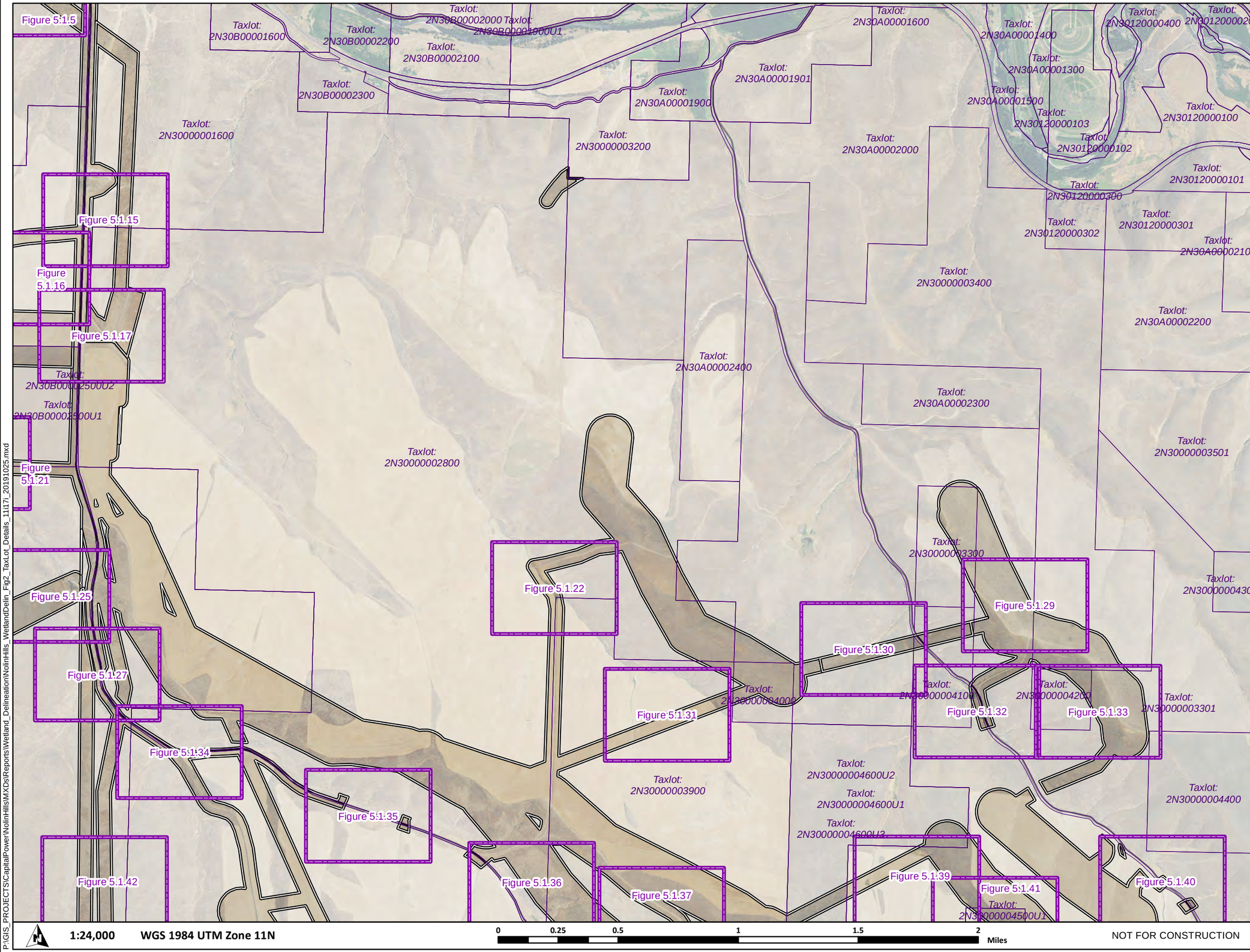
Nolin Hills Wind Power Project

Figure 2.6
Tax Lot Map

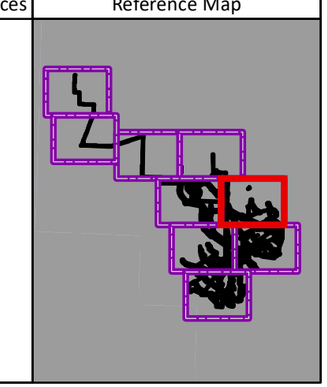
UMATILLA COUNTY, OREGON



- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Taxlot Boundary
- Secondary Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

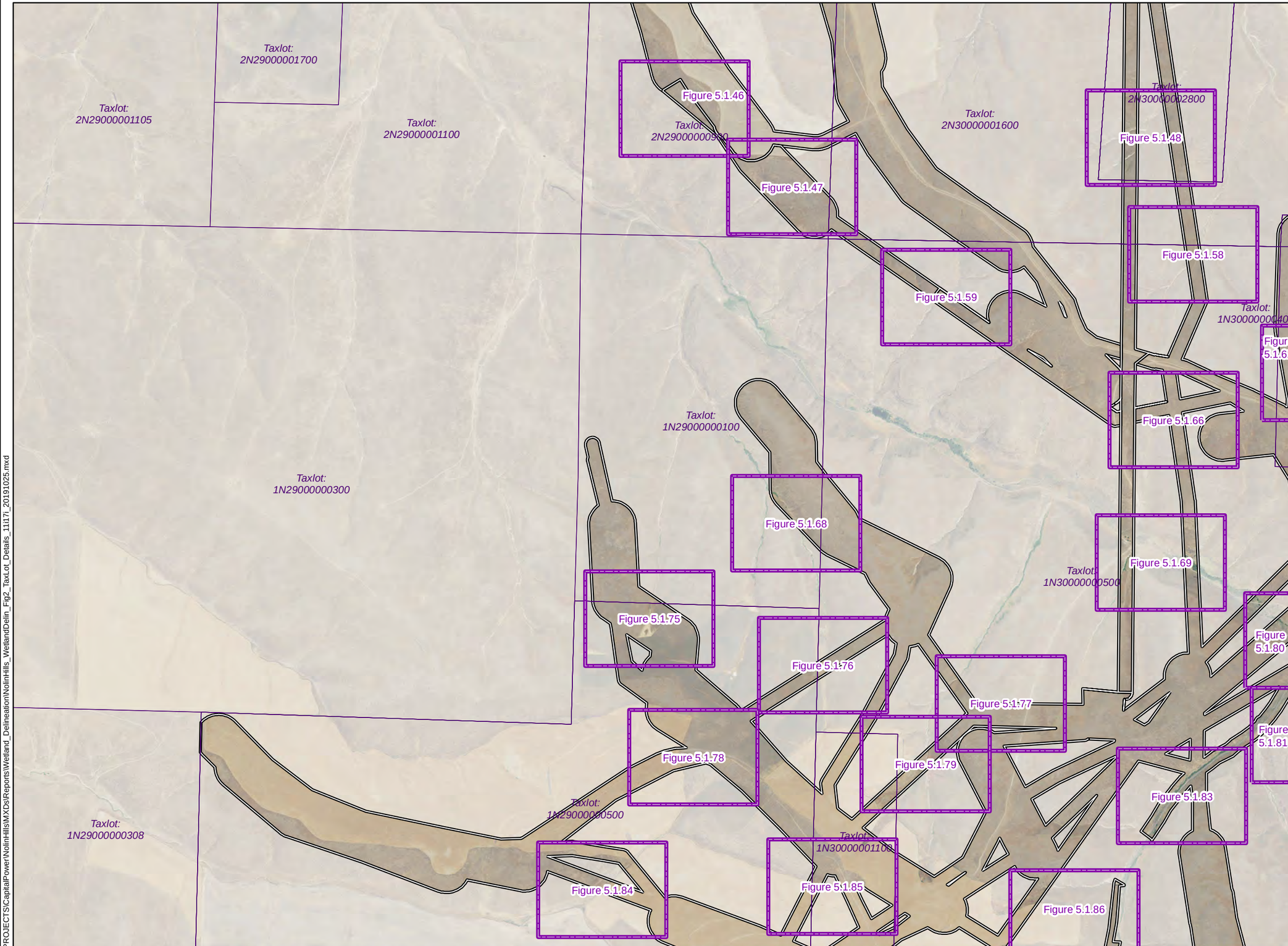
NOT FOR CONSTRUCTION

P:\GIS_PROJECTS\CapitalPower\NolinHills\MXDs\Reports\Wetland_Delineation\NolinHills_WetlandDelin_Fig2_TaxLot_Details_11x17i_20191025.mxd

Nolin Hills Wind Power Project

Figure 2.7
Tax Lot Map

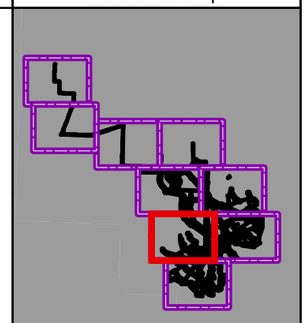
UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 2.8
Tax Lot Map

UMATILLA COUNTY, OREGON

Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary
Secondary Road

TETRA TECH
Capital Power

Data Sources

Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

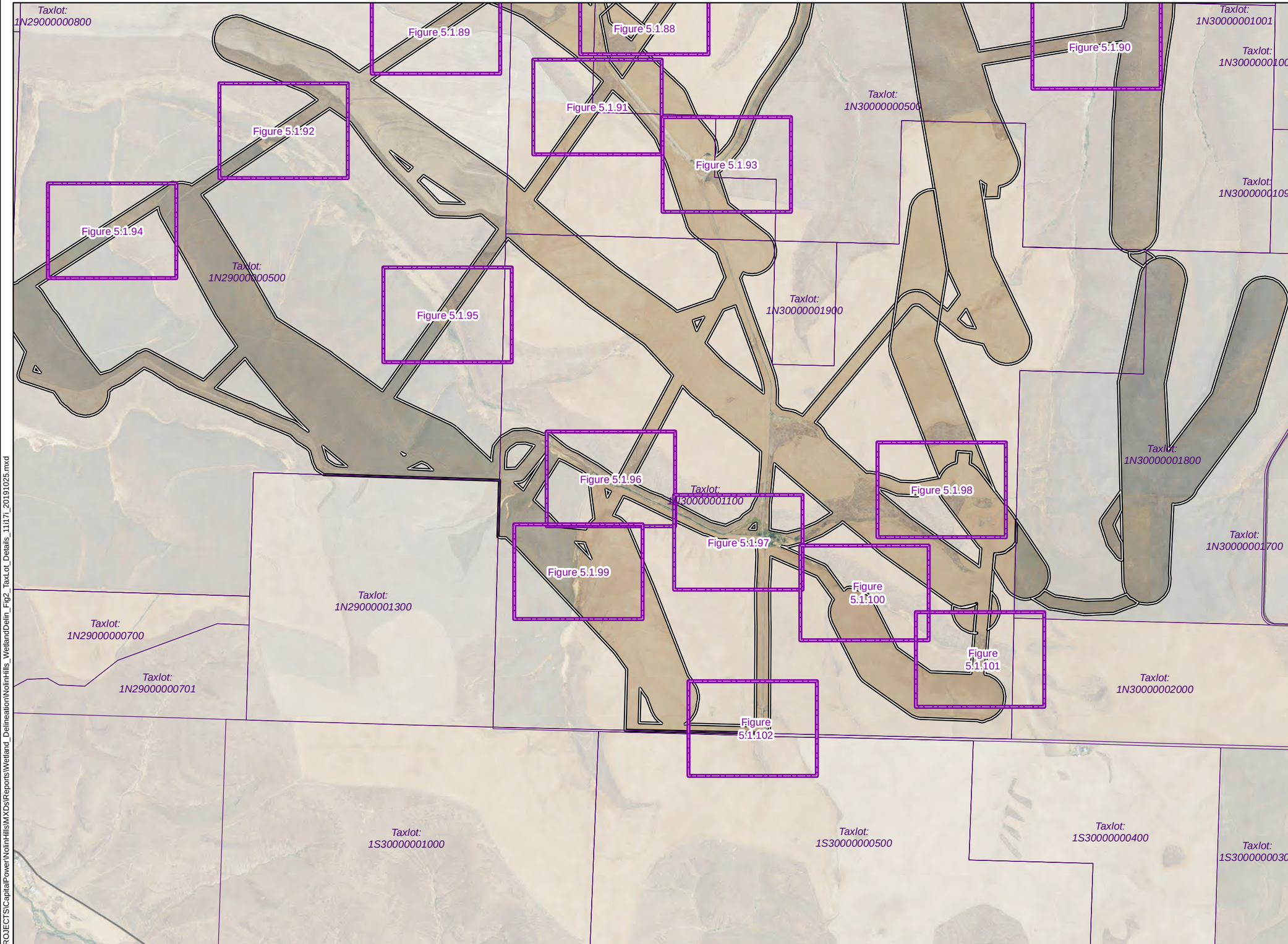
NOT FOR CONSTRUCTION

P:\GIS_PROJECTS\CapitalPower\NolinHills\MXDs\Reports\Wetland_Delineation\NolinHills_WetlandDelin_Fig2_TaxLot_Details_11i17i_20191025.mxd

Nolin Hills Wind Power Project

Figure 2.9
Tax Lot Map

UMATILLA COUNTY, OREGON



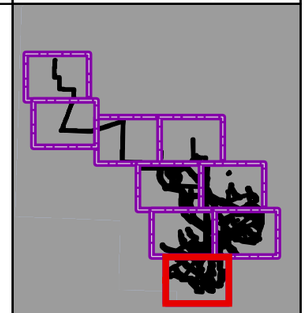
Wetland Delineation Map Grid
Wetlands and Waters Study Area
Taxlot Boundary
Secondary Road

TETRA TECH
Capital Power

Data Sources

Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

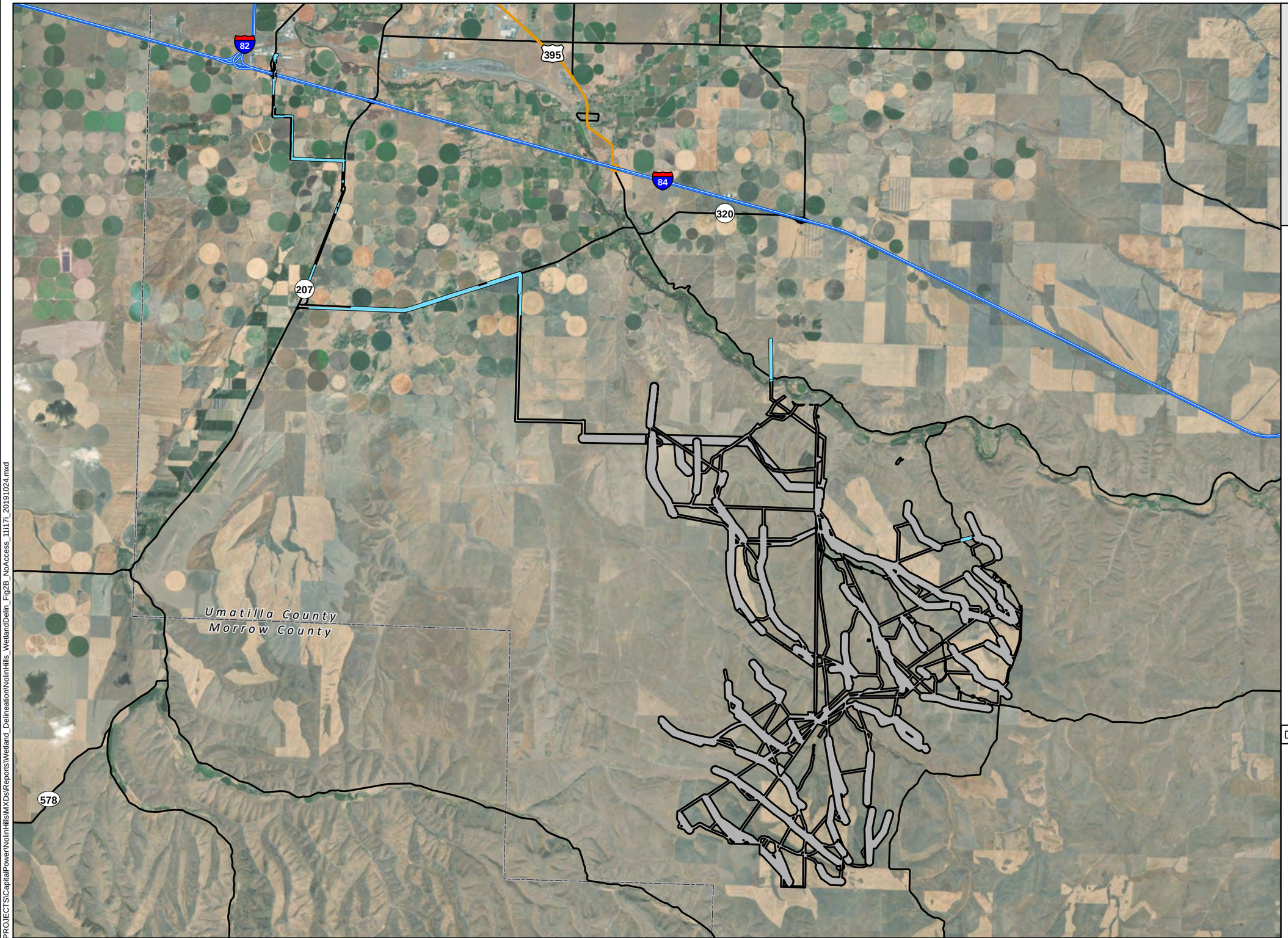
NOT FOR CONSTRUCTION

P:\GIS_PROJECTS\CapitalPower\NolinHills\MXDs\Reports\Wetland_Delineation\NolinHills_WetlandDelin_Fig2_TaxLot_Details_11i17i_20191025.mxd

Nolin Hills Wind Power Project

Figure 2B
No Access and Surveyed Areas

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Interstate Highway
- Secondary Highway
- Secondary Road
- County Boundary

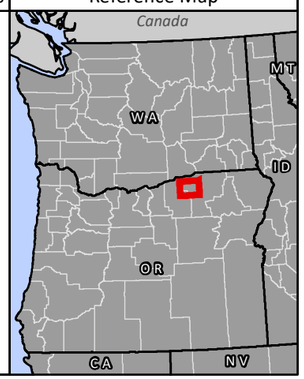
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:140,000 WGS 1984 UTM Zone 11N

0 0.75 1.5 3 4.5 6 Miles

NOT FOR CONSTRUCTION

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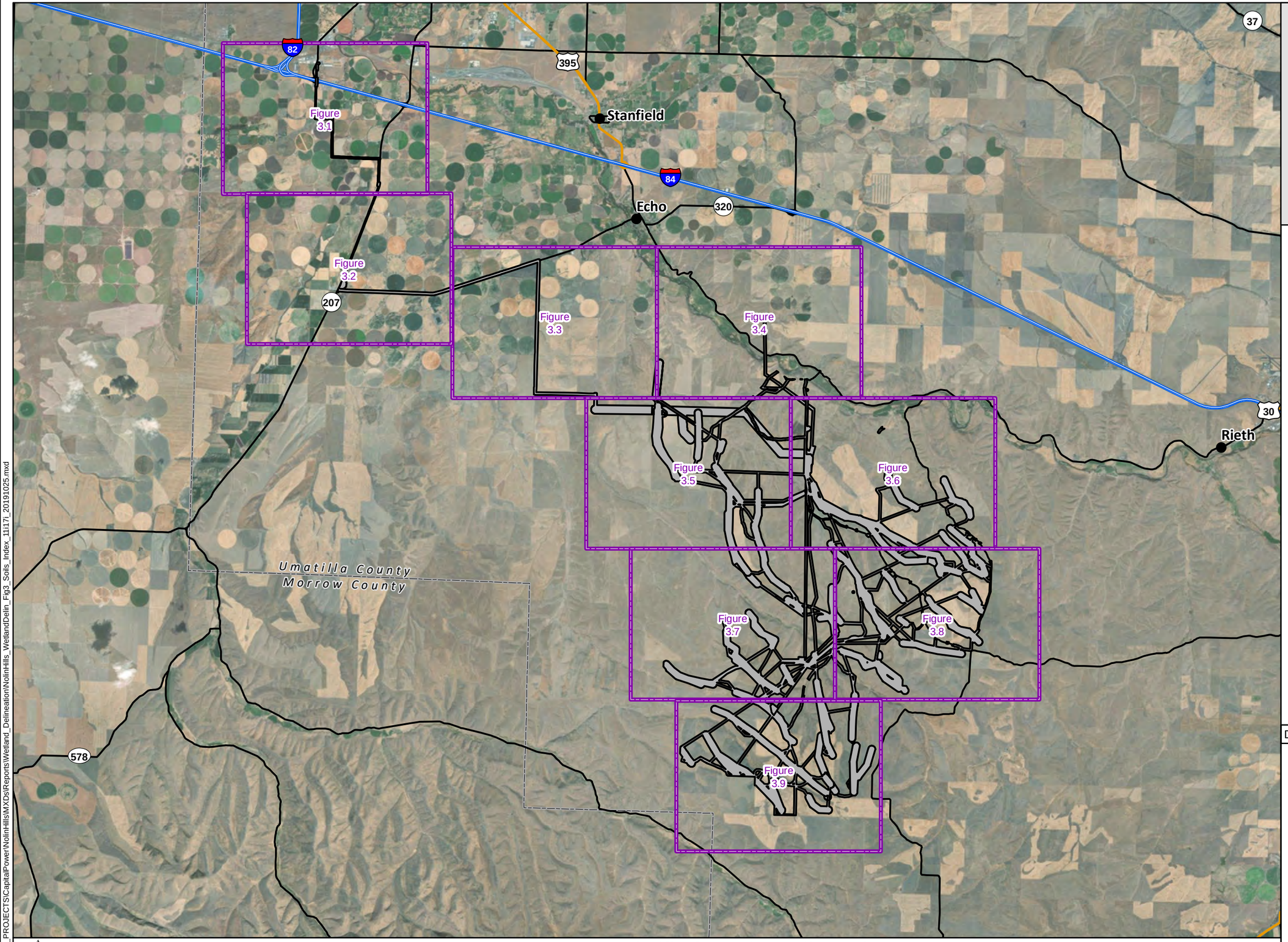
Nolin Hills Wind Power Project

Figure 3
Soils Index Map

UMATILLA COUNTY, OREGON



- Map Grid
- Wetlands and Waters Study Area
- City/Town
- County Boundary
- Interstate Highway
- Secondary Highway
- Secondary Road

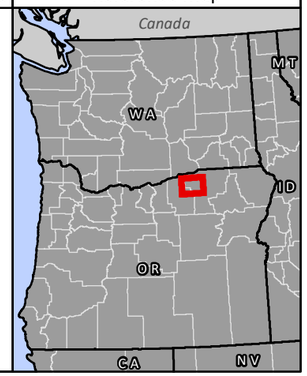
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:155,000 WGS 1984 UTM Zone 11N

0 0.75 1.5 3 4.5 6 Miles

NOT FOR CONSTRUCTION

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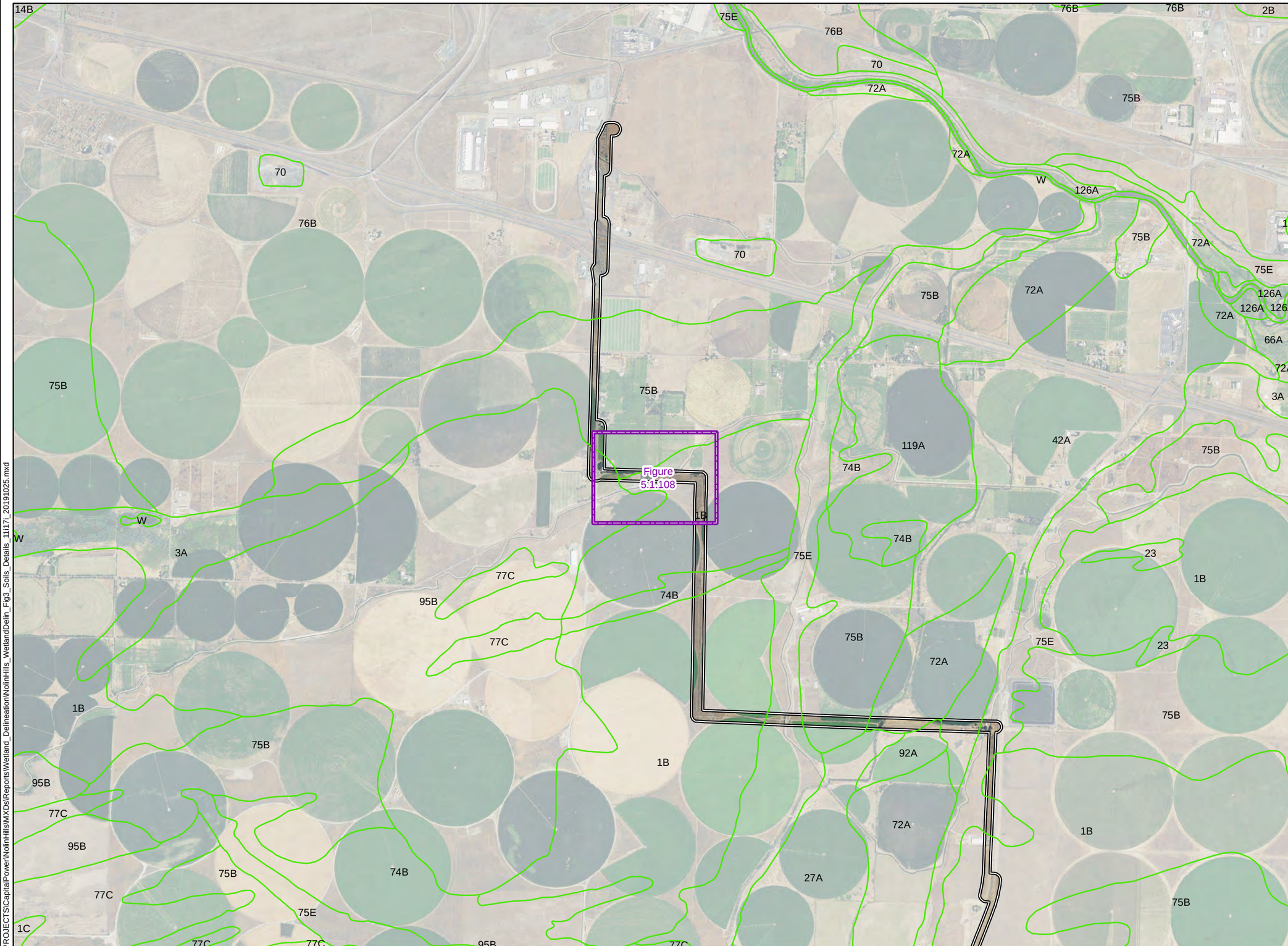
Nolin Hills Wind Power Project

Figure 3.1
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

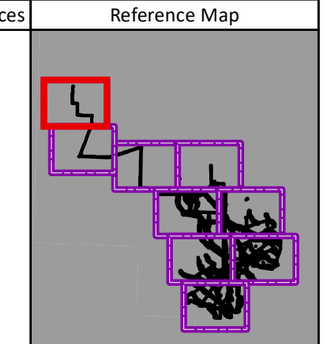
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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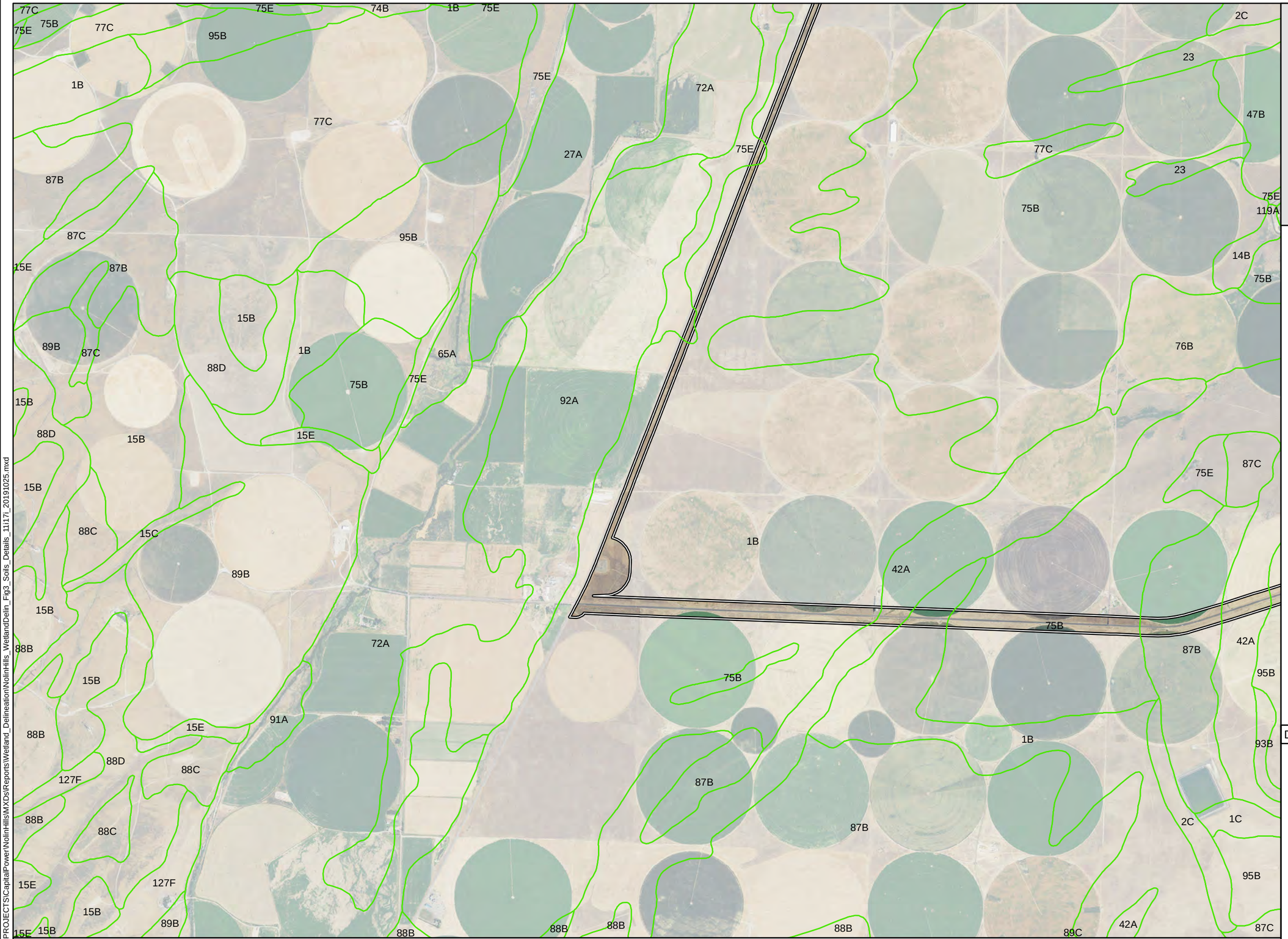
Nolin Hills Wind Power Project

Figure 3.2
Soils Map

UMATILLA COUNTY, OREGON



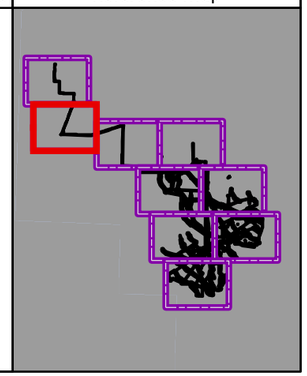
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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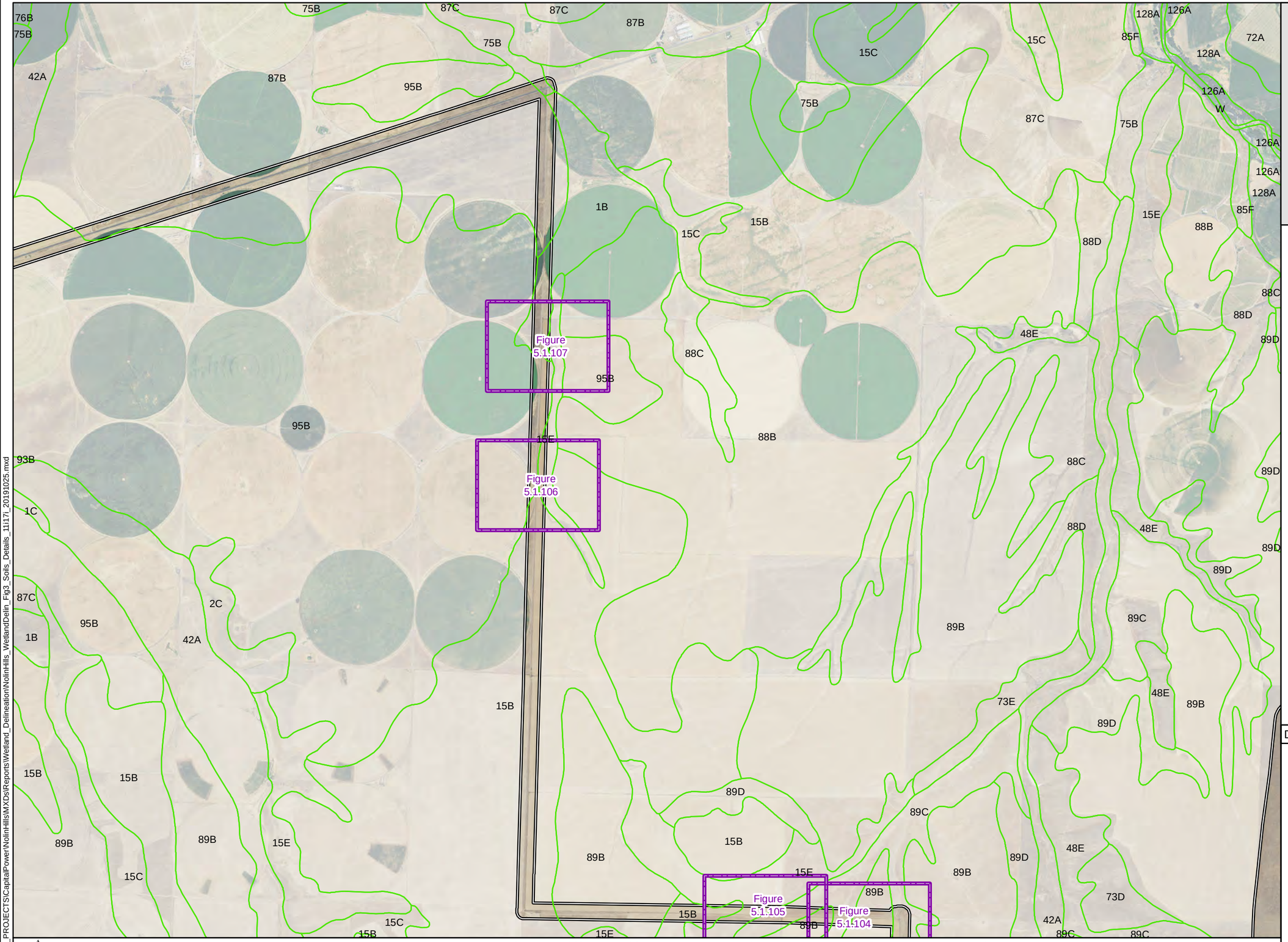
Nolin Hills Wind Power Project

Figure 3.3 Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

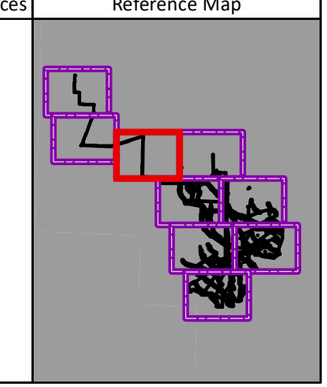
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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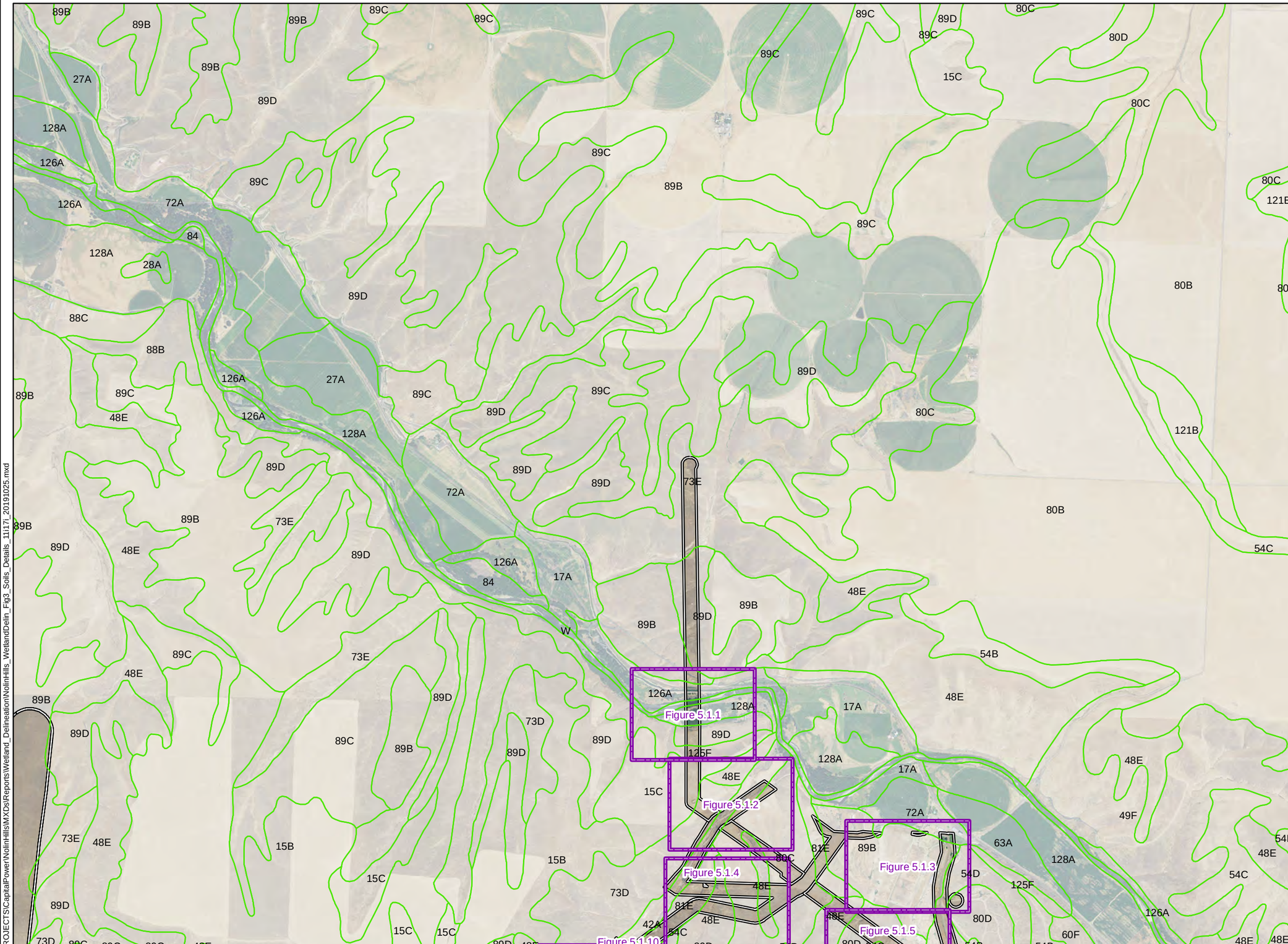
Nolin Hills Wind Power Project

Figure 3.4
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

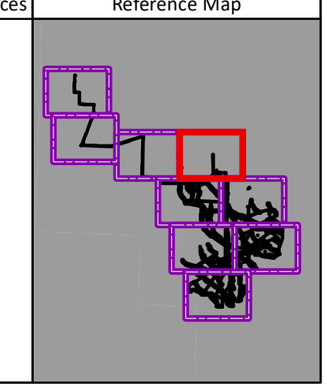
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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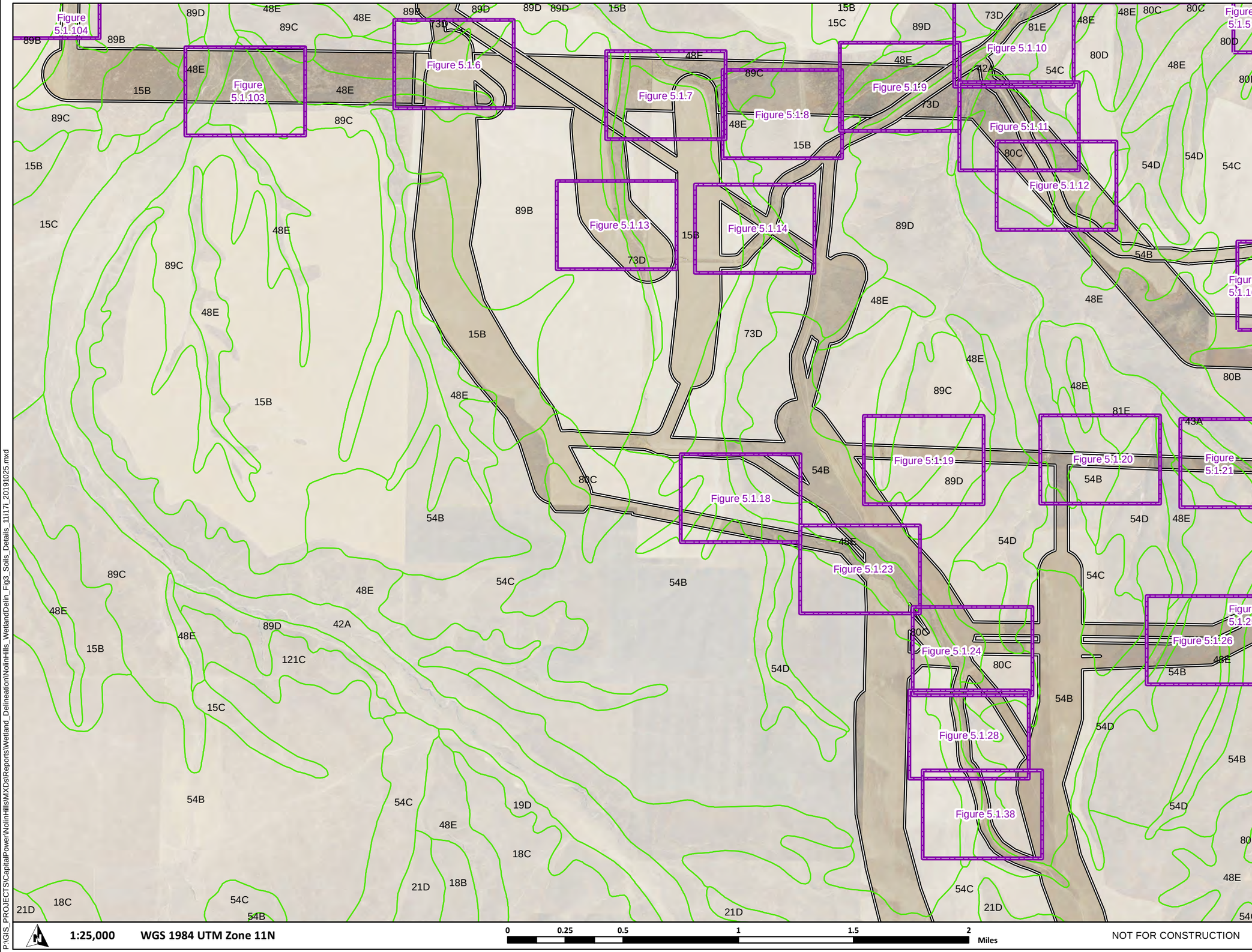
Nolin Hills Wind Power Project

Figure 3.5
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

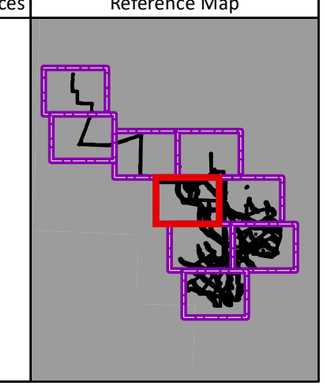
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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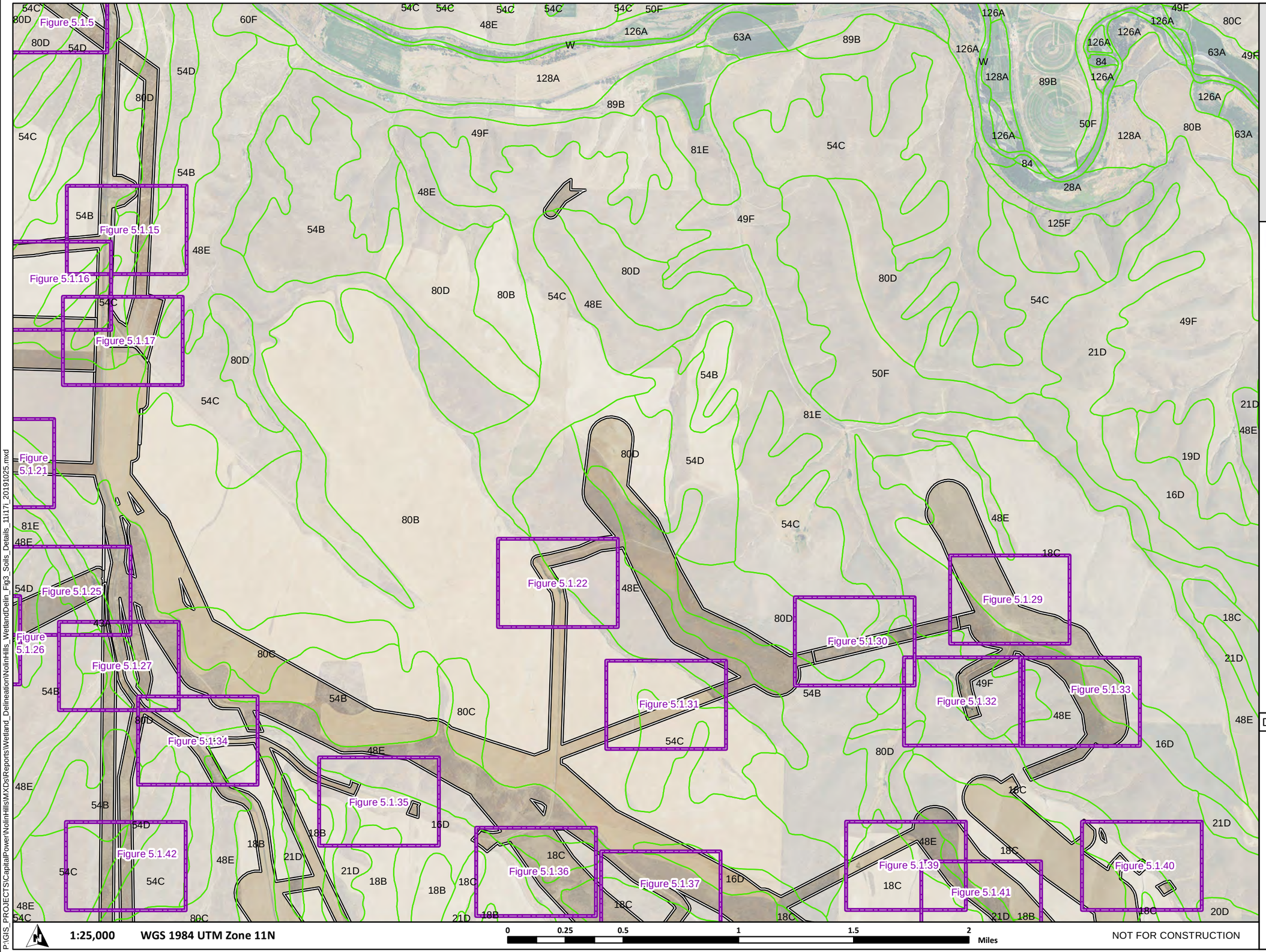
Nolin Hills Wind Power Project

Figure 3.6
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

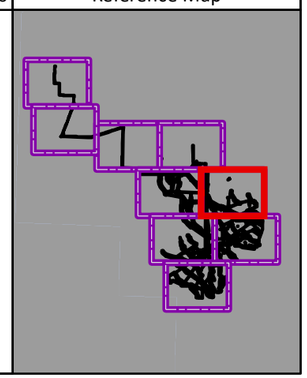
Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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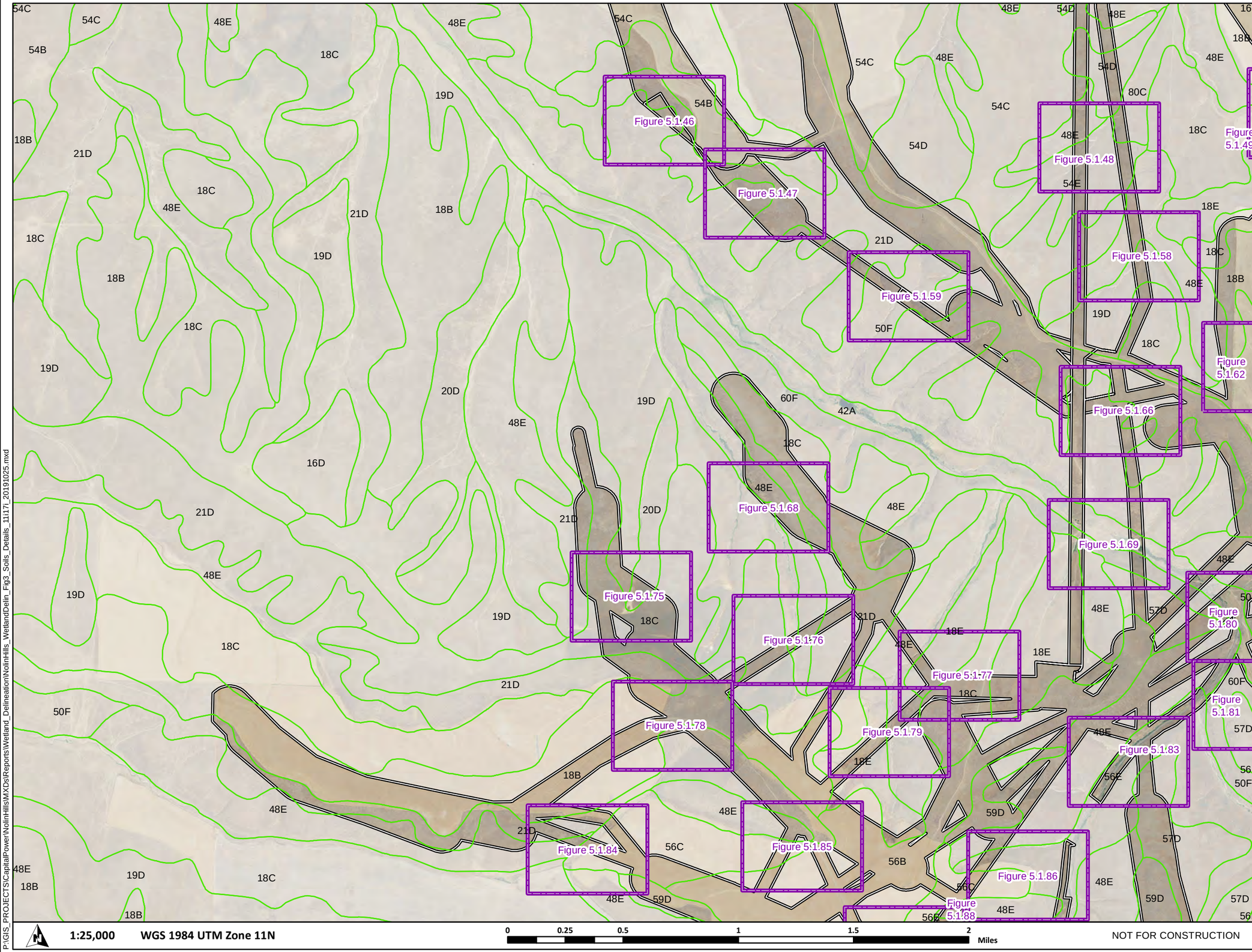
Nolin Hills Wind Power Project

Figure 3.7
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

Wetlands and Waters Study Area

Hydric Rating

Nonhydric

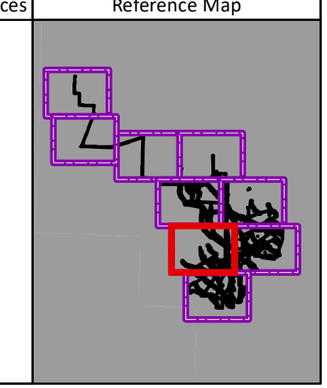
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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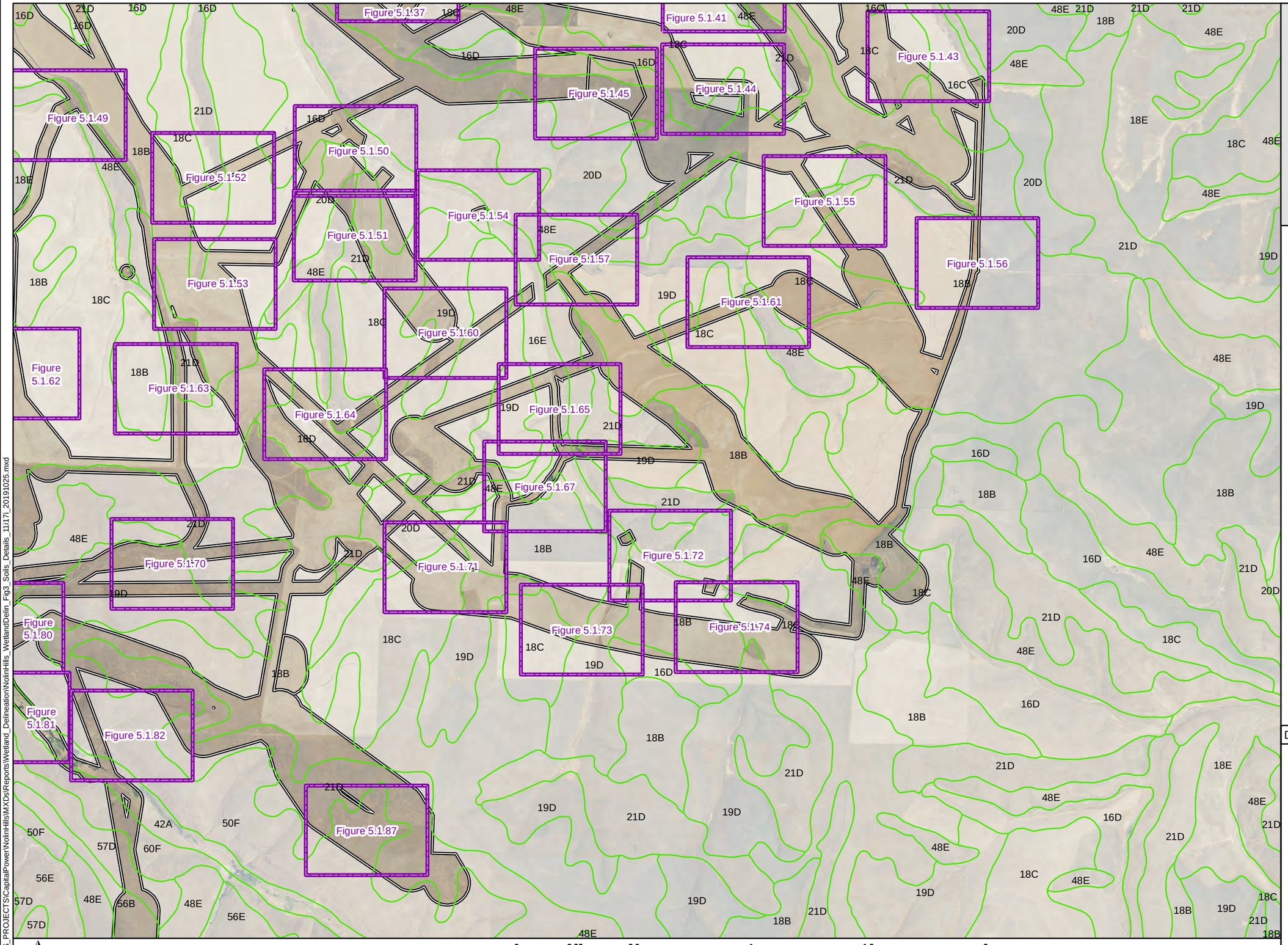
Nolin Hills Wind Power Project

Figure 3.8
Soils Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

Wetlands and Waters Study Area

Hydric Rating

Nonhydric

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure 3.9
Soils Map

UMATILLA COUNTY, OREGON

Wetland Delineation Map Grid

Wetlands and Waters Study Area

Hydric Rating

Nonhydric

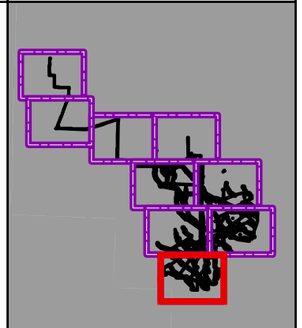
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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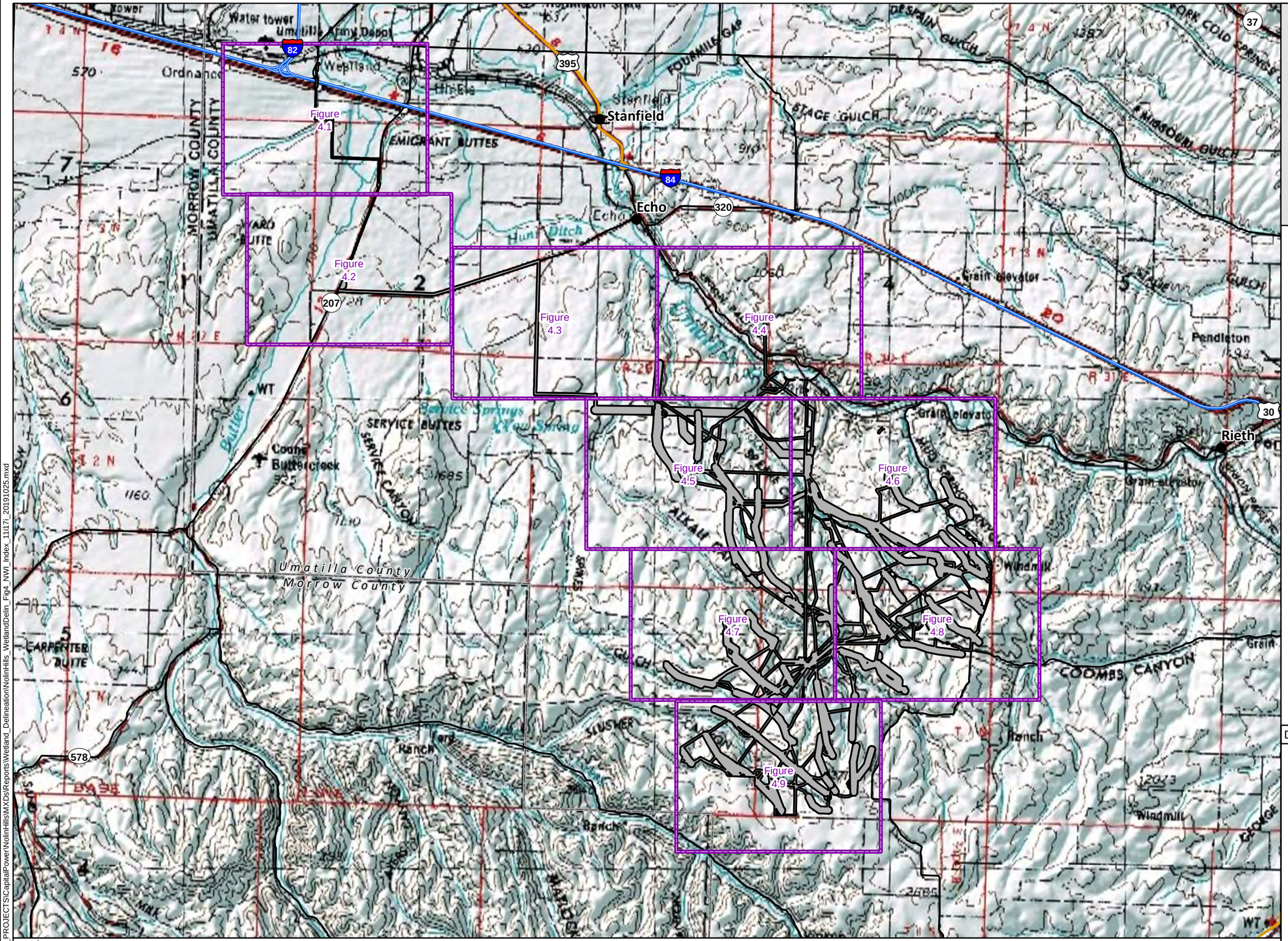
Nolin Hills Wind Power Project

Figure 4
National Wetland Inventory Index Map

UMATILLA COUNTY, OREGON



TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:155,000 WGS 1984 UTM Zone 11N

0 0.75 1.5 3 4.5 6 Miles

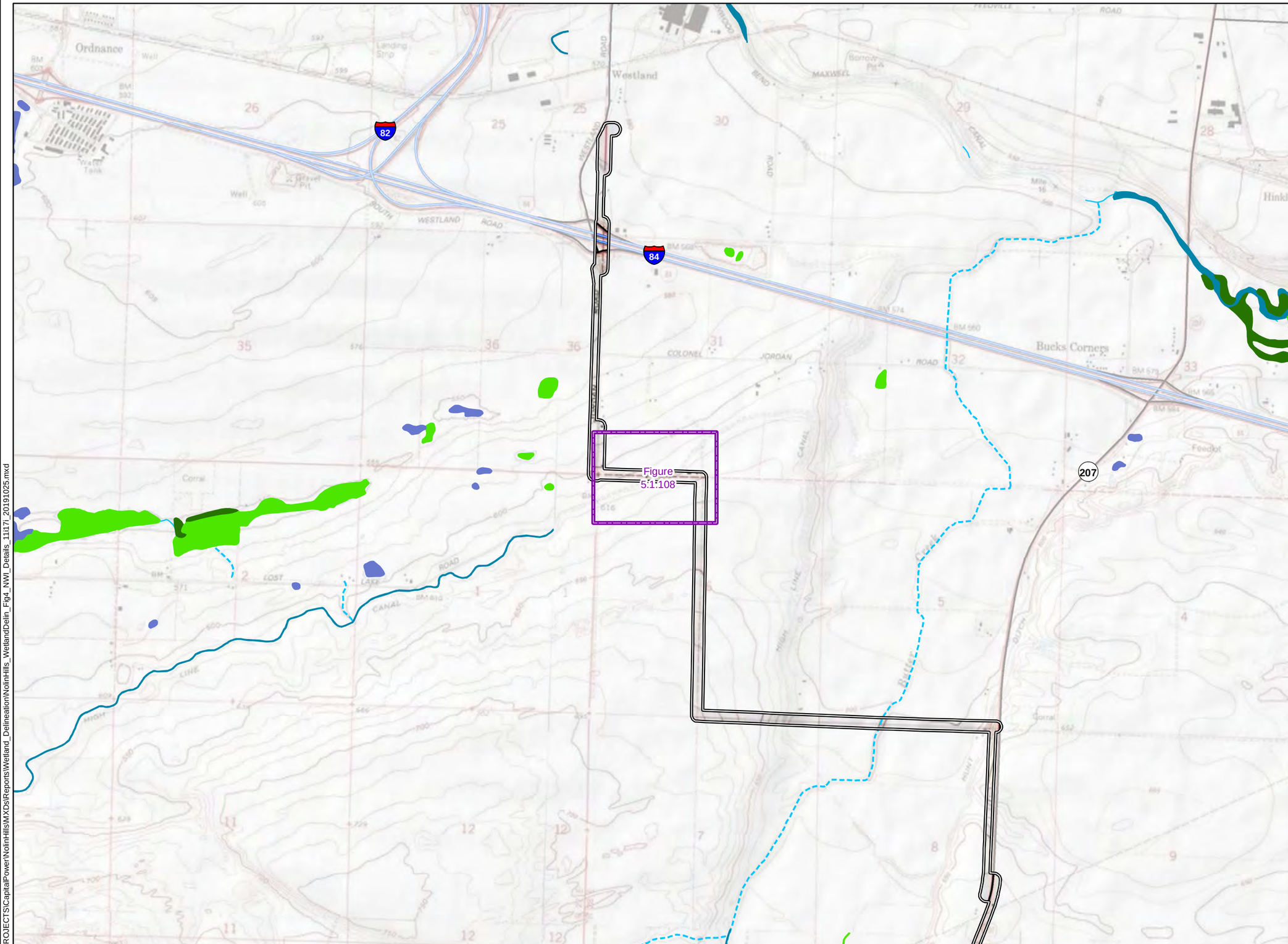
NOT FOR CONSTRUCTION

P:\GIS_PROJECTS\CapitalPower\NolinHills\MXDs\Reports\Wetland_Delineation\NolinHills_WetlandDelin_Fig4_NWI_Index_11117l_20191025.mxd

Nolin Hills Wind Power Project

Figure 4.1 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Interstate Highway
- Secondary Road

Streams
- Perennial
- Intermittent

Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

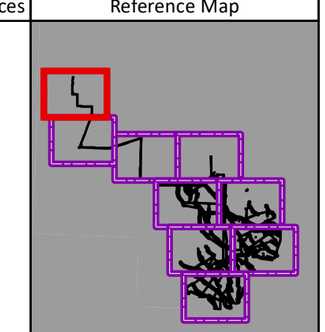
TETRA TECH

Capital Power

Data Sources

Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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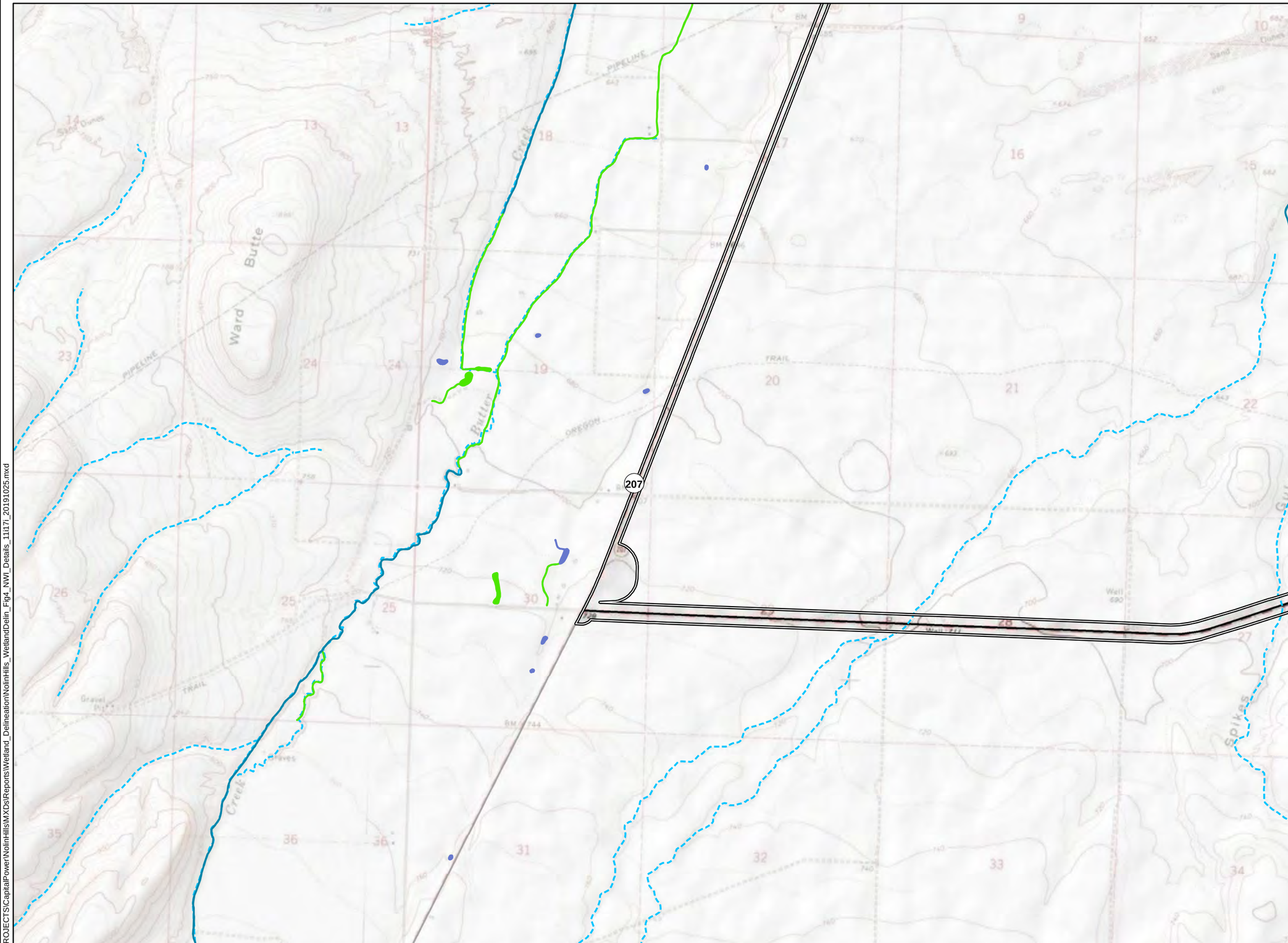
Nolin Hills Wind Power Project

Figure 4.2 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



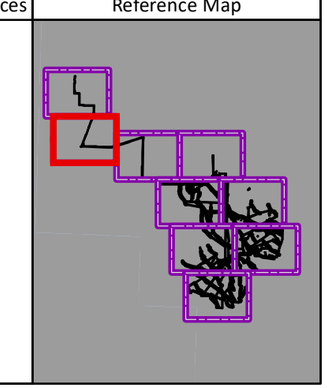
Wetlands and Waters Study Area
Secondary Road
Streams
Intermittent
Wetland
Freshwater Emergent Wetland
Freshwater Pond
Riverine

TETRA TECH
Capital Power

Data Sources

Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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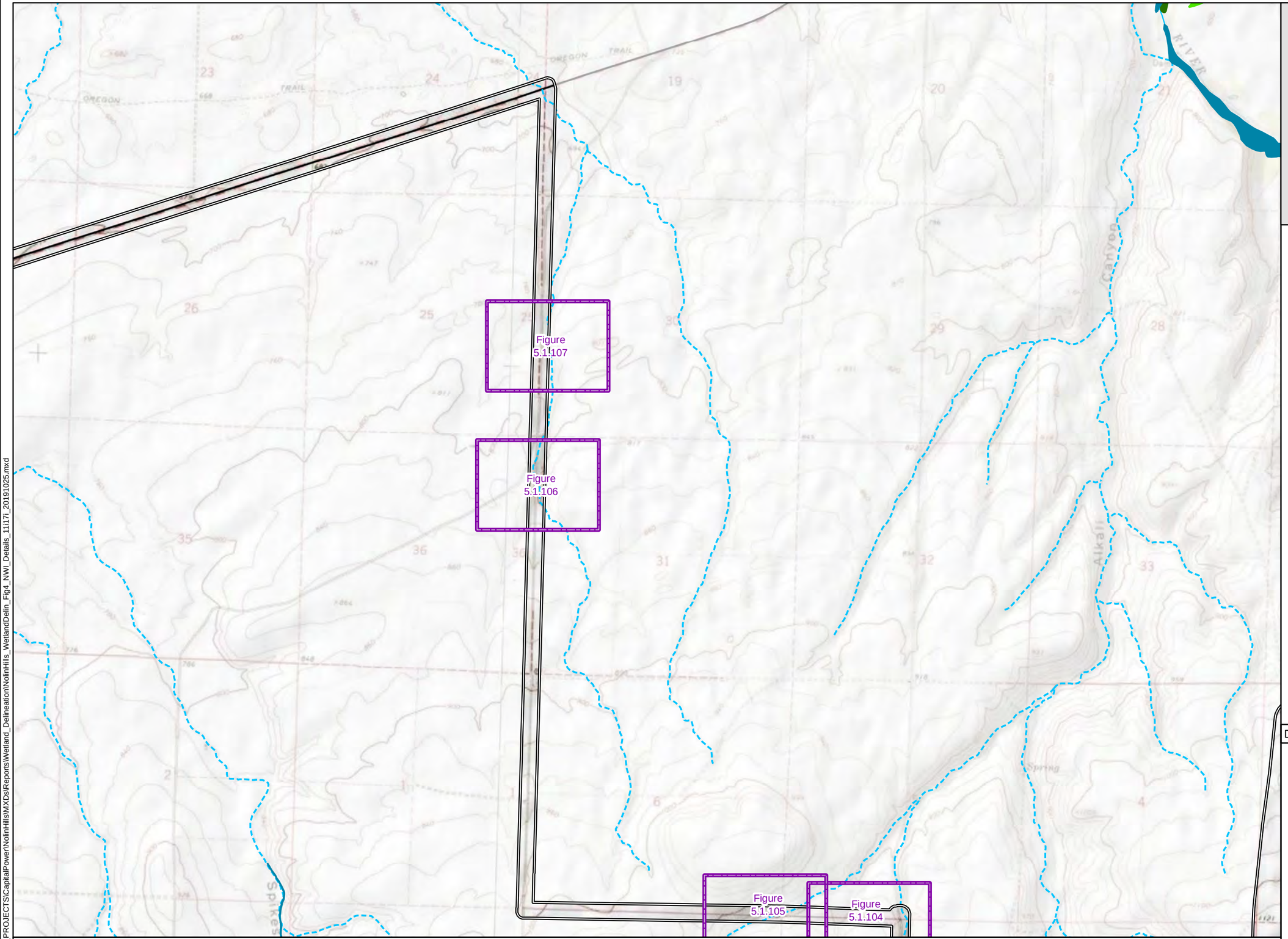
Nolin Hills Wind Power Project

Figure 4.3 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



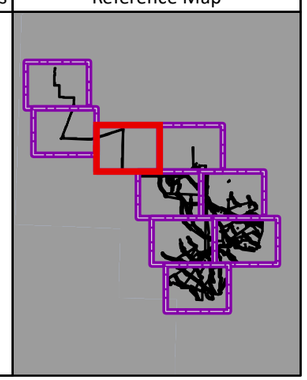
- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Secondary Road

Streams
- Perennial
- Intermittent

Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Riverine

TETRA TECH

Capital Power

Data Sources	Reference Map
Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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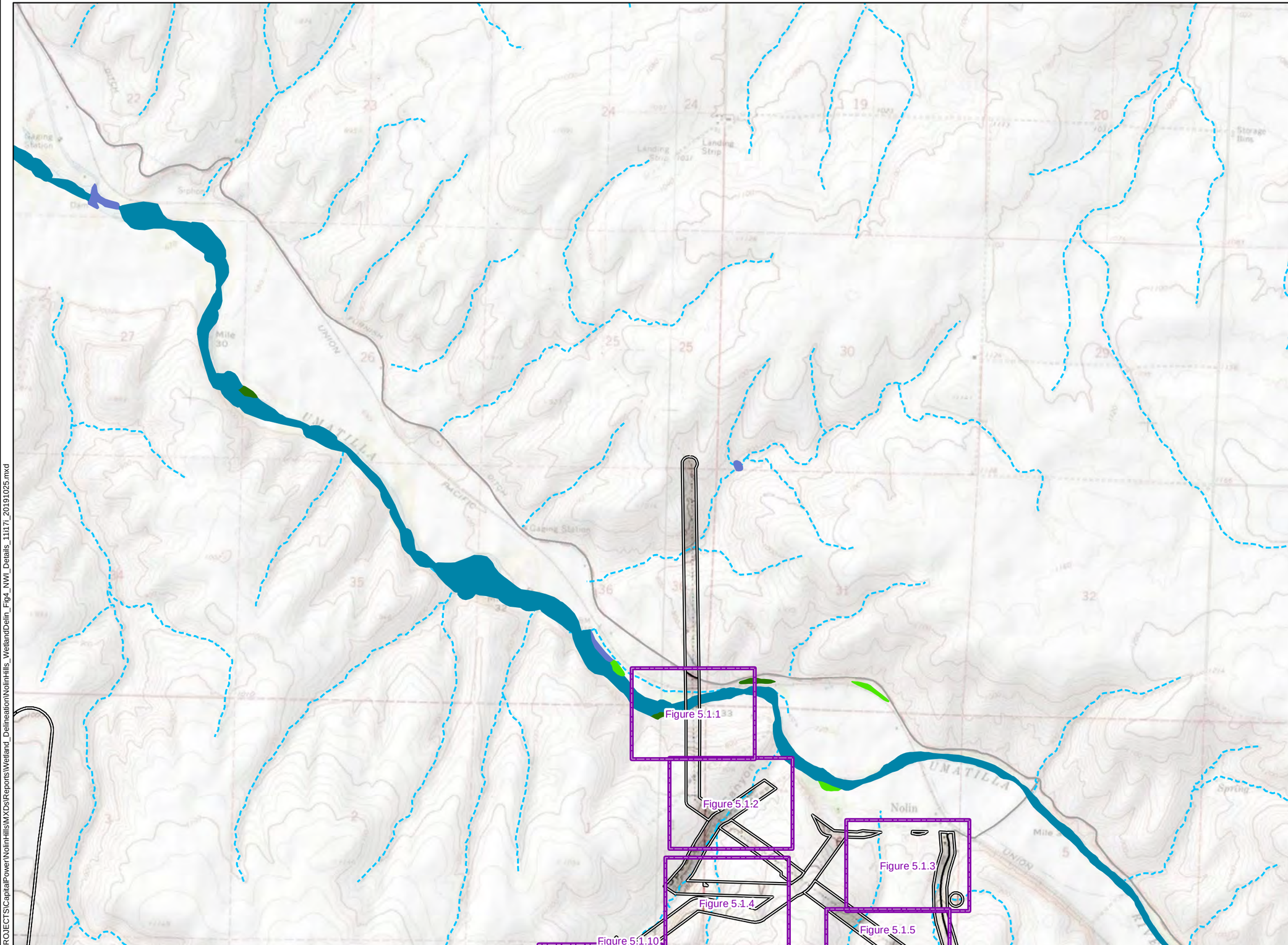
Nolin Hills Wind Power Project

Figure 4.4 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road

Streams
- Perennial
- Intermittent

Wetland
- Freshwater Emergent Wetland
- Freshwater Forested/Shrub Wetland
- Freshwater Pond
- Riverine

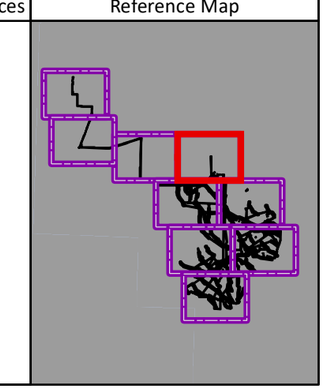
TETRA TECH

Capital Power

Data Sources

Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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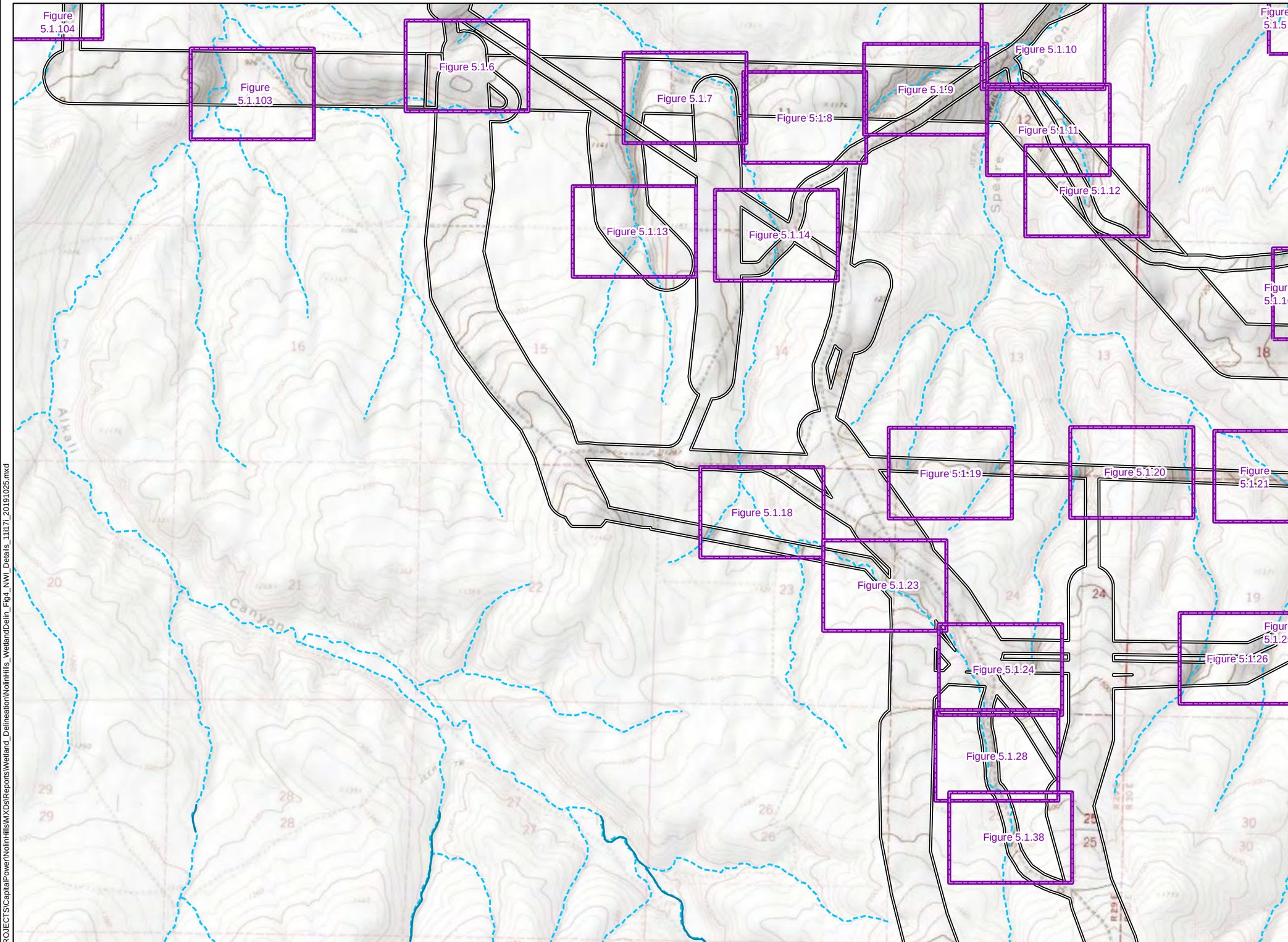
Nolin Hills Wind Power Project

Figure 4.5 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

Wetlands and Waters Study Area

Streams

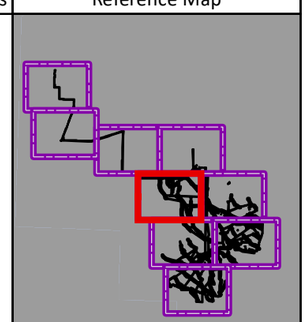
Intermittent

Wetland

Riverine

TETRA TECH

Capital Power

Data Sources	Reference Map
Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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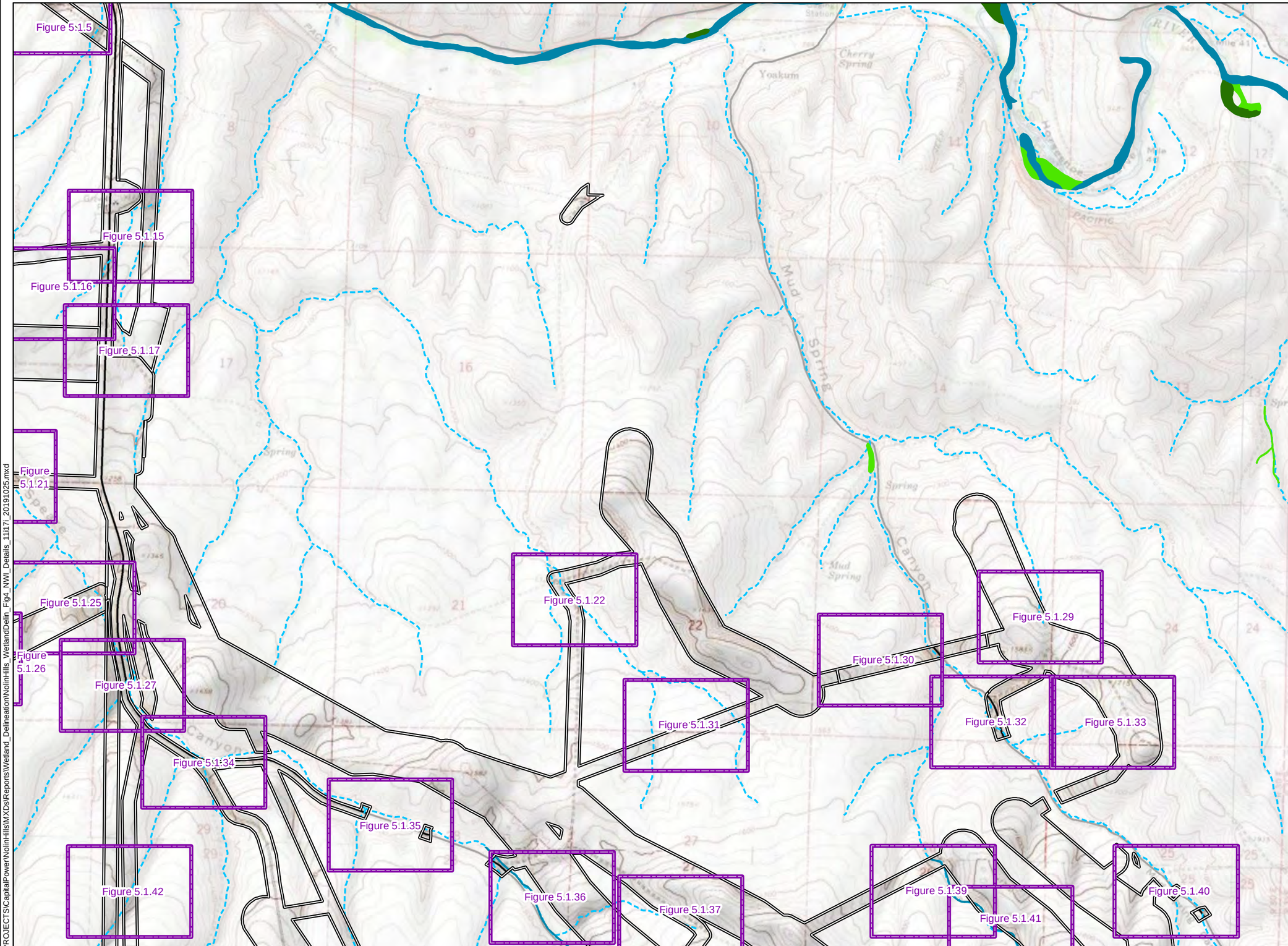
Nolin Hills Wind Power Project

Figure 4.6 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road

Streams
Intermittent

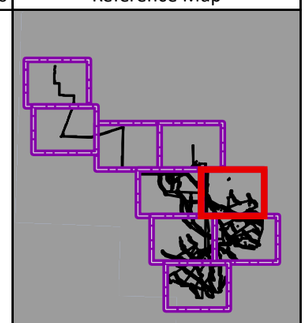
Wetland
Freshwater Emergent Wetland
Freshwater Forested/Shrub Wetland
Riverine

TETRA TECH
Capital Power

Data Sources

Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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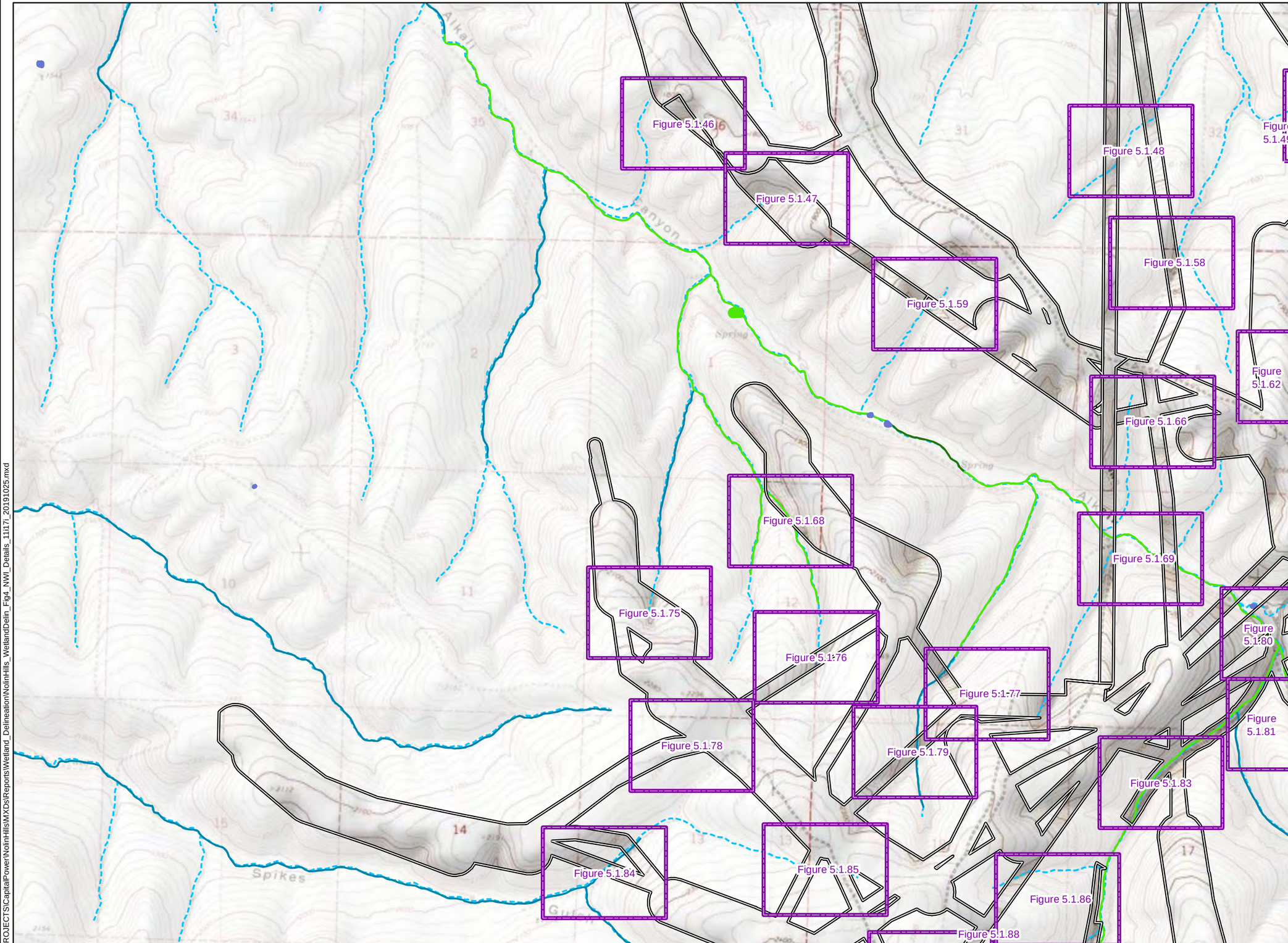
Nolin Hills Wind Power Project

Figure 4.7 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid

Wetlands and Waters Study Area

Streams

Intermittent

Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Riverine

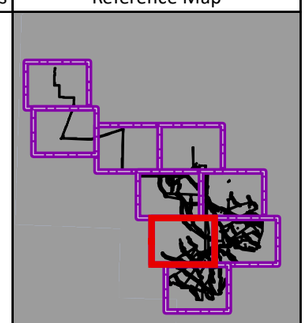
TETRA TECH

Capital Power

Data Sources

Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads

Reference Map



1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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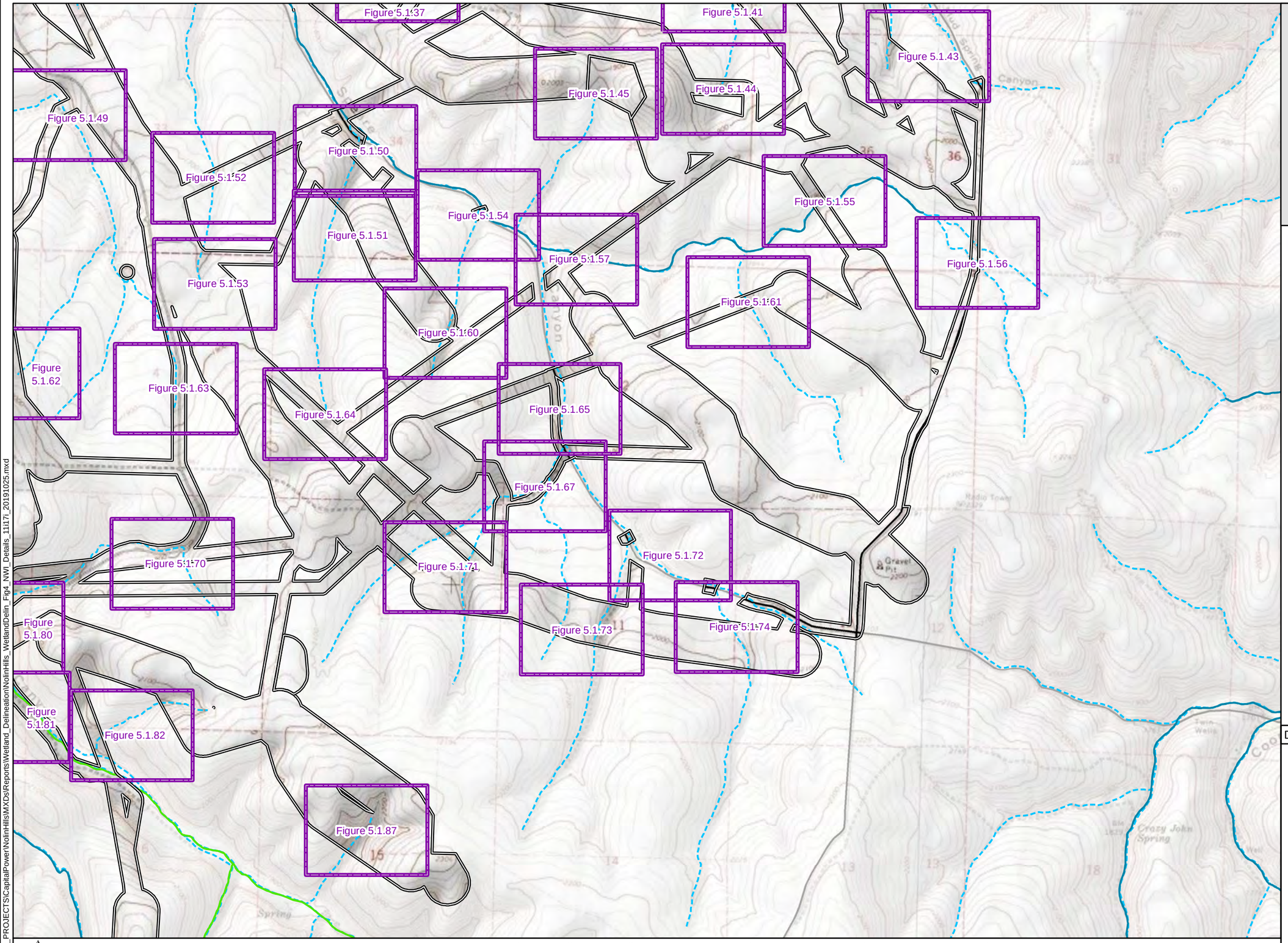
Nolin Hills Wind Power Project

Figure 4.8 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



NOT FOR CONSTRUCTION

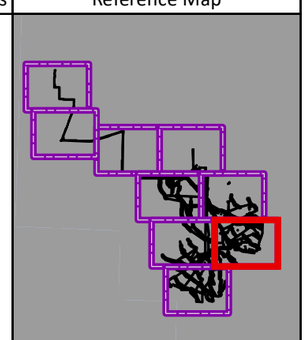
Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road

Streams
Intermittent

Wetland
Freshwater Emergent Wetland
Riverine

TETRA TECH

Capital Power

Data Sources	Reference Map
Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads	

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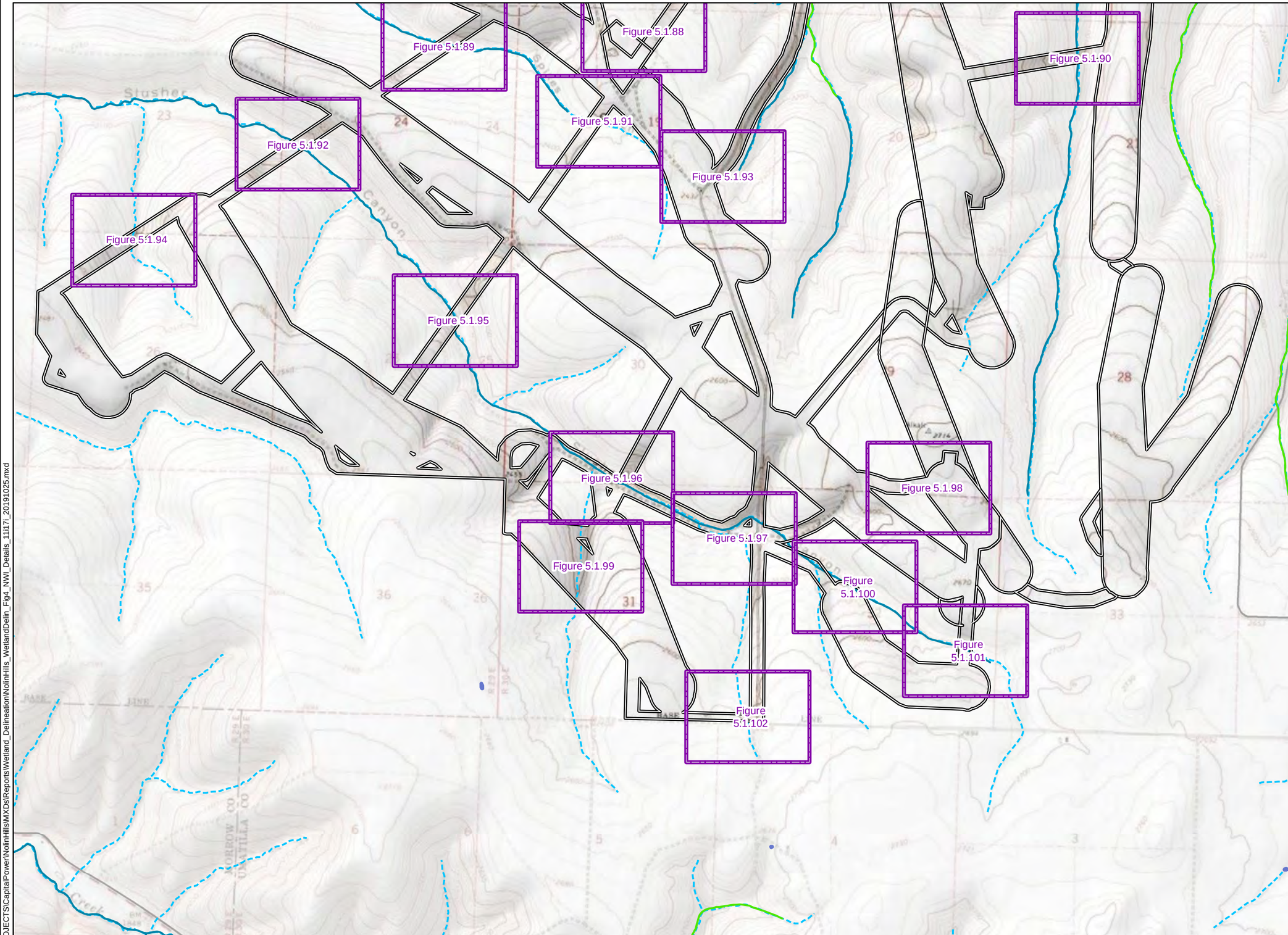
Nolin Hills Wind Power Project

Figure 4.9 National Wetland Inventory Map

UMATILLA COUNTY, OREGON



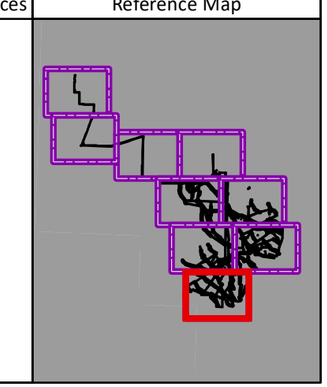
Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road

Streams
Intermittent

Wetland
Freshwater Emergent Wetland
Freshwater Pond
Riverine

TETRA TECH

Capital Power

Data Sources	Reference Map
Avangrid-Project Infrastructure; USGS-Topographic; ESRI-Roads	

1:25,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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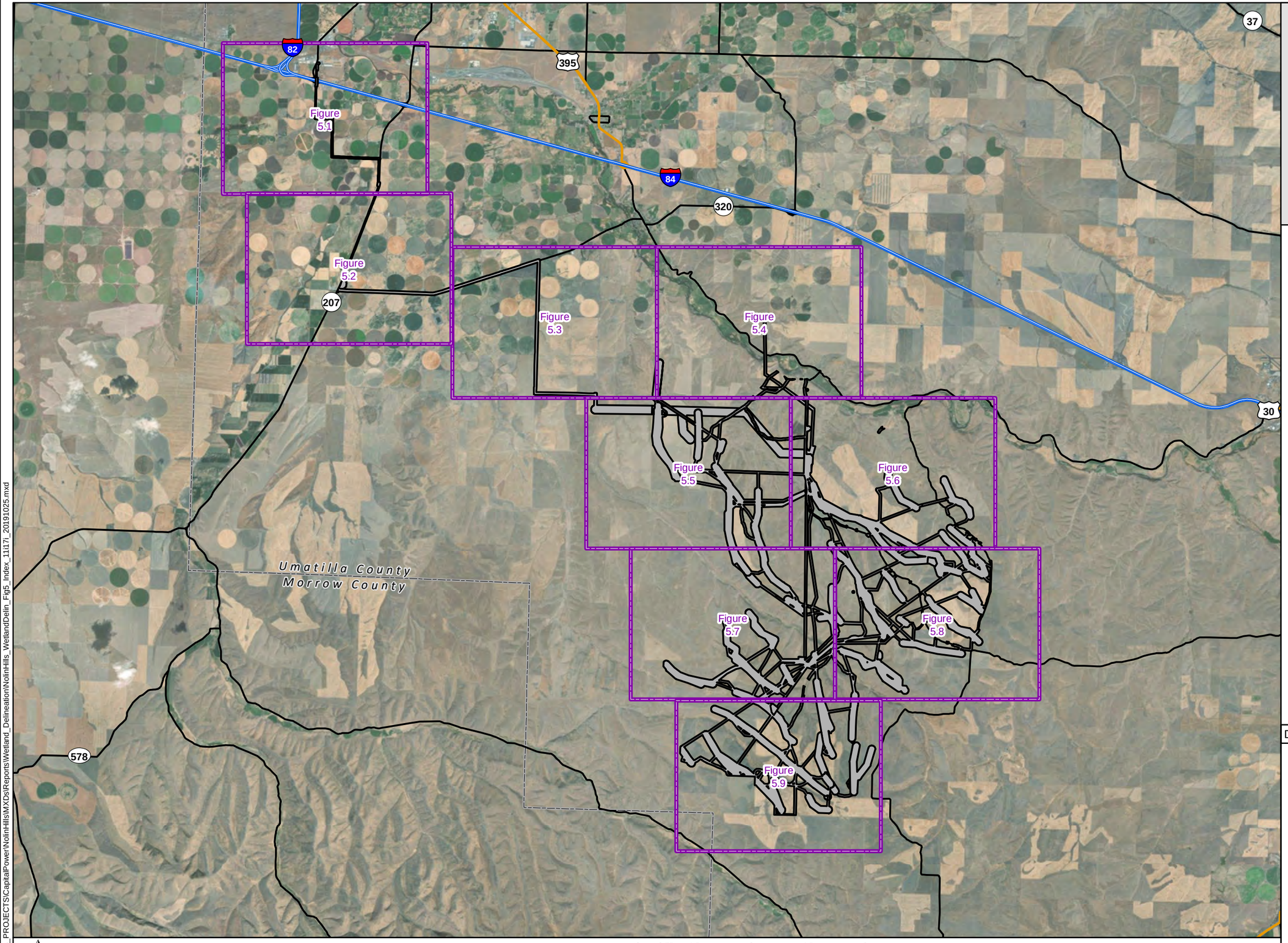
Nolin Hills Wind Power Project

Figure 5
Wetland Delineation Index Map

UMATILLA COUNTY, OREGON



Wetlands and Waters Study Area
Map Grid
Interstate Highway
Secondary Highway
Secondary Road
County Boundary

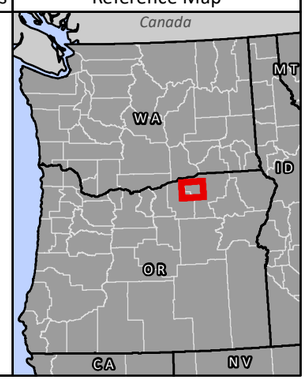
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:155,000 WGS 1984 UTM Zone 11N

0 0.75 1.5 3 4.5 6 Miles

NOT FOR CONSTRUCTION

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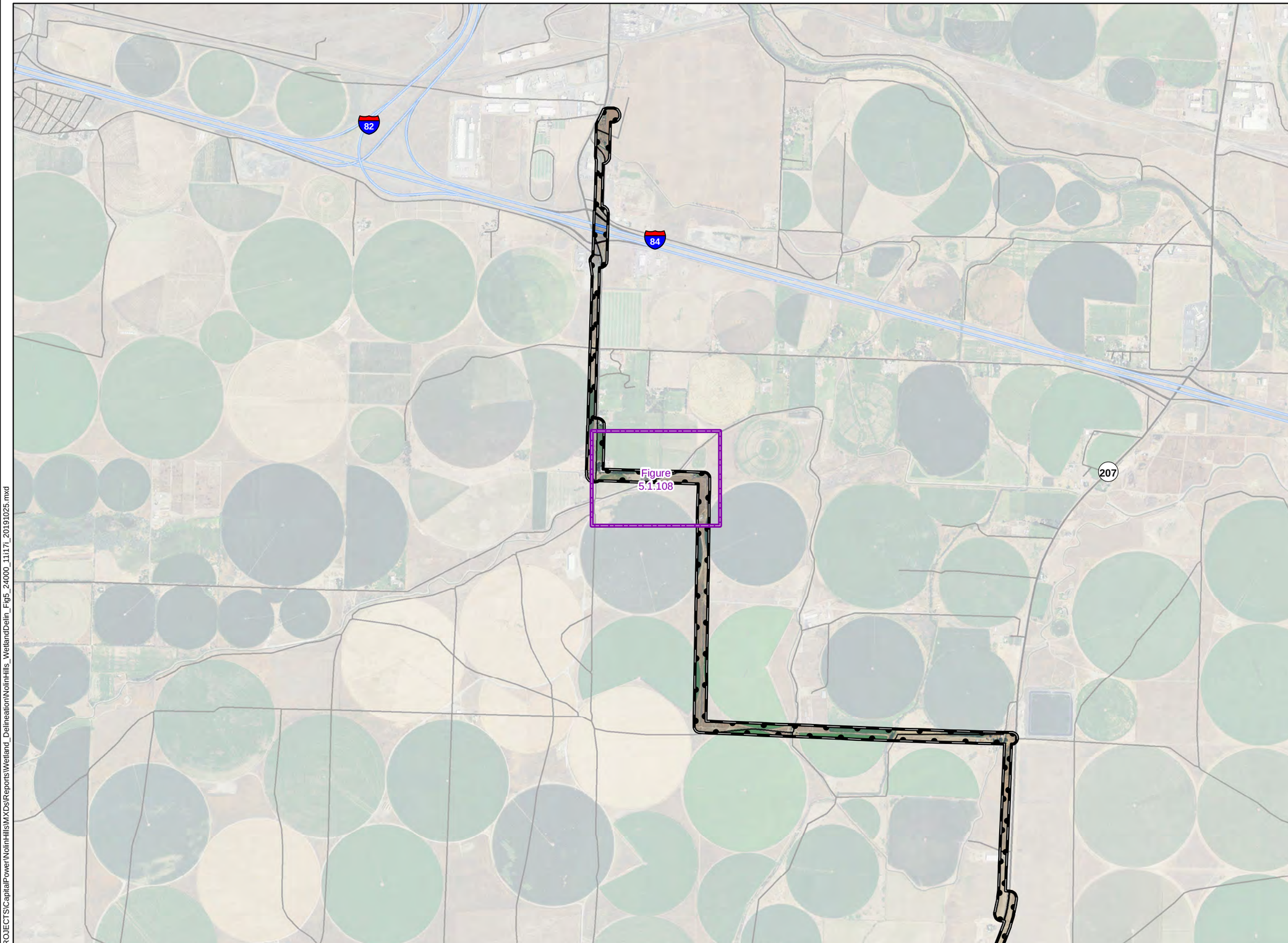
Nolin Hills Wind Power Project

Figure 5.1 Wetland Delineation Detail Map

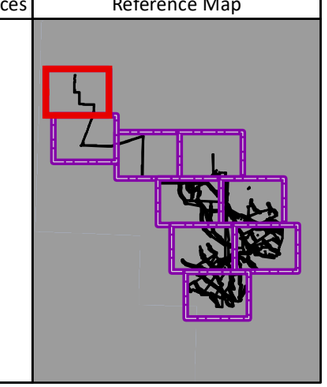
UMATILLA COUNTY, OREGON



- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Interstate Highway
- Secondary Road
- Local Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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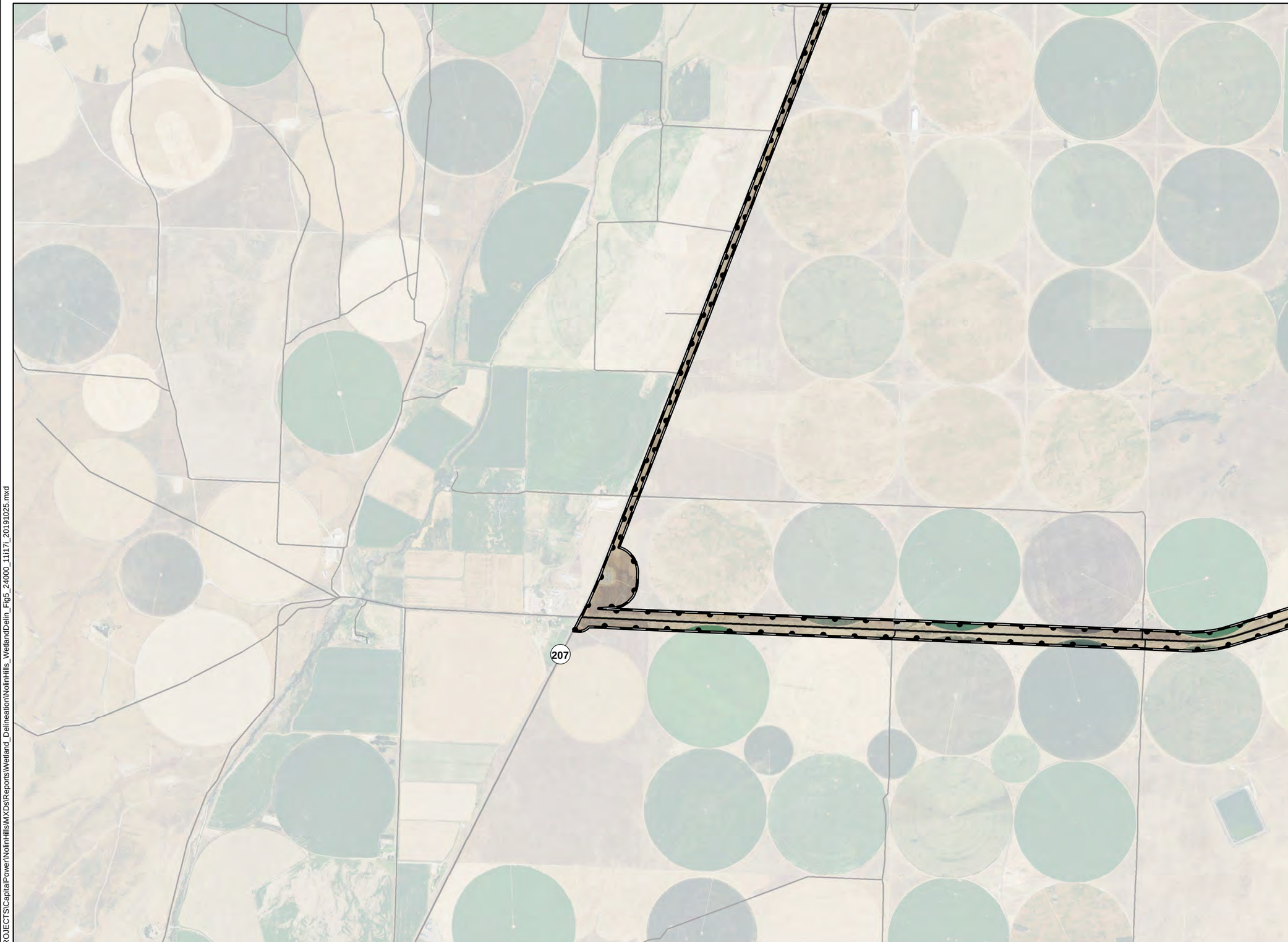
Nolin Hills Wind Power Project

Figure 5.2 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetland Delineation Map Grid
- Wetlands and Waters Study Area
- Secondary Road
- Local Road

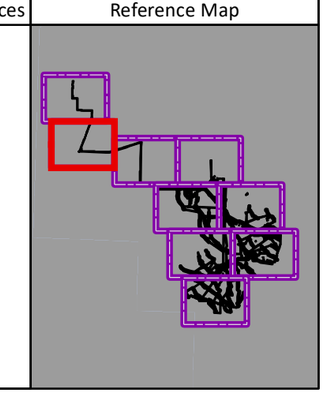
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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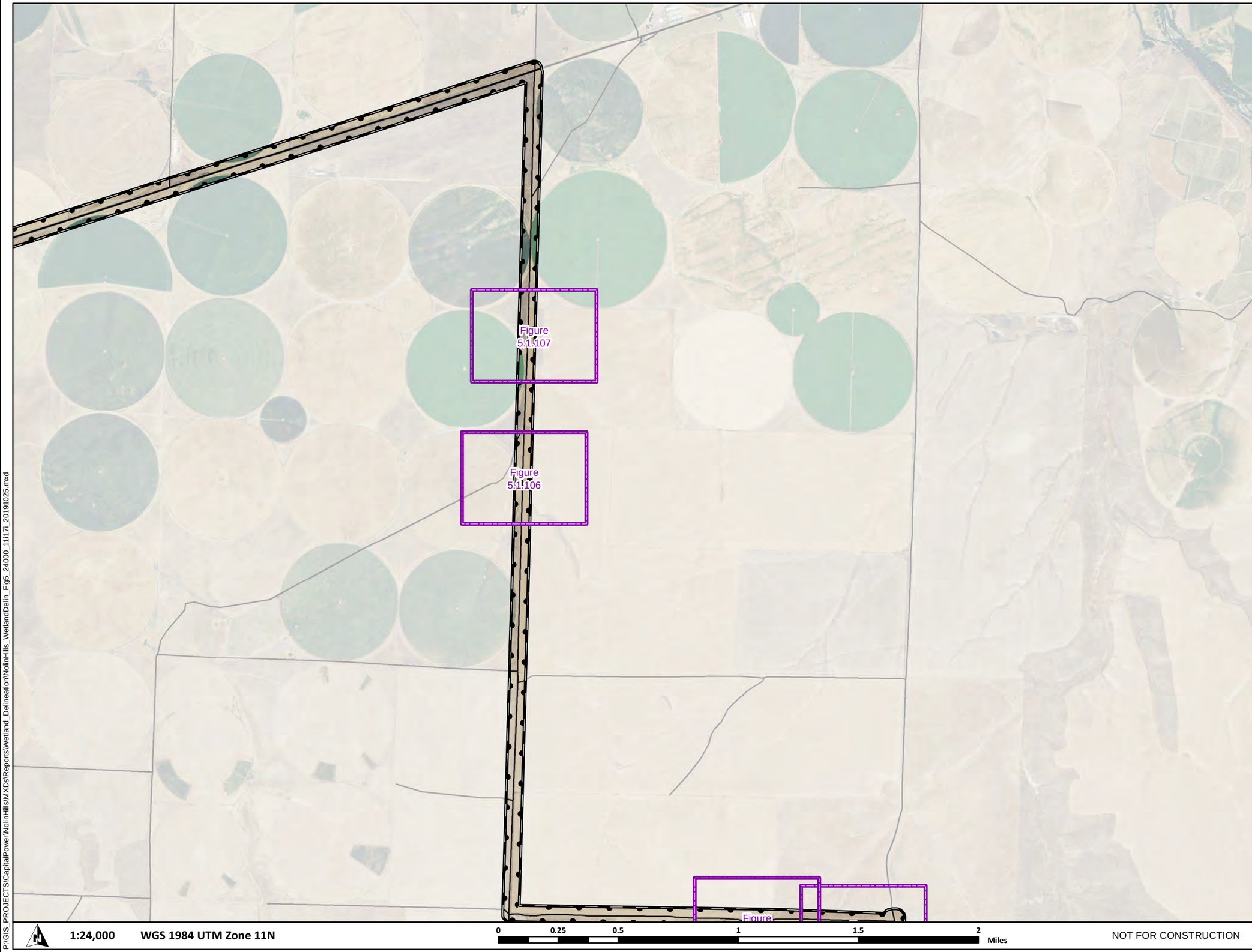
Nolin Hills Wind Power Project

Figure 5.3 Wetland Delineation Detail Map

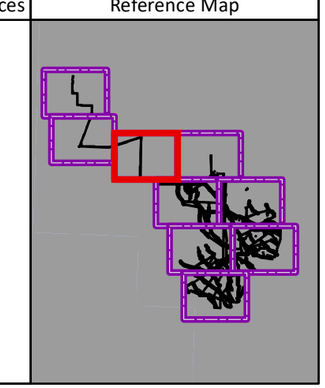
UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road
Local Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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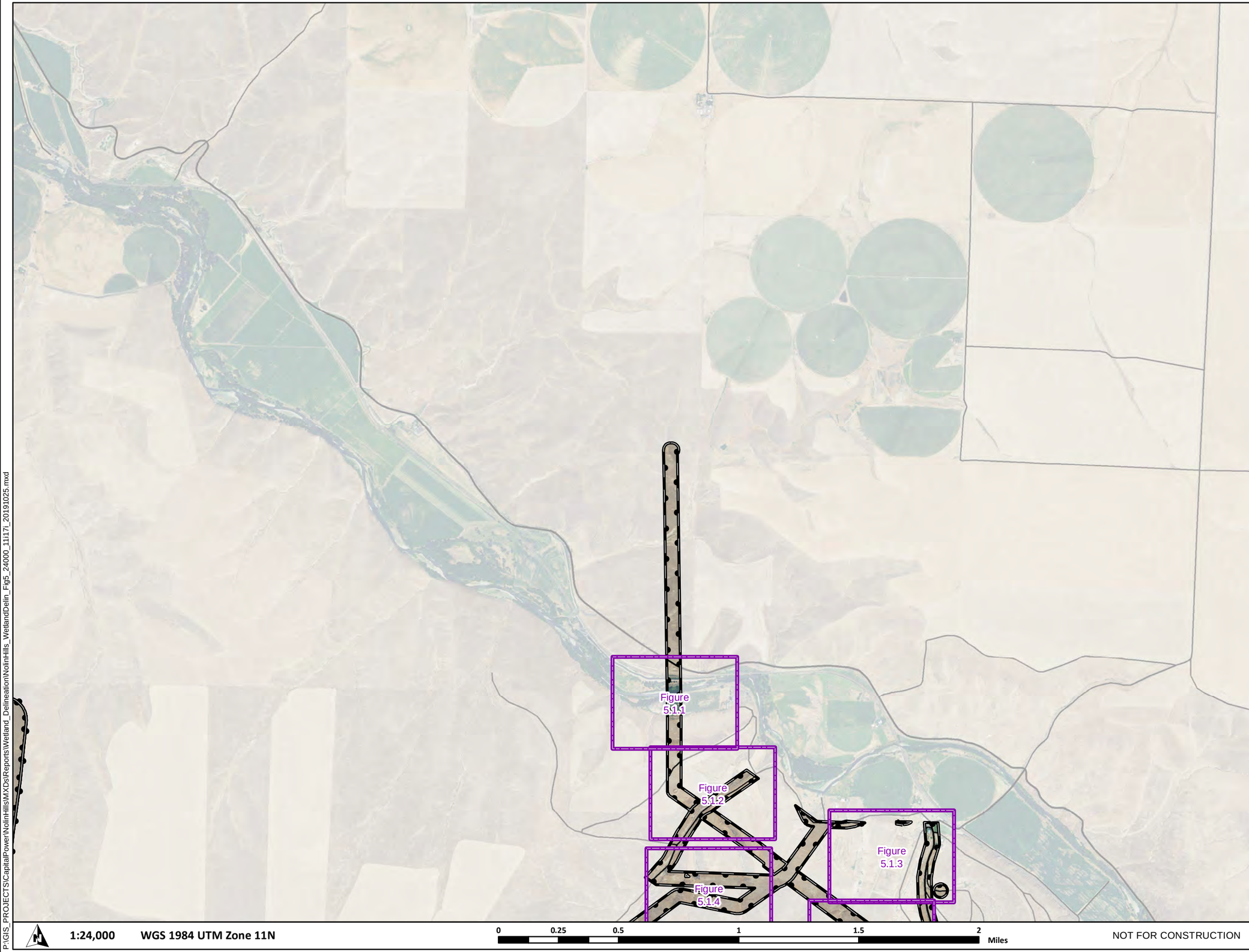
Nolin Hills Wind Power Project

Figure 5.4 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road
Local Road

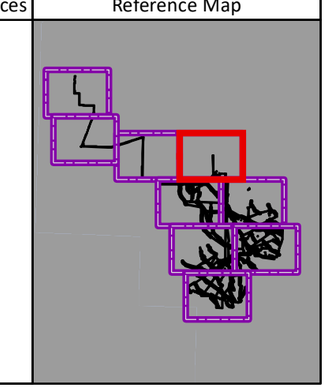
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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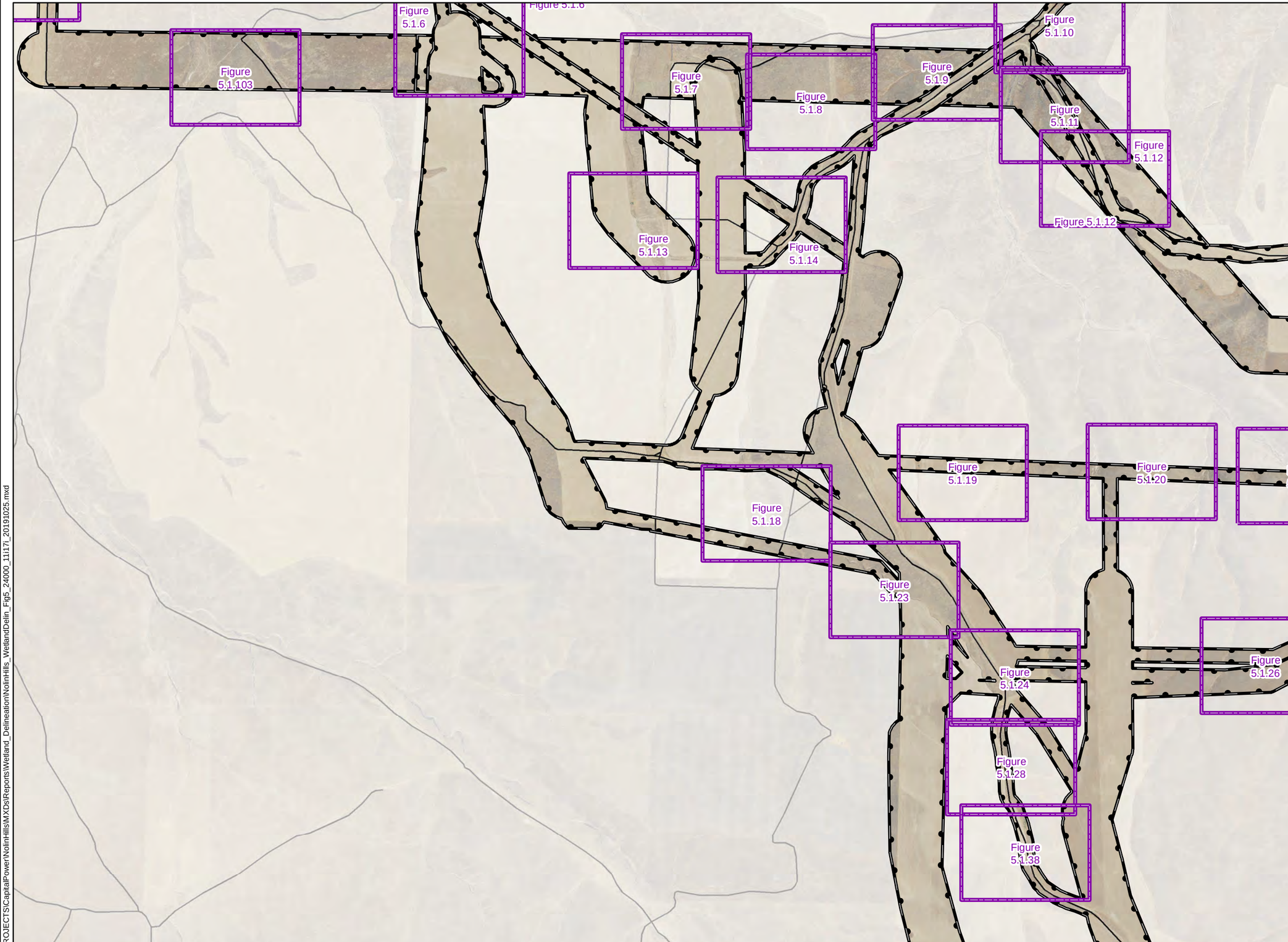
Nolin Hills Wind Power Project

Figure 5.5 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Local Road

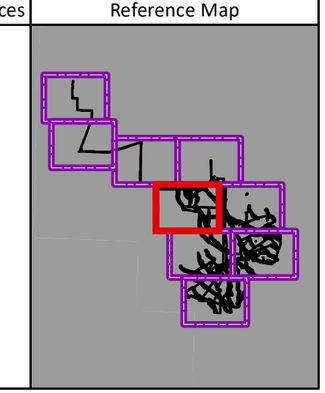
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

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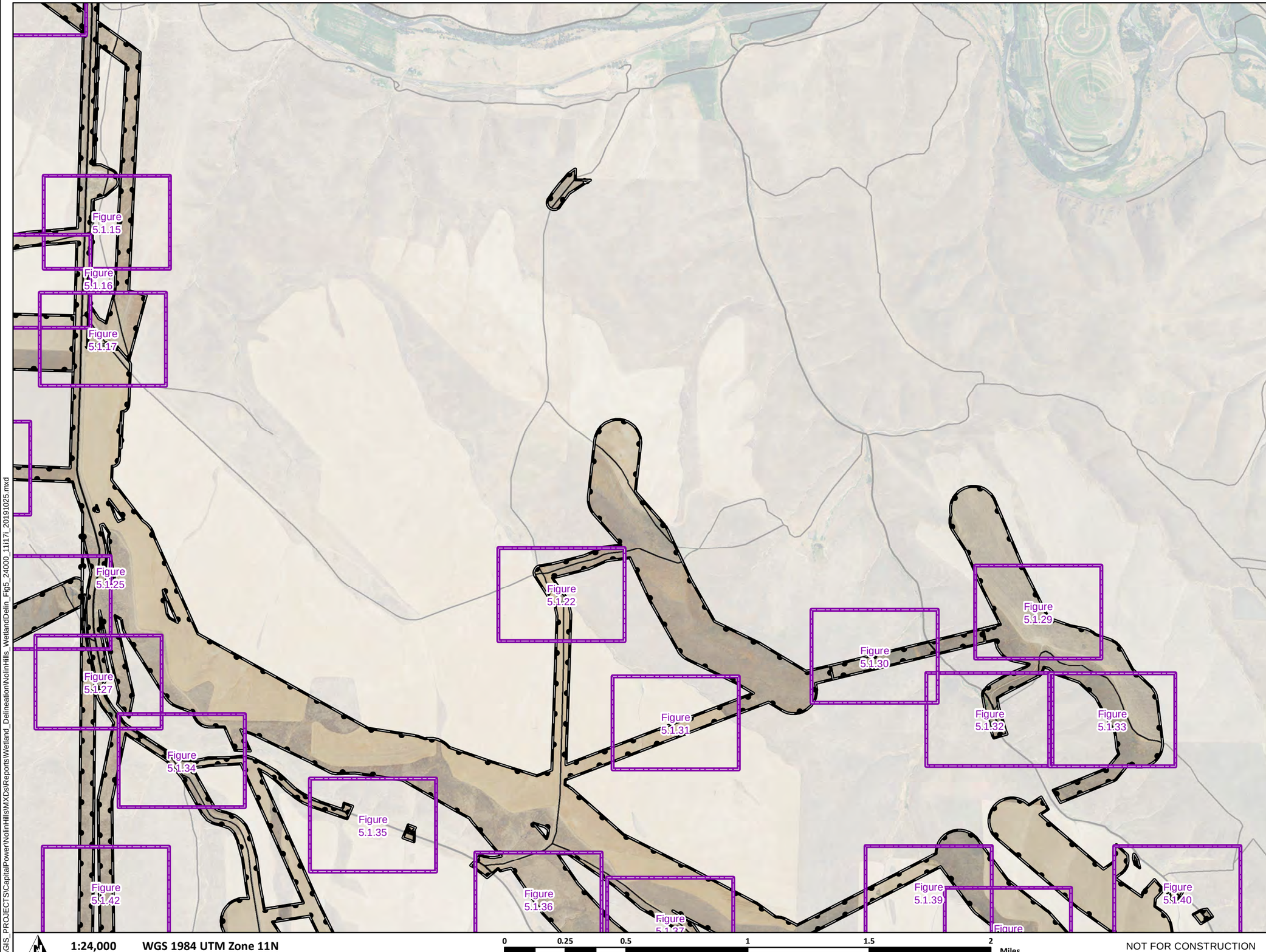
Nolin Hills Wind Power Project

Figure 5.6 Wetland Delineation Detail Map

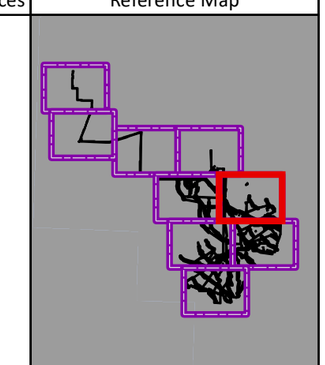
UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road
Local Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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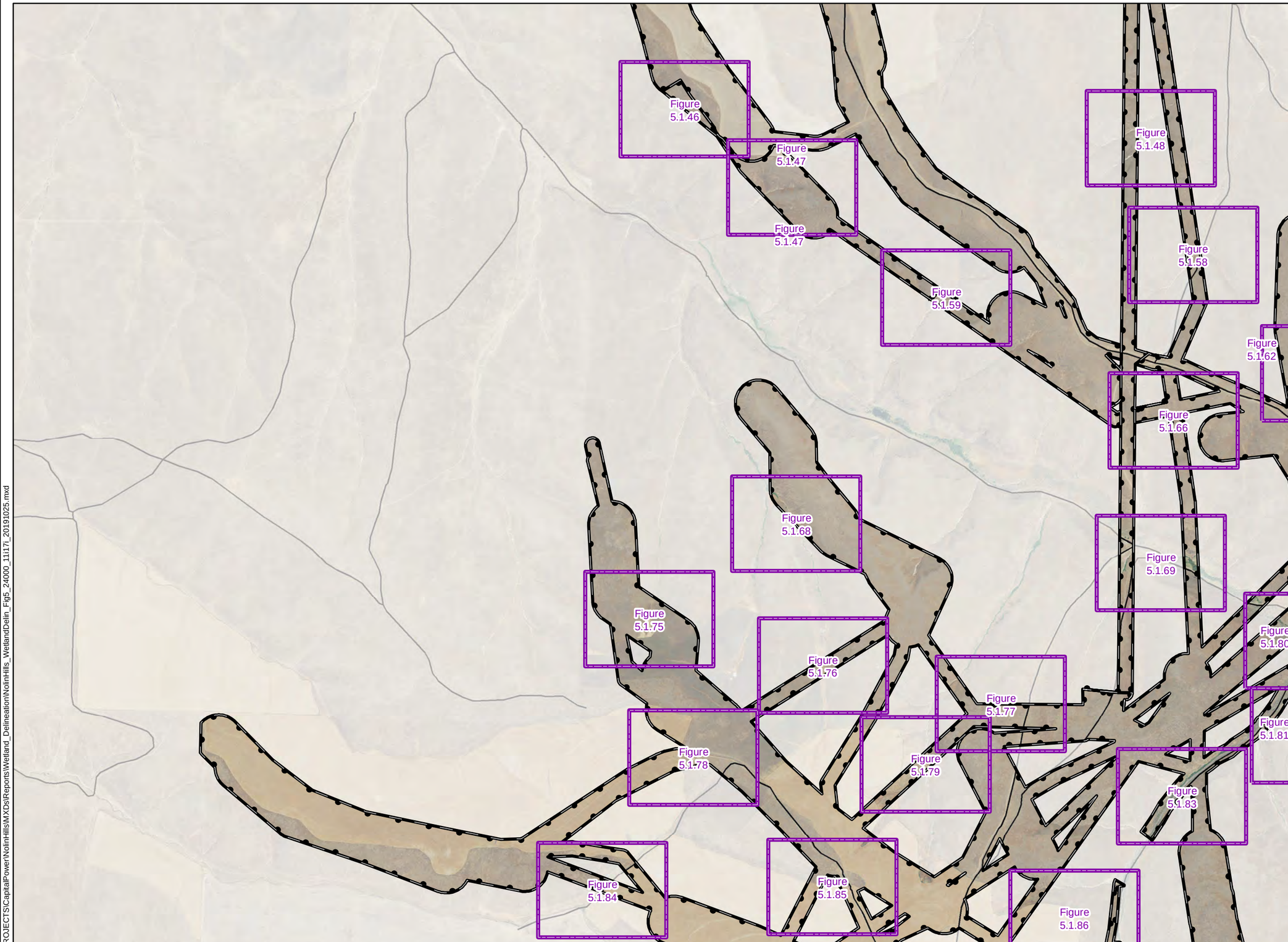
Nolin Hills Wind Power Project

Figure 5.7 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Local Road

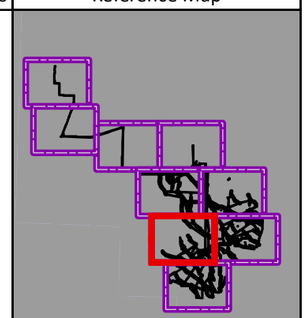
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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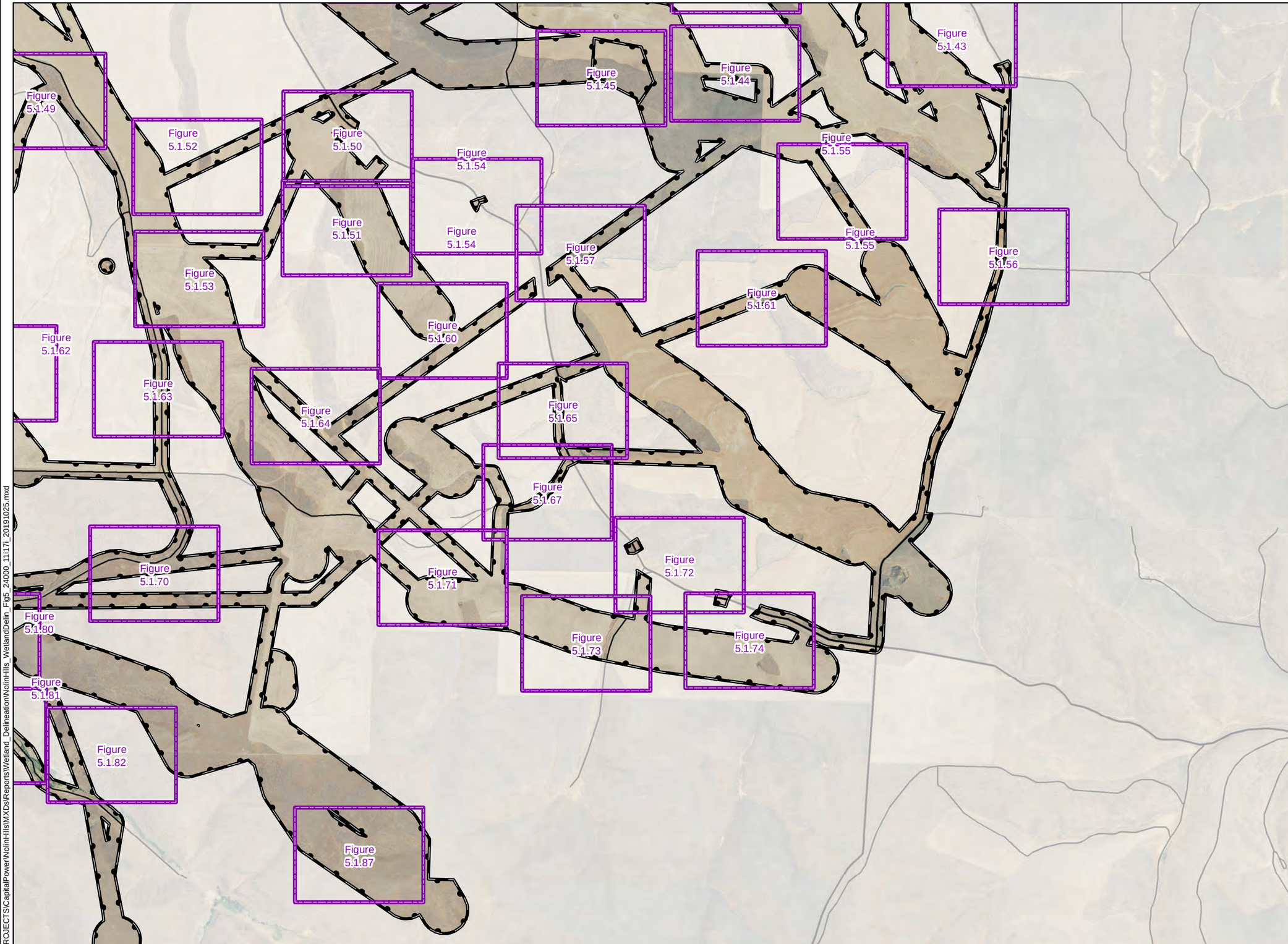
Nolin Hills Wind Power Project

Figure 5.8 Wetland Delineation Detail Map

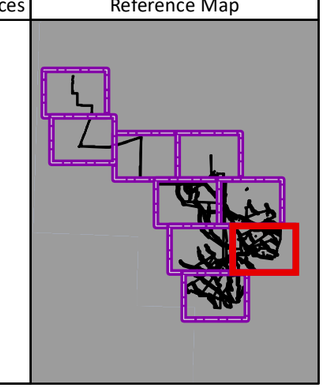
UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road
Local Road

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:24,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

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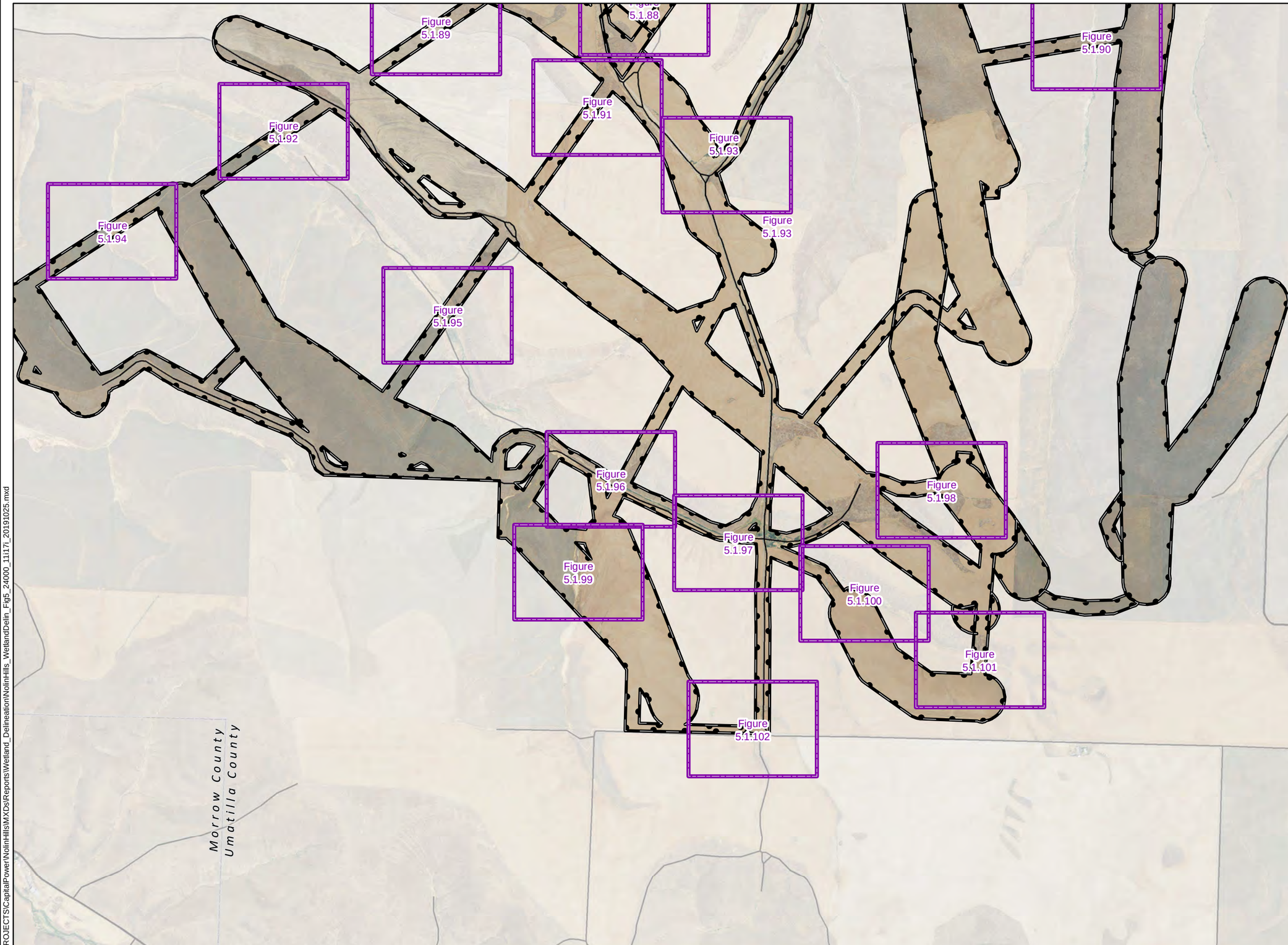
Nolin Hills Wind Power Project

Figure 5.9 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



Wetland Delineation Map Grid
Wetlands and Waters Study Area
Secondary Road
Local Road

TETRA TECH

Capital Power

1:24,000 WGS 1984 UTM Zone 11N

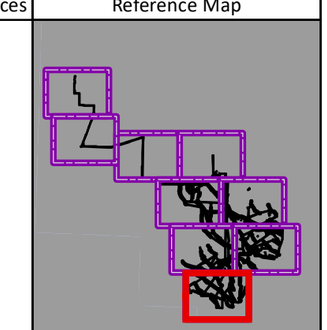
0 0.25 0.5 1 1.5 2 Miles

NOT FOR CONSTRUCTION

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.1 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

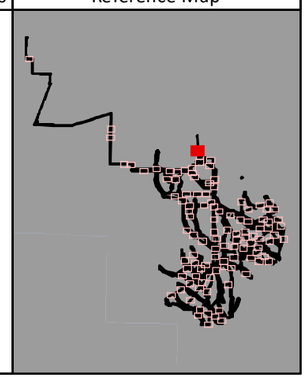
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.2
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

EPH-058 was fully delineated only in the vicinity of where potential project impacts might occur. The stream continues to the SW and the NE.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

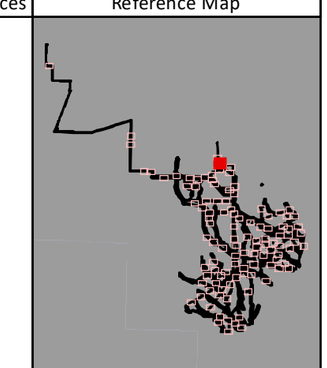
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.3 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

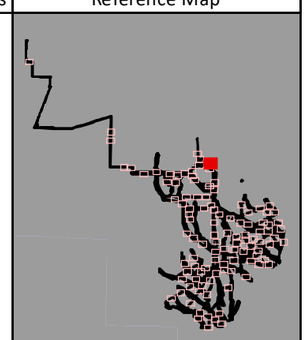
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.4
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

EPH-058 was fully delineated only in the vicinity of where potential project impacts might occur. The stream continues to the SW, outside of the study area, and to the NE.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

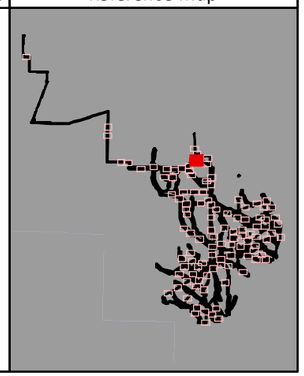
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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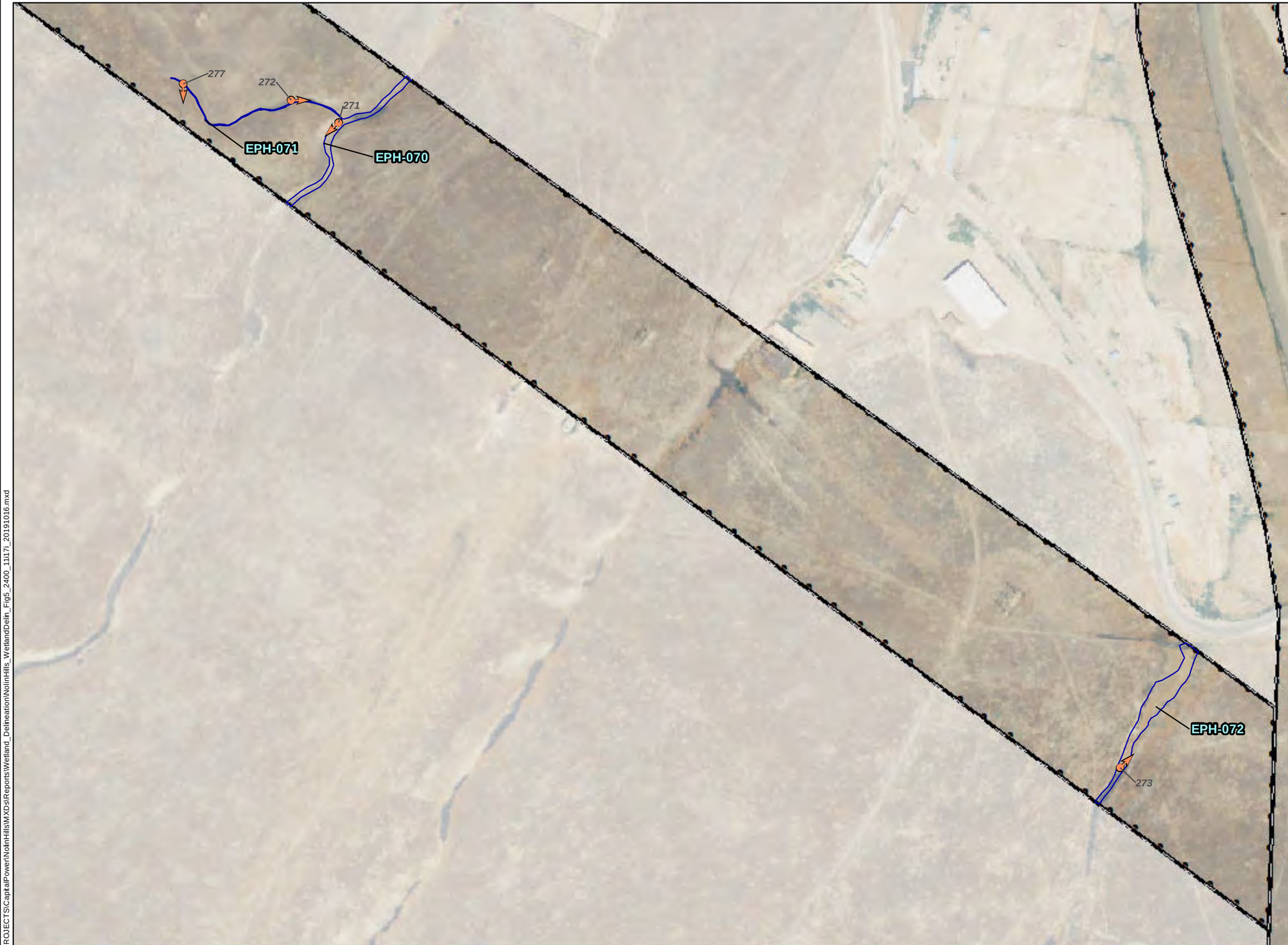


Nolin Hills Wind Power Project

Figure 5.1.5 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]EPH-071 is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

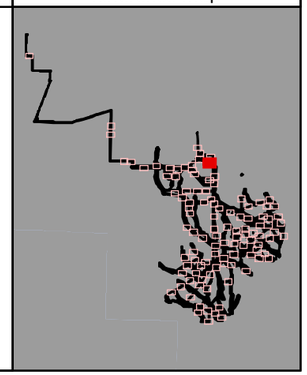
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.6 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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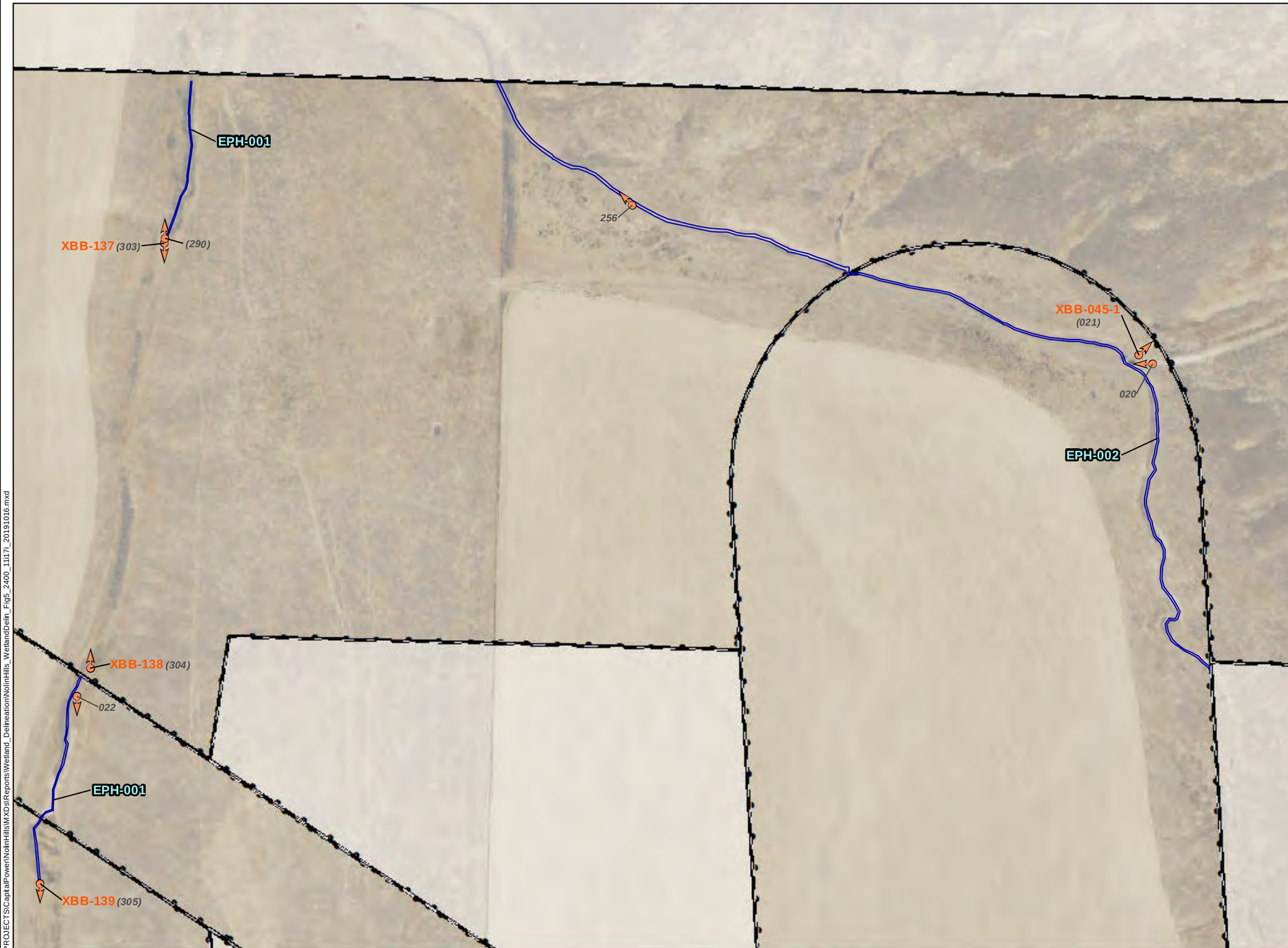
Nolin Hills Wind Power Project

Figure 5.1.7
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



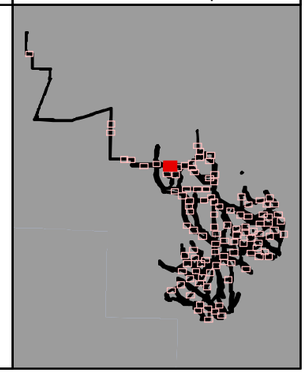
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.8 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

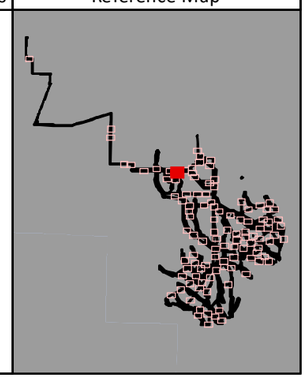
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.9
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

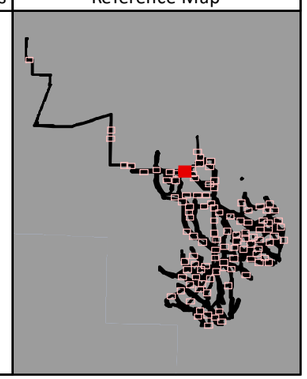
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.10
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

EPH-058 was fully delineated only in the vicinity of where potential project impacts might occur. The stream continues to the South, outside of the study area, and to the NE.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

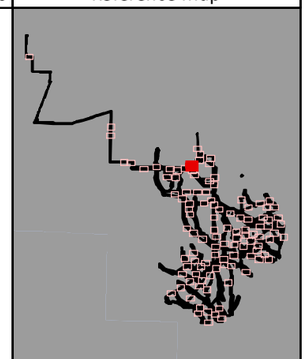
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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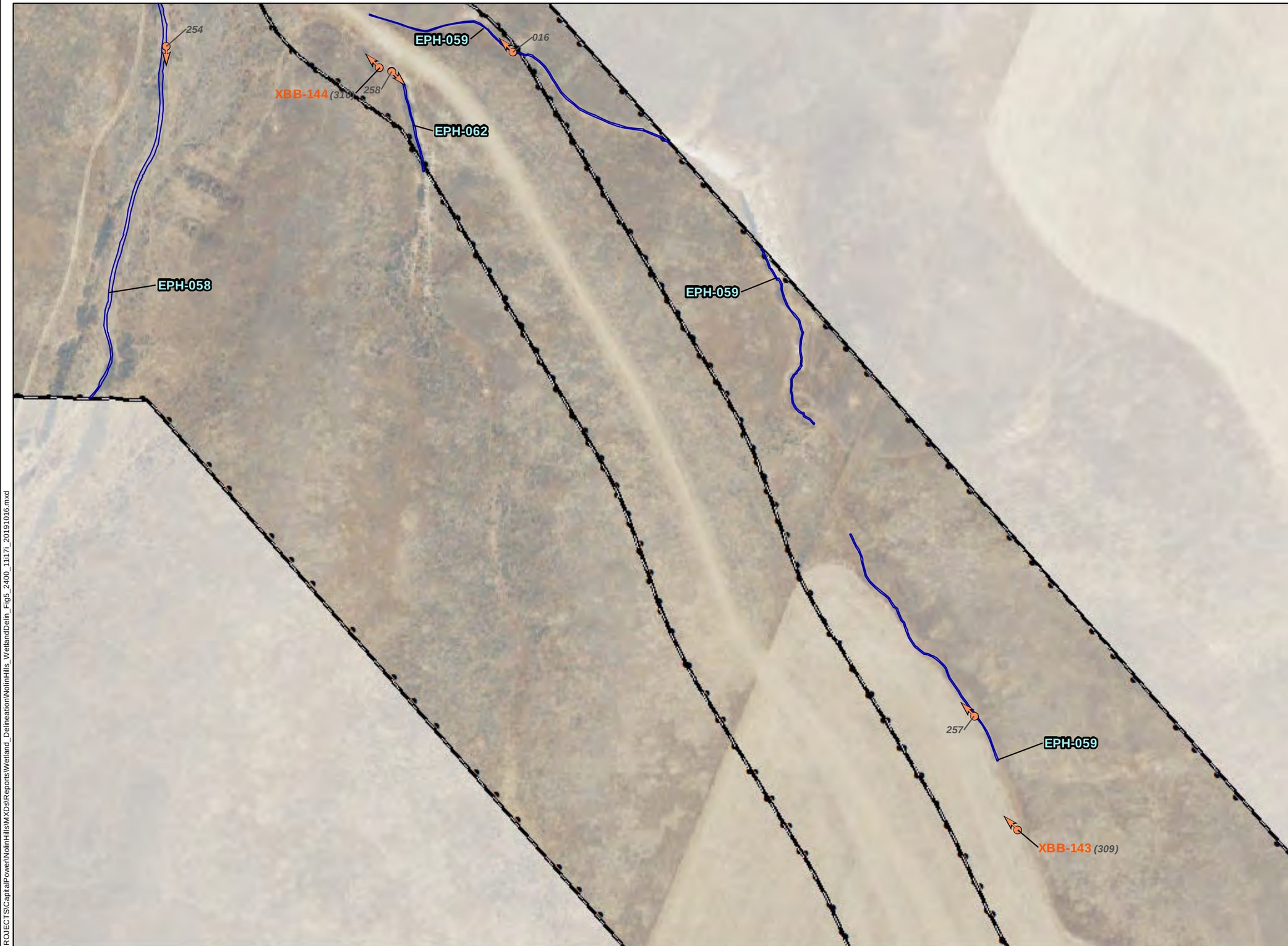
Nolin Hills Wind Power Project

Figure 5.1.11
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



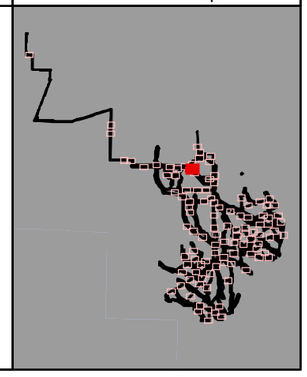
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.12
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

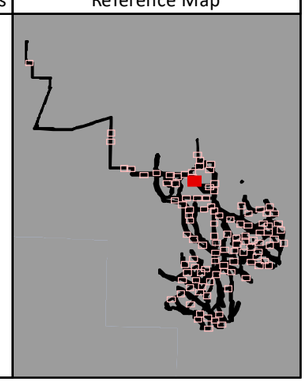
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.13 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

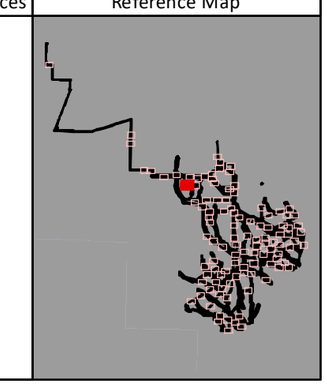
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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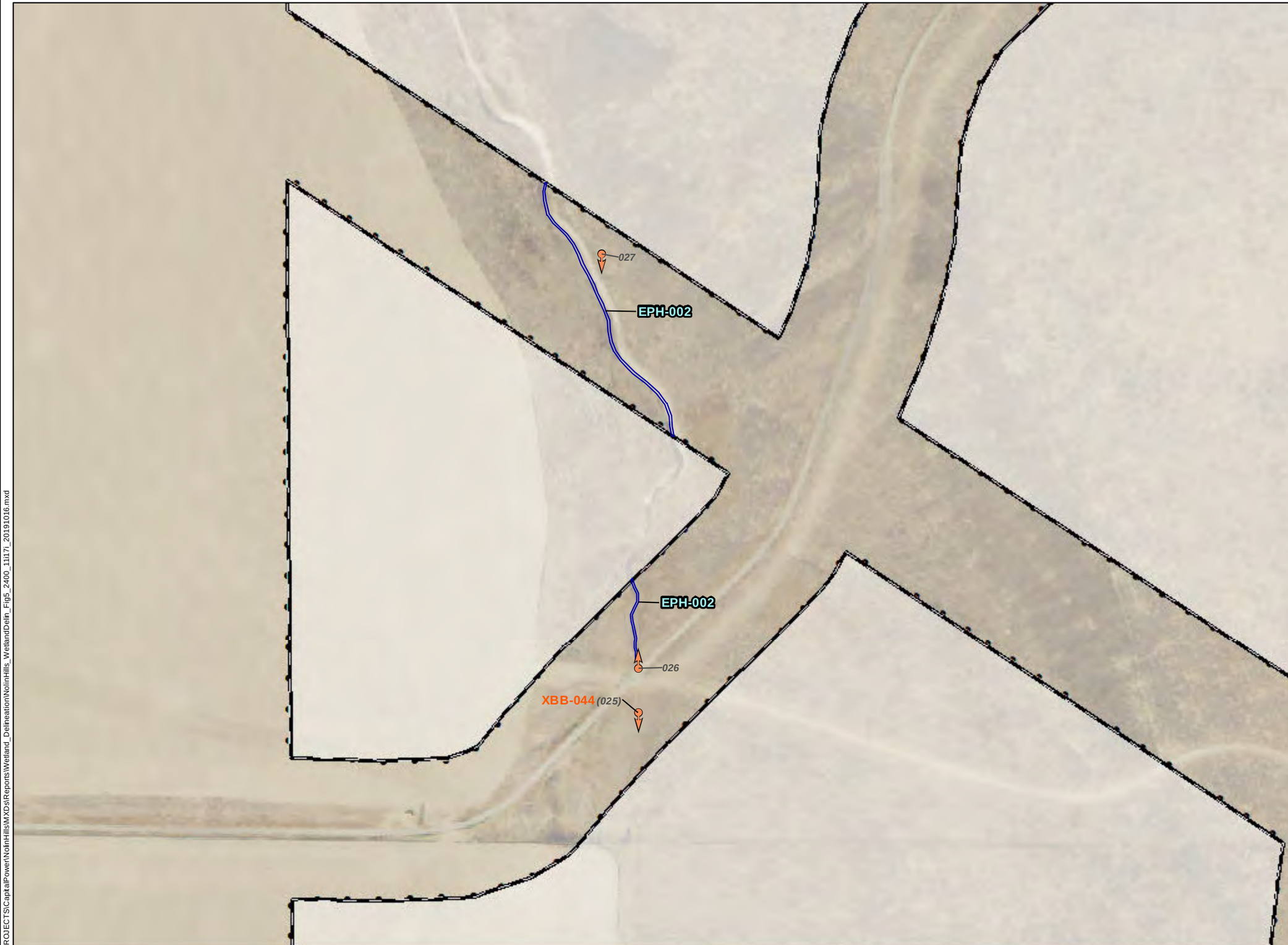
Nolin Hills Wind Power Project

Figure 5.1.14
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

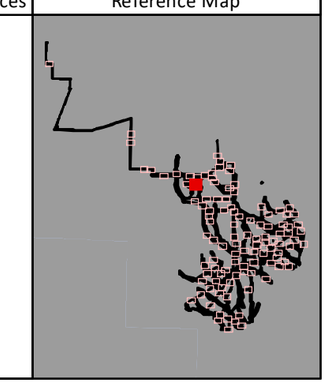
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.15 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]EPH-063 is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

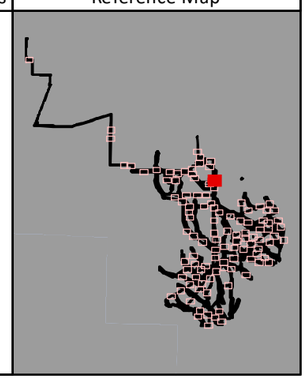
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.16
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

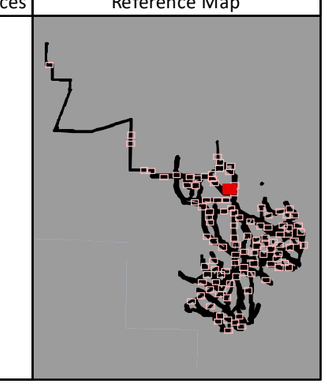
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.17
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

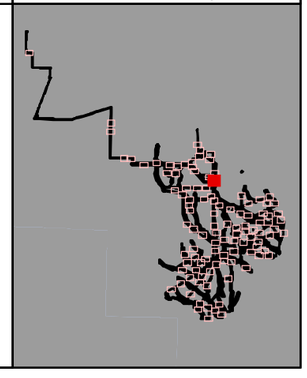
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.18 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

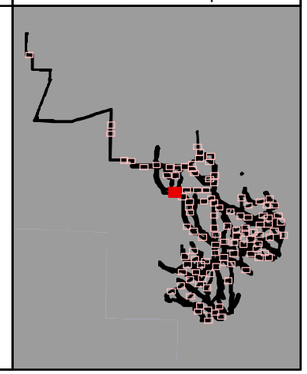
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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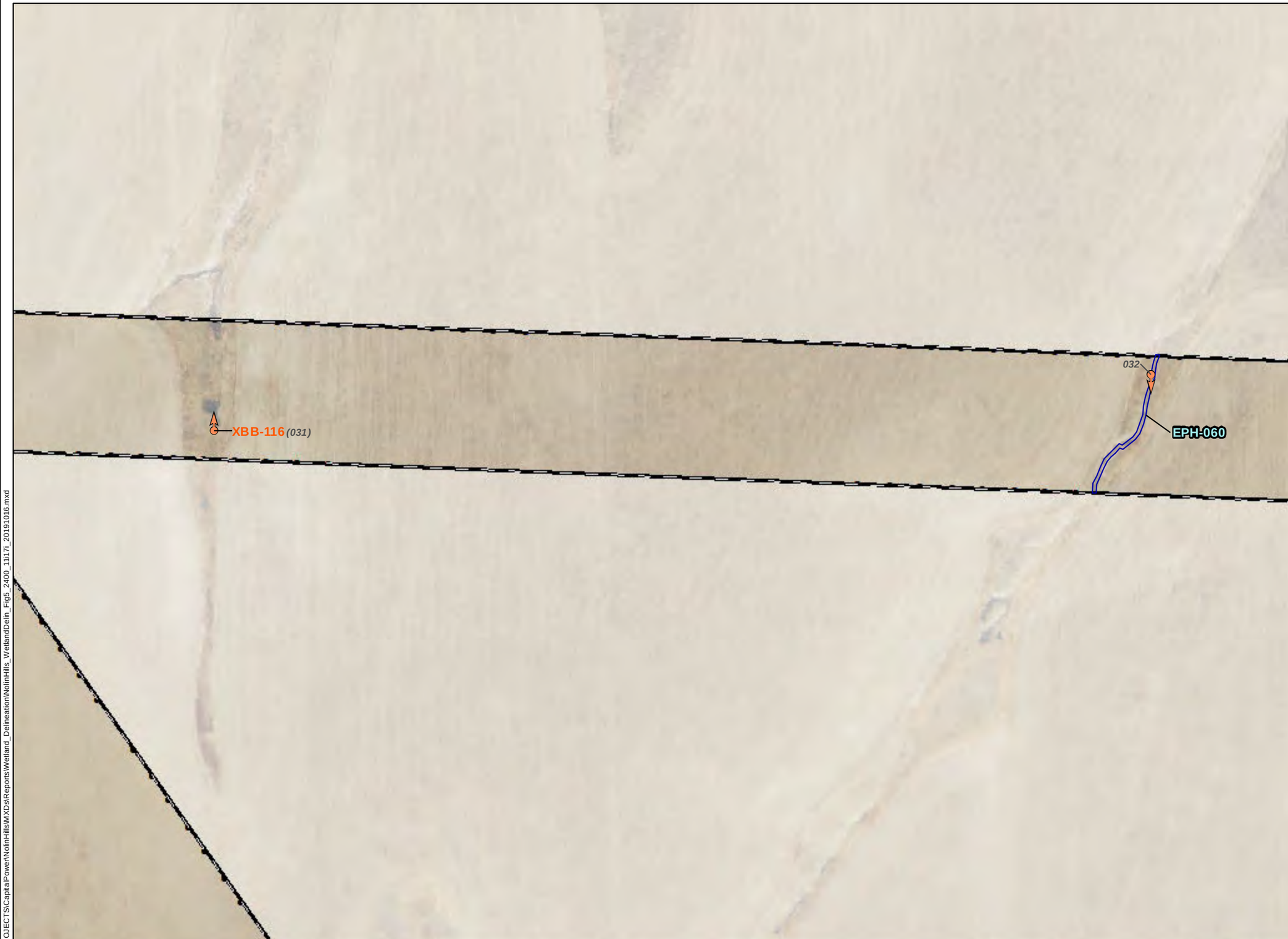
Nolin Hills Wind Power Project

Figure 5.1.19
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



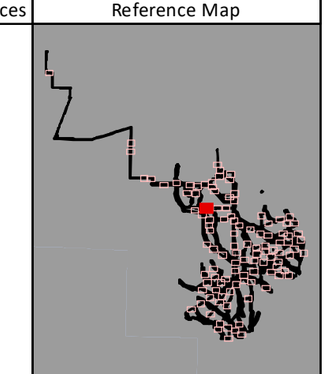
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.20 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

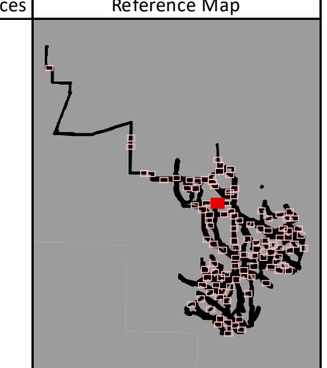
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.21
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

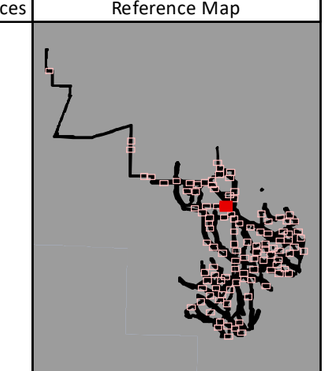
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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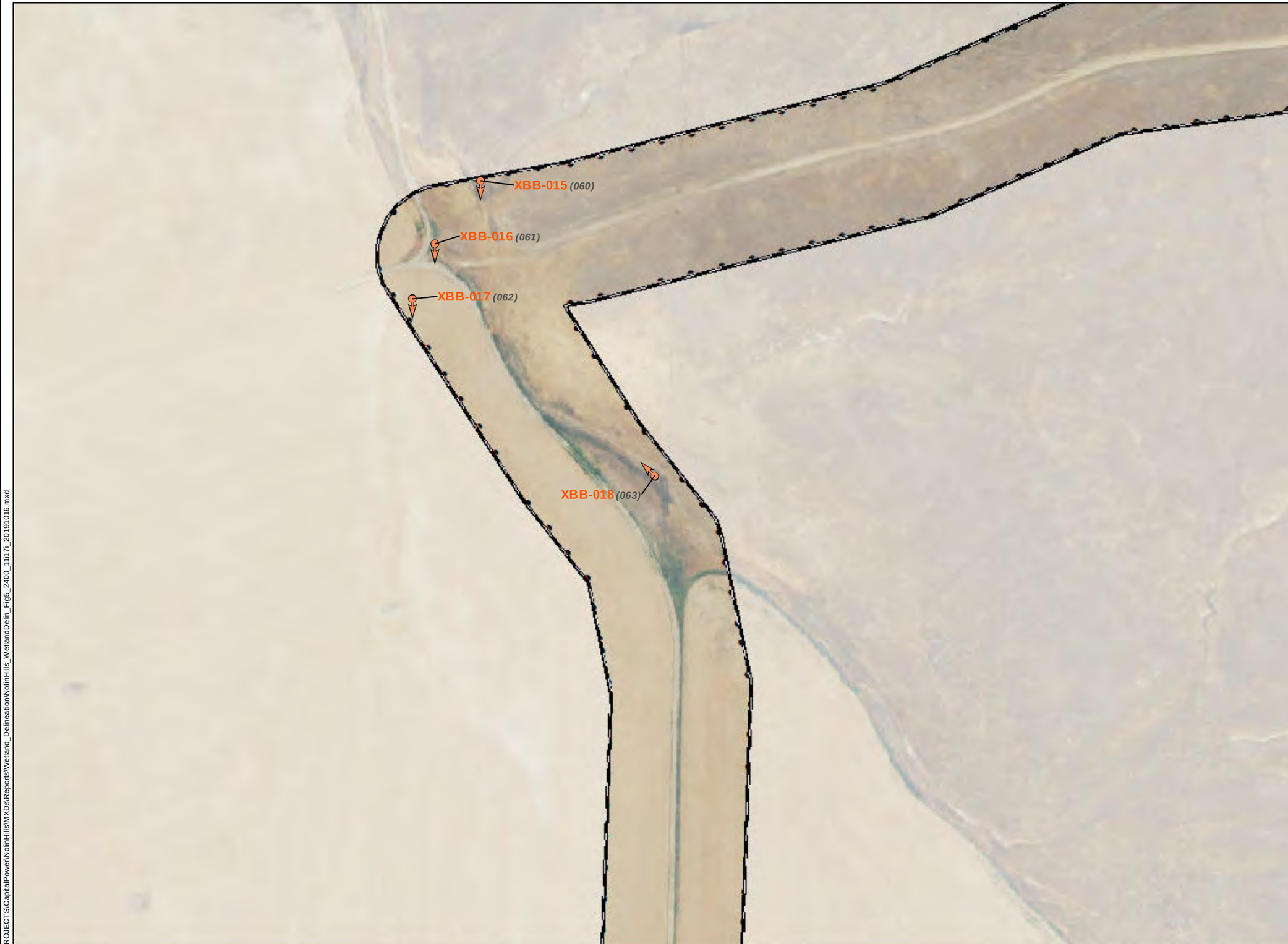


Nolin Hills Wind Power Project

Figure 5.1.22 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

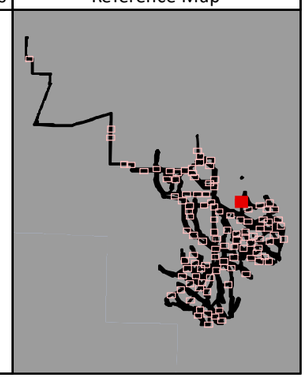
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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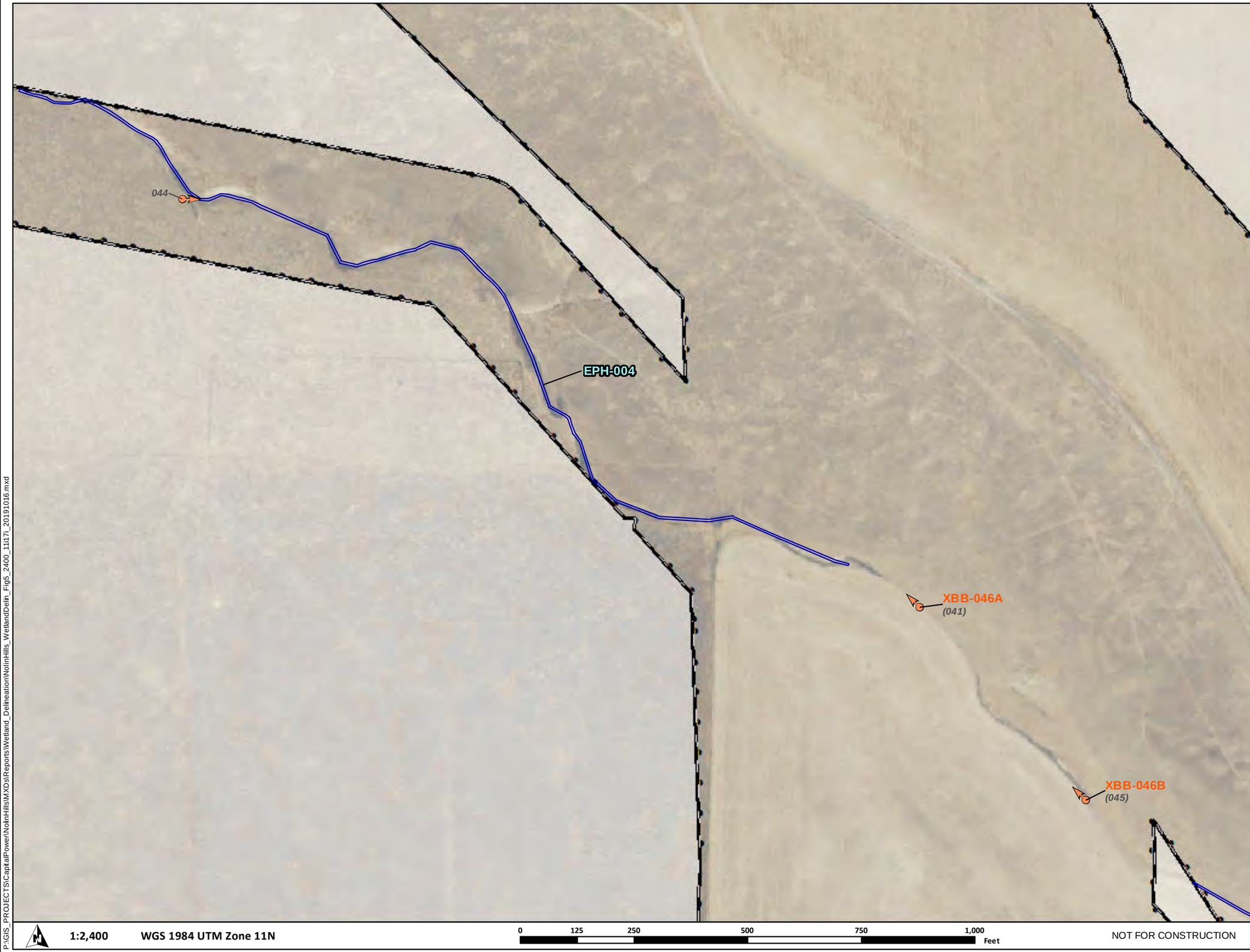
Nolin Hills Wind Power Project

Figure 5.1.23
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

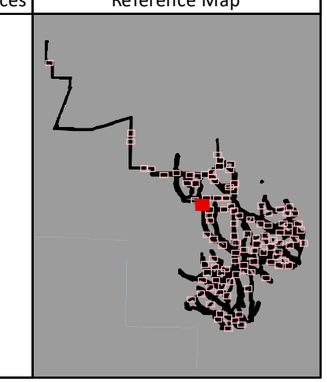
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.24
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

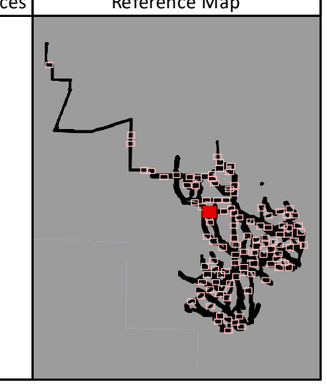
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.25
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

EPH-010 was fully delineated only in the vicinity of where potential project impacts might occur. The stream continues to the NW and the South.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

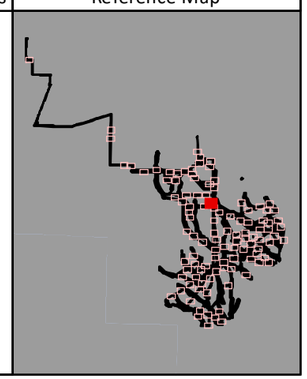
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.26
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

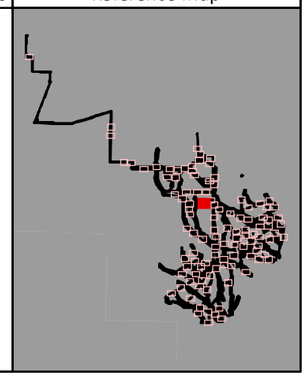
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.27
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

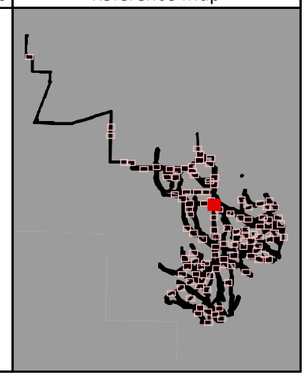
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.28
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

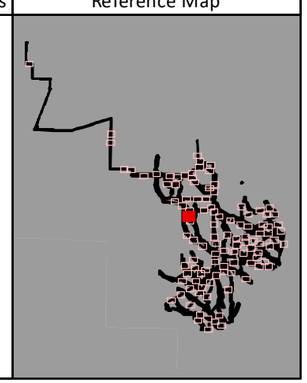
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.29 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

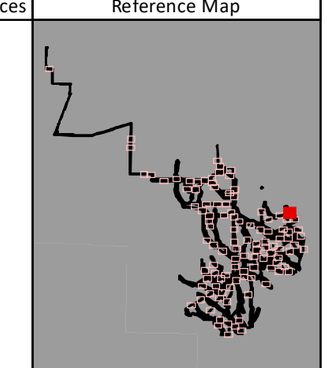
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.30
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

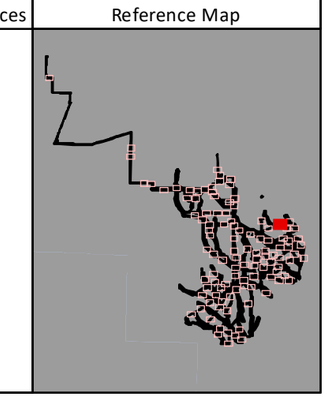
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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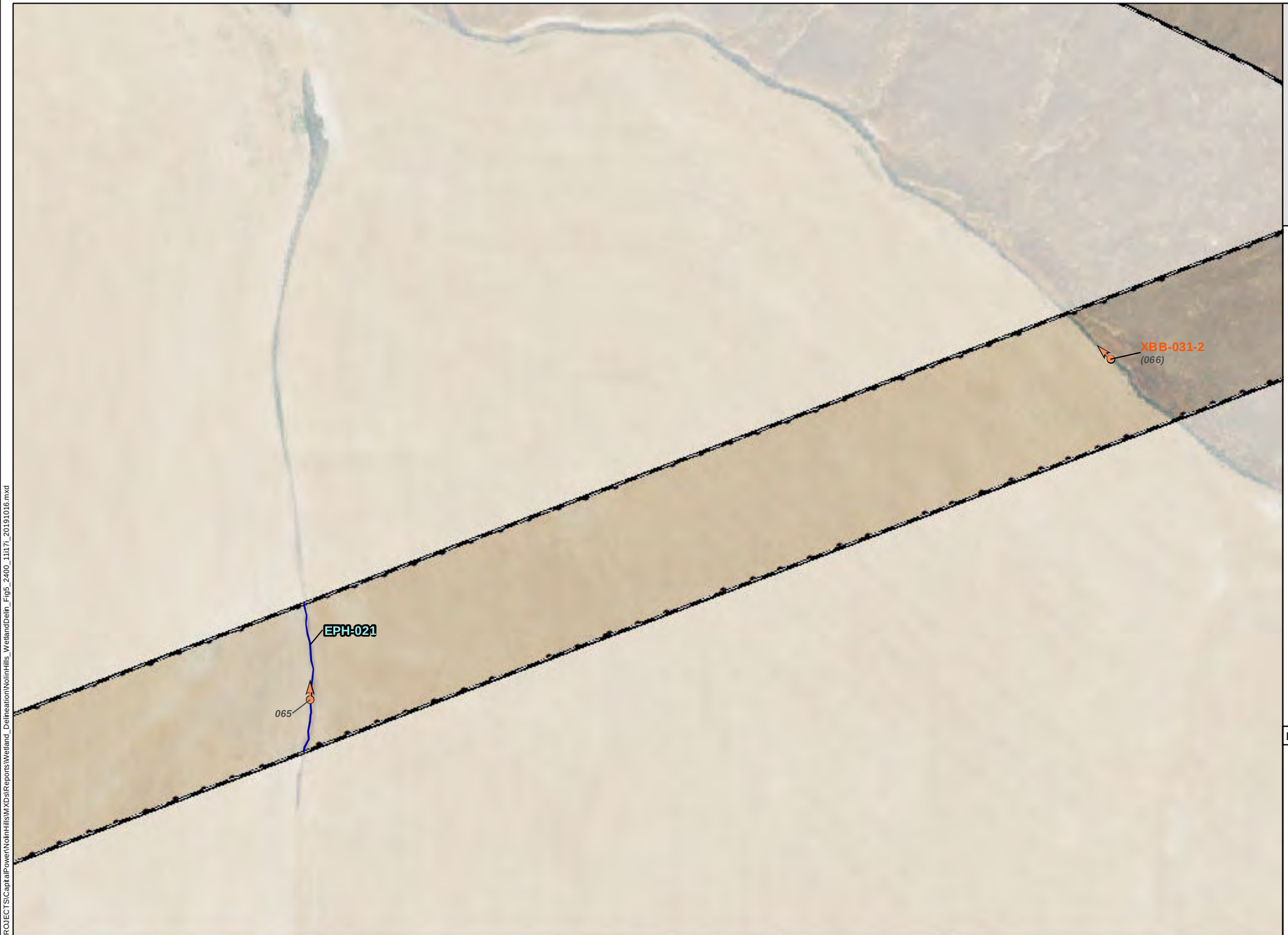
Nolin Hills Wind Power Project

Figure 5.1.31
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

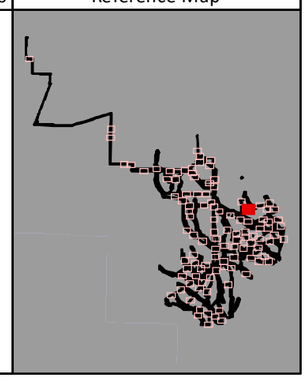
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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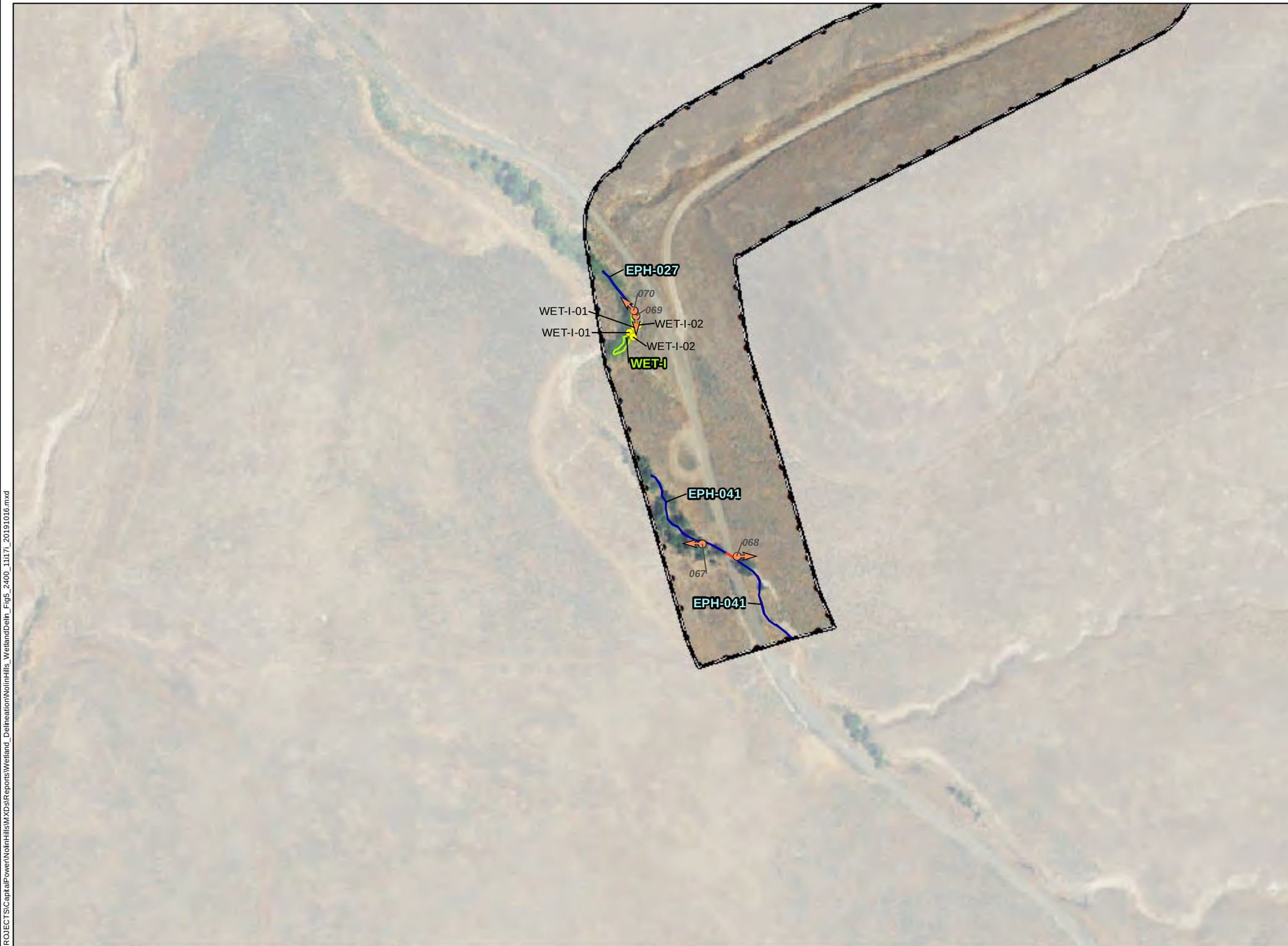


Nolin Hills Wind Power Project

Figure 5.1.32
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]WET-I and EPH-027 are completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

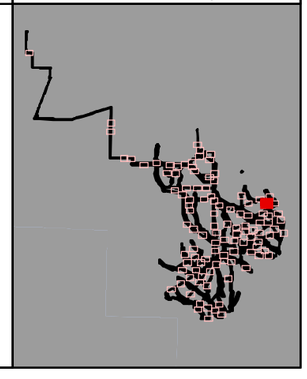
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.33
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

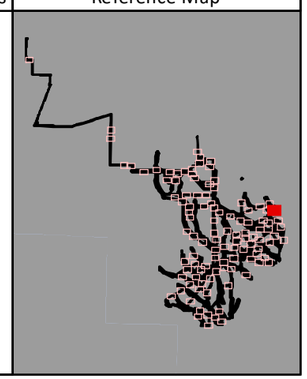
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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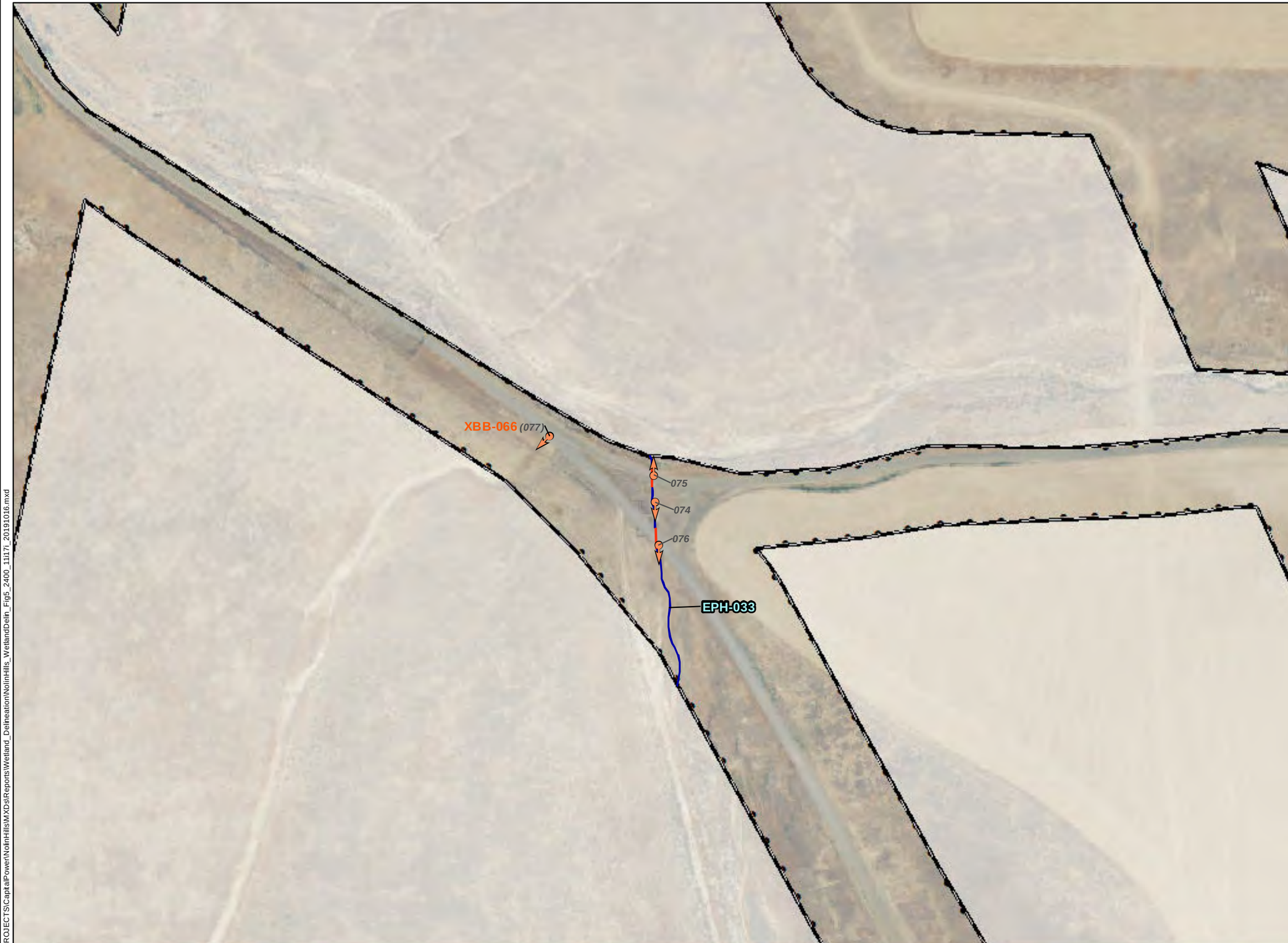
Nolin Hills Wind Power Project

Figure 5.1.34
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

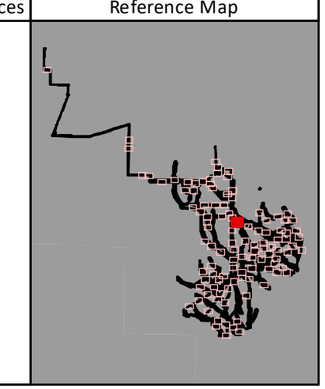
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.35
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

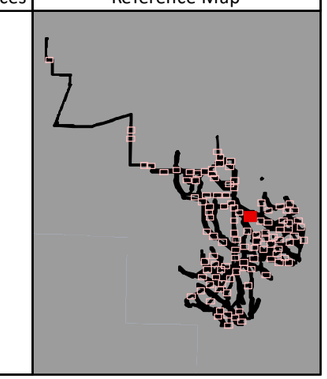
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.36
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]EPH-019 is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

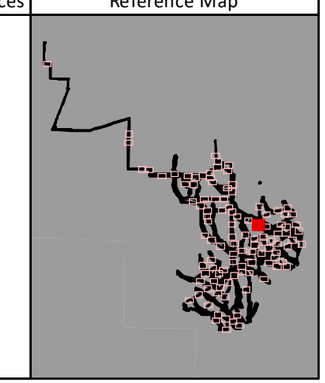
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.37 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

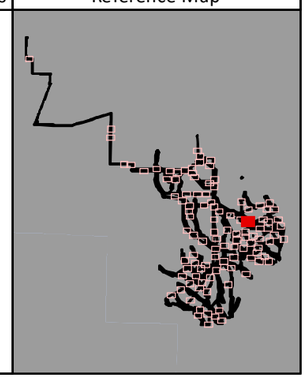
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.38
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

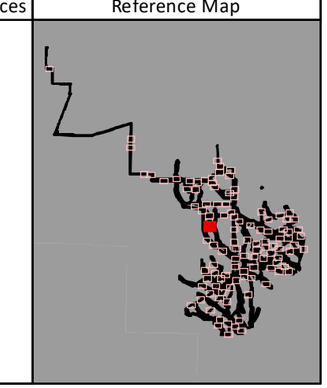
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.39
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

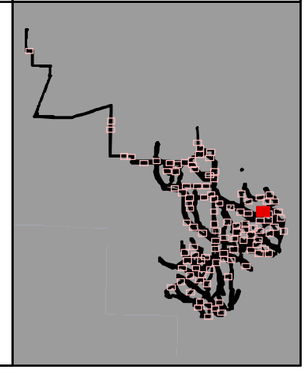
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.40
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

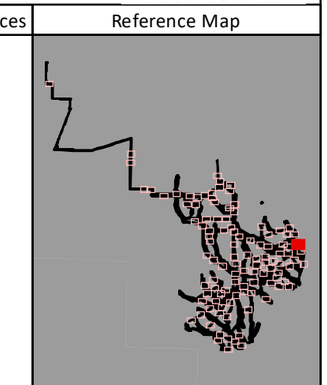
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.41
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

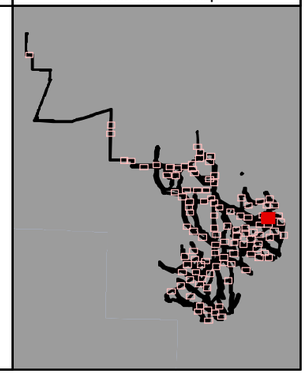
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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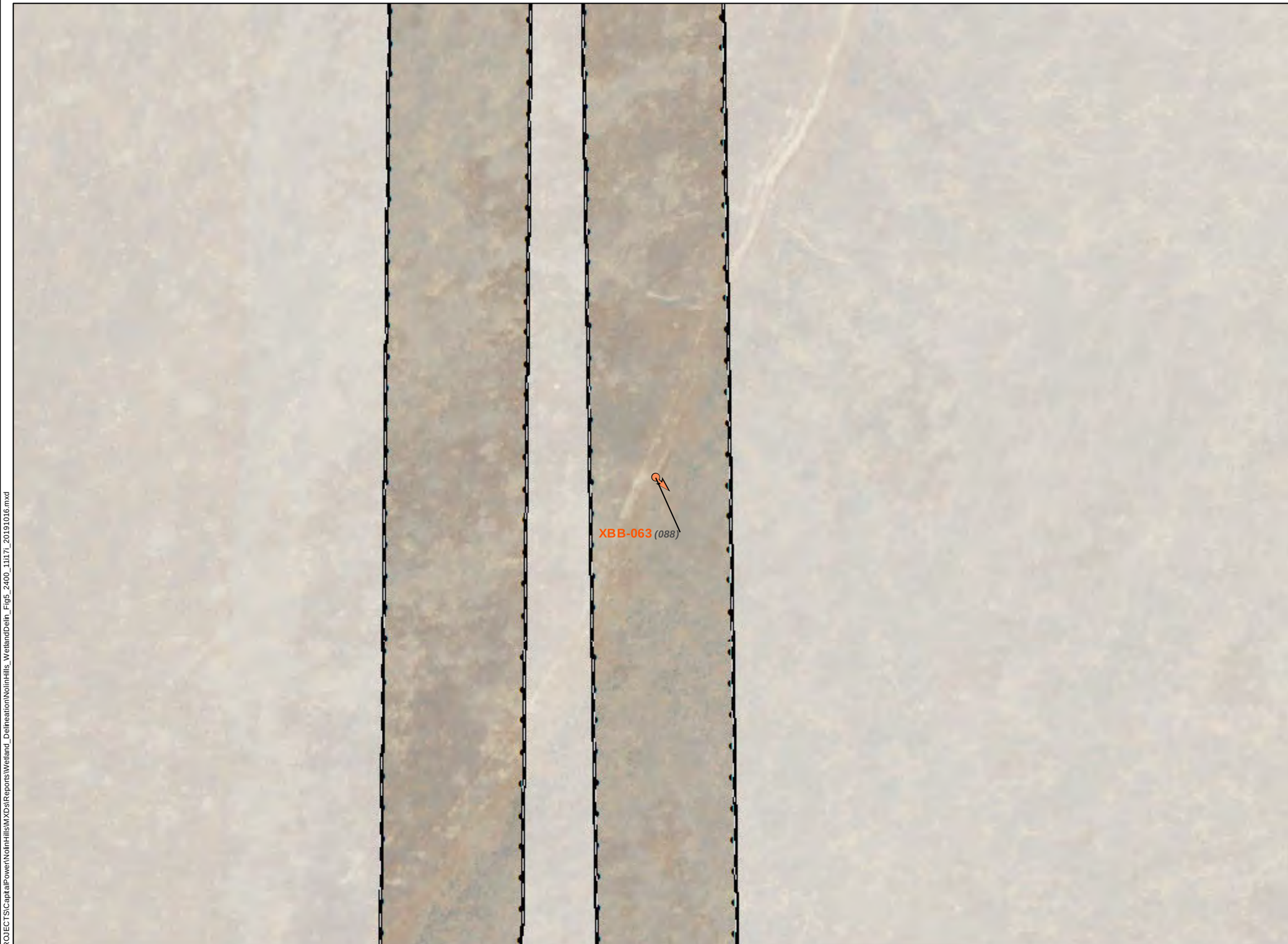


Nolin Hills Wind Power Project

Figure 5.1.42
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

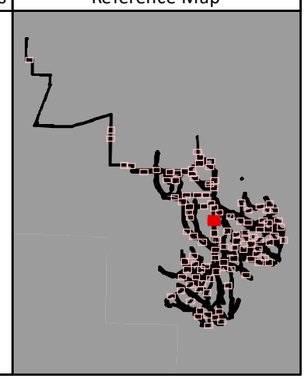
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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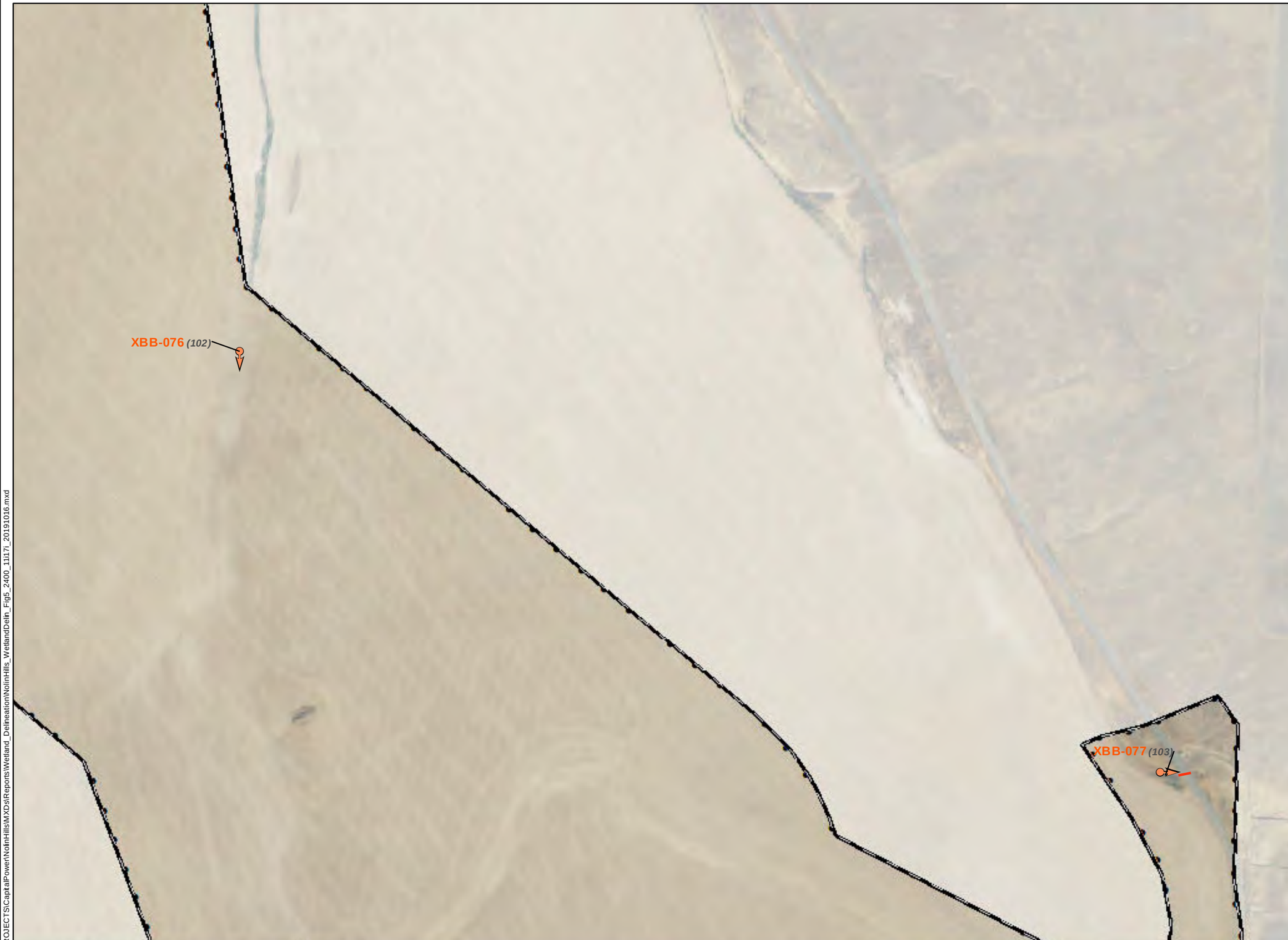
Nolin Hills Wind Power Project

Figure 5.1.43
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

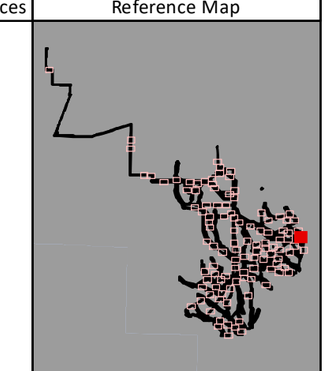
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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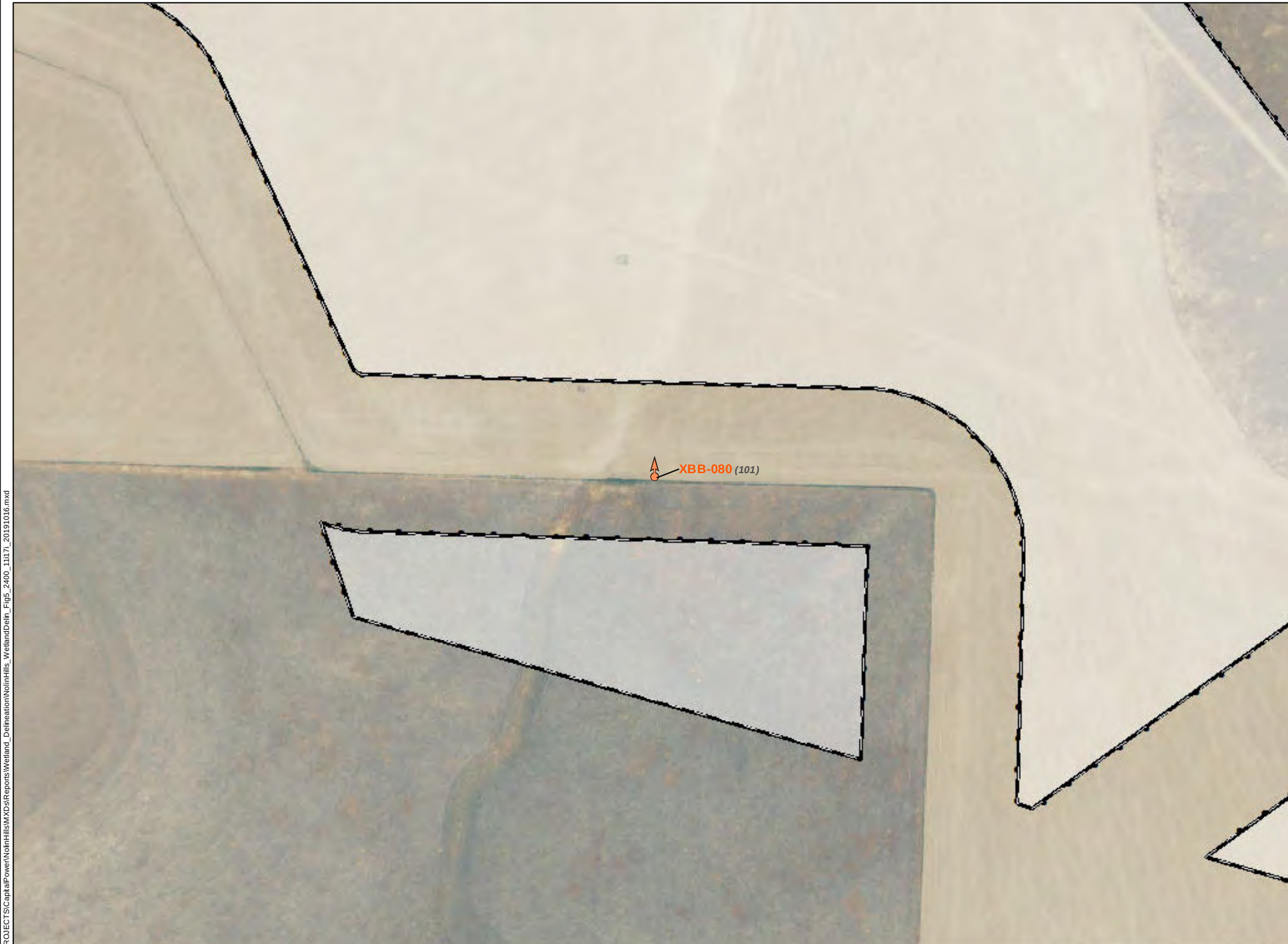


Nolin Hills Wind Power Project

Figure 5.1.44
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

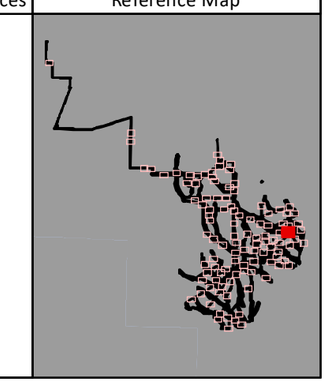
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.45 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

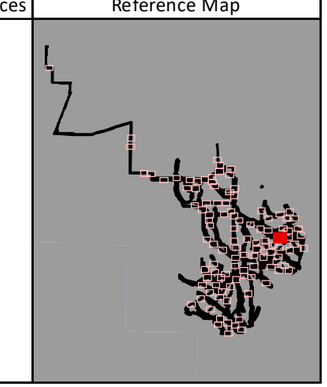
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.46
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

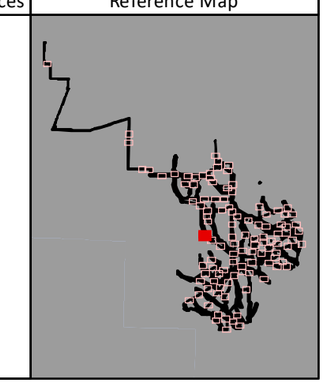
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.47
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

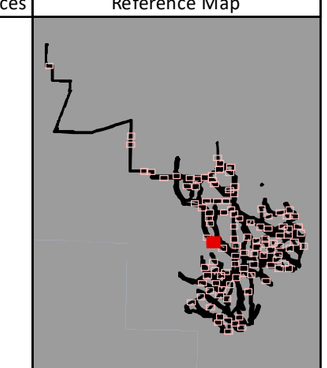
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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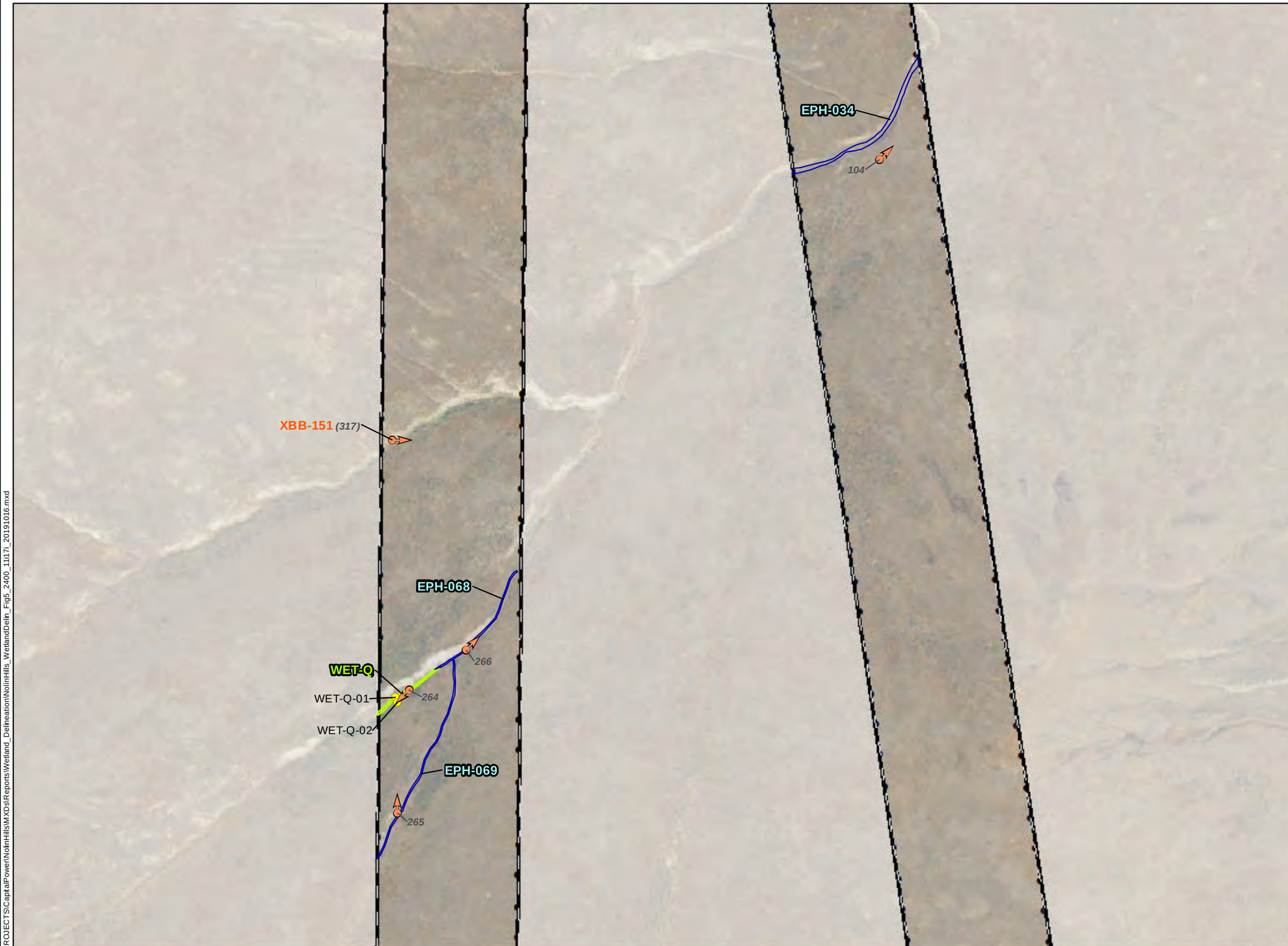
Nolin Hills Wind Power Project

Figure 5.1.48
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

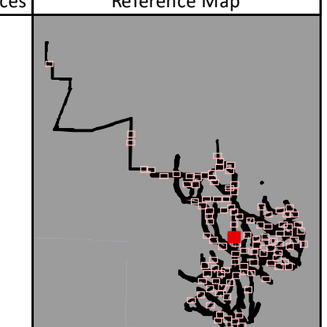
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.49
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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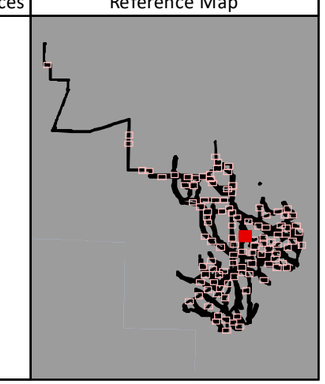
TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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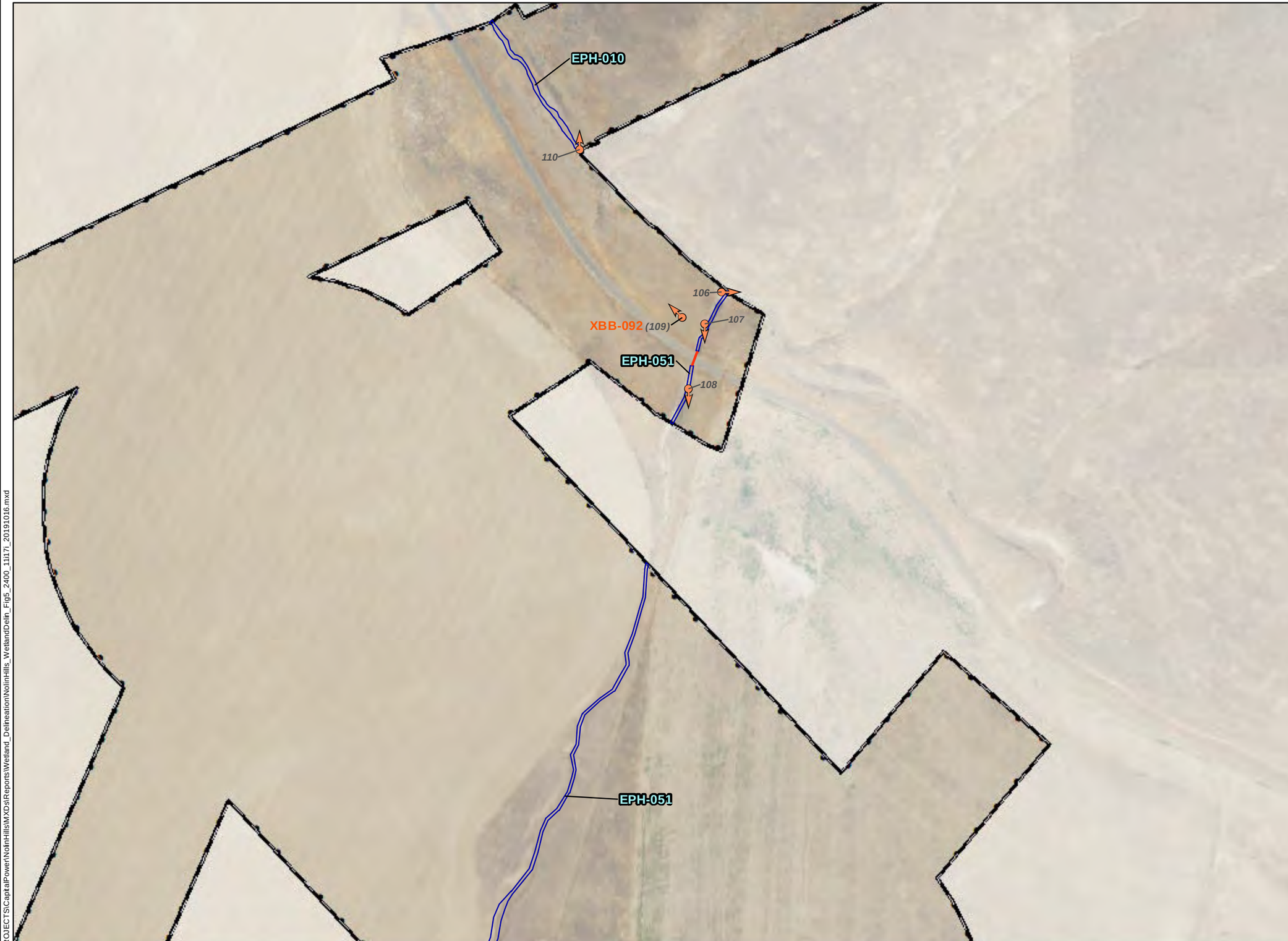

Nolin Hills Wind Power Project

Figure 5.1.50
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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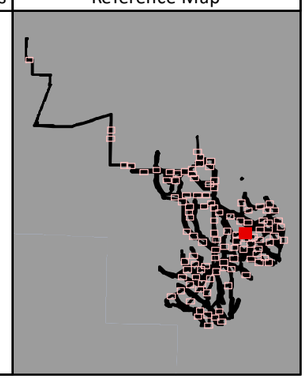
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.51
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

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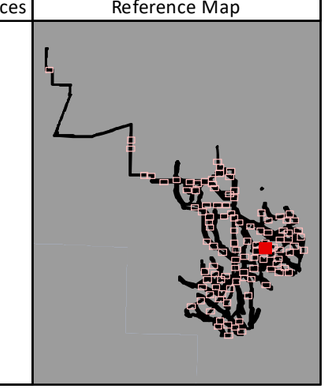
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.52
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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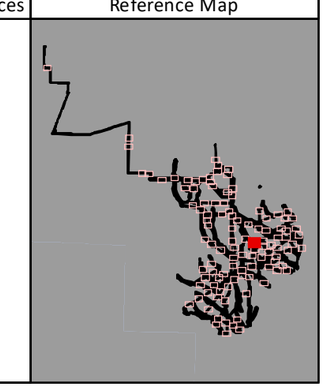
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.53
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

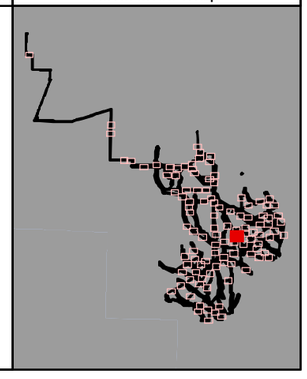
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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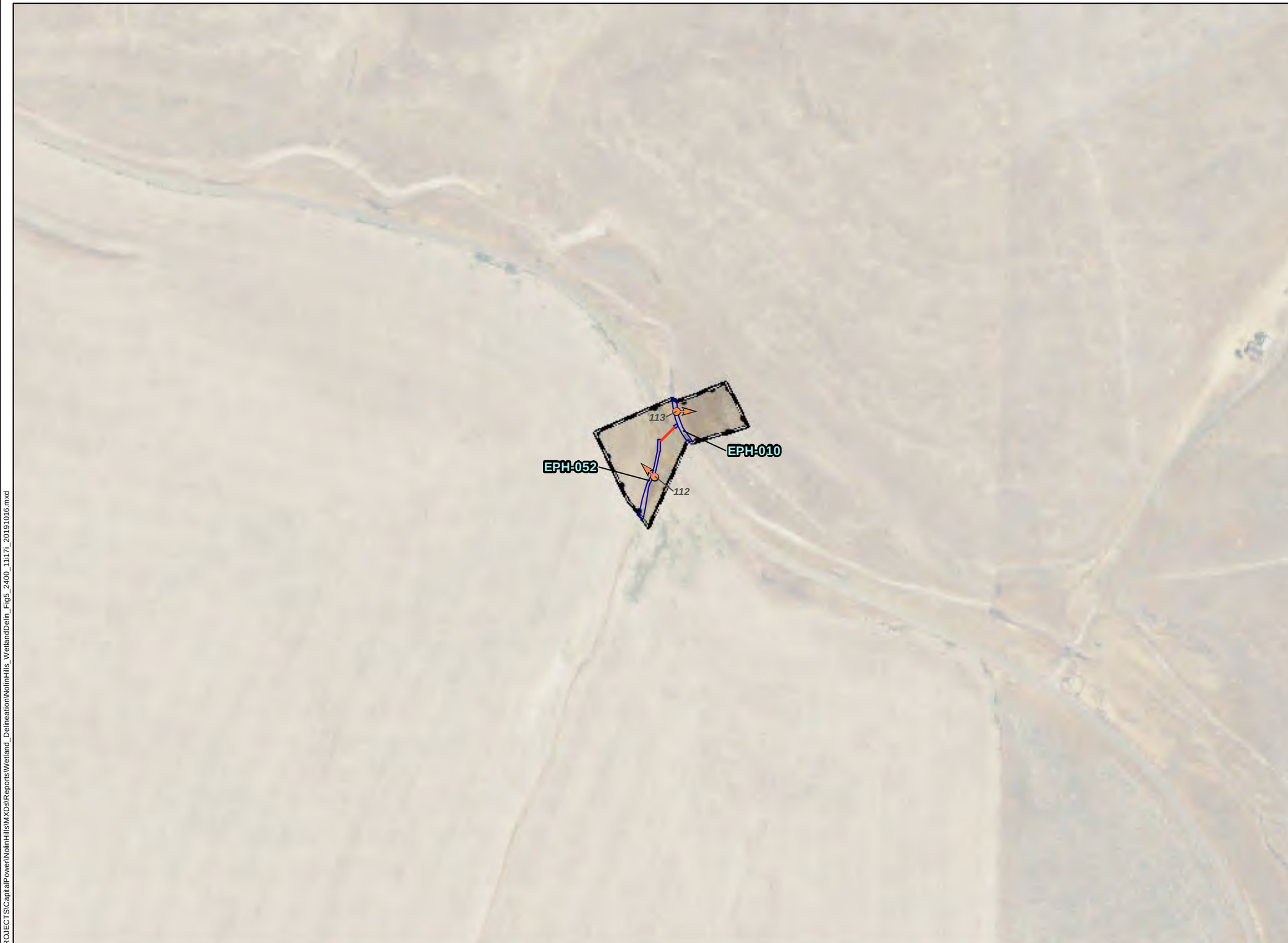


Nolin Hills Wind Power Project

Figure 5.1.54 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

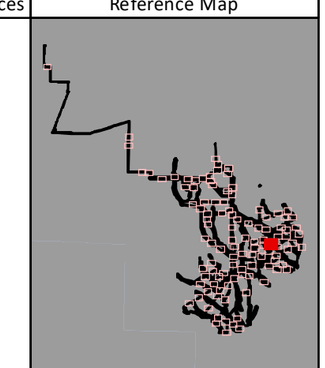
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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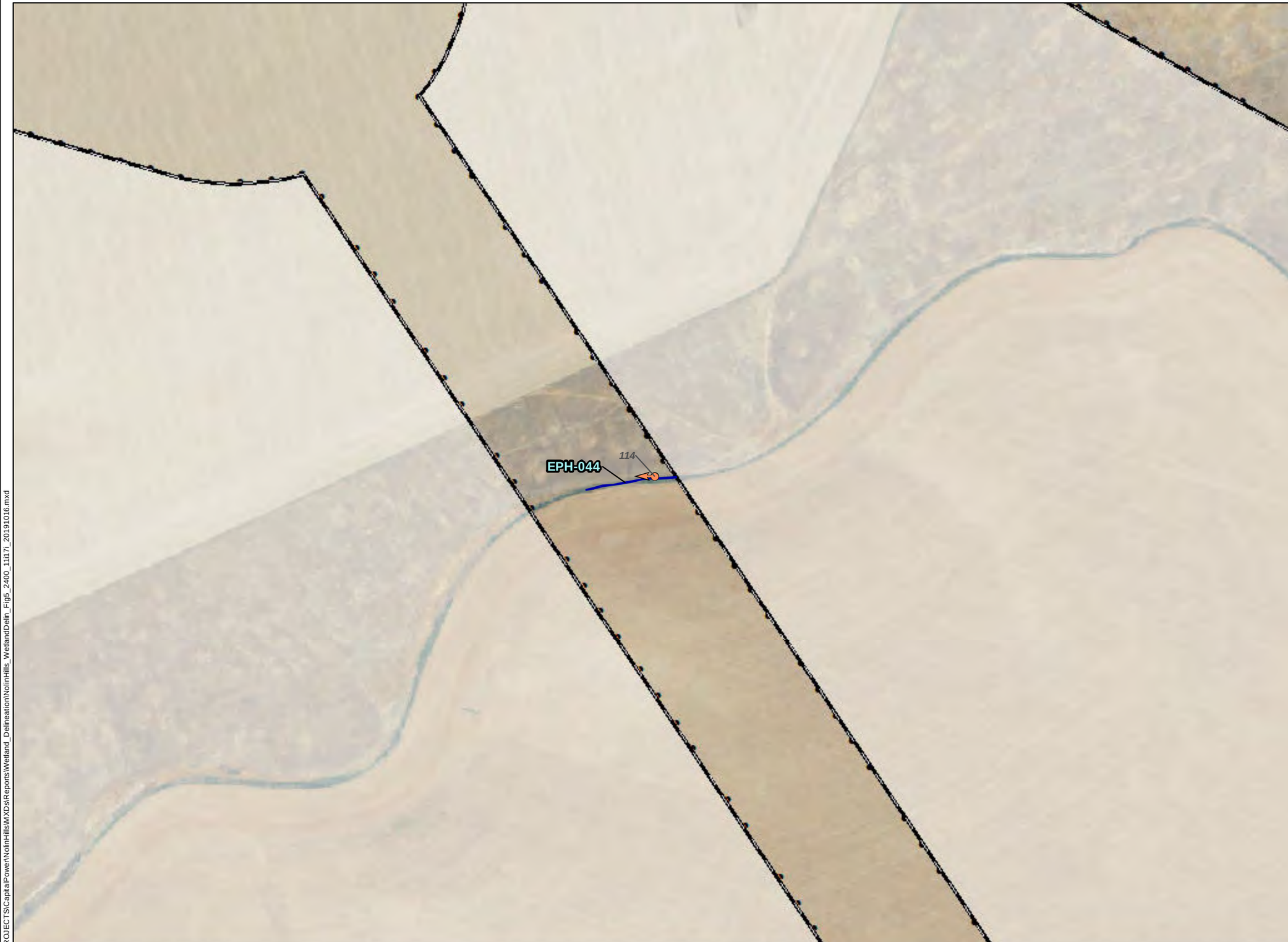


Nolin Hills Wind Power Project

Figure 5.1.55 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

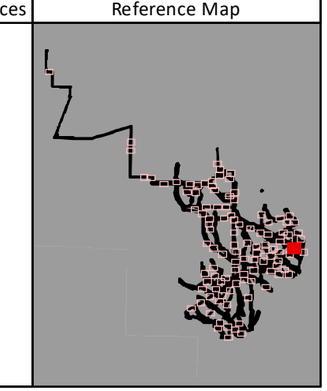
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.56 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

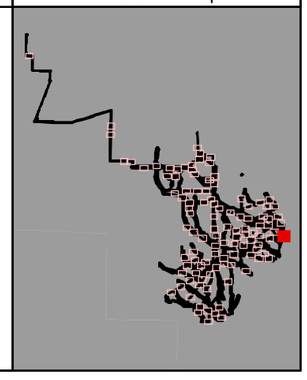
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure 5.1.57
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

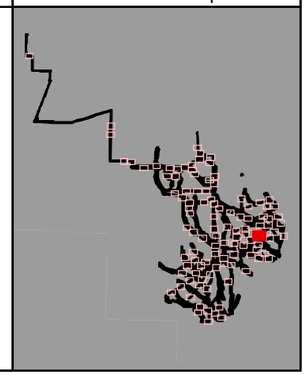
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

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Nolin Hills Wind Power Project

Figure 5.1.58 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

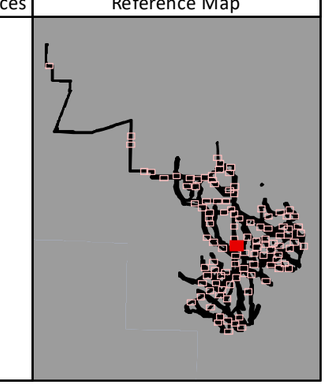
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.59
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

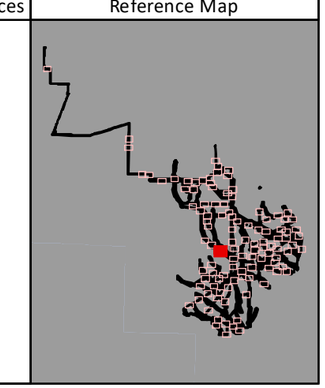
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.60
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

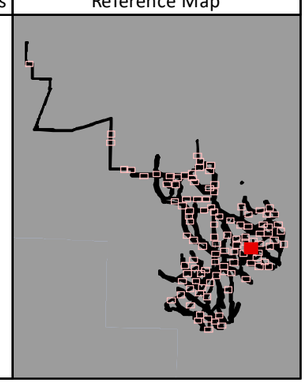
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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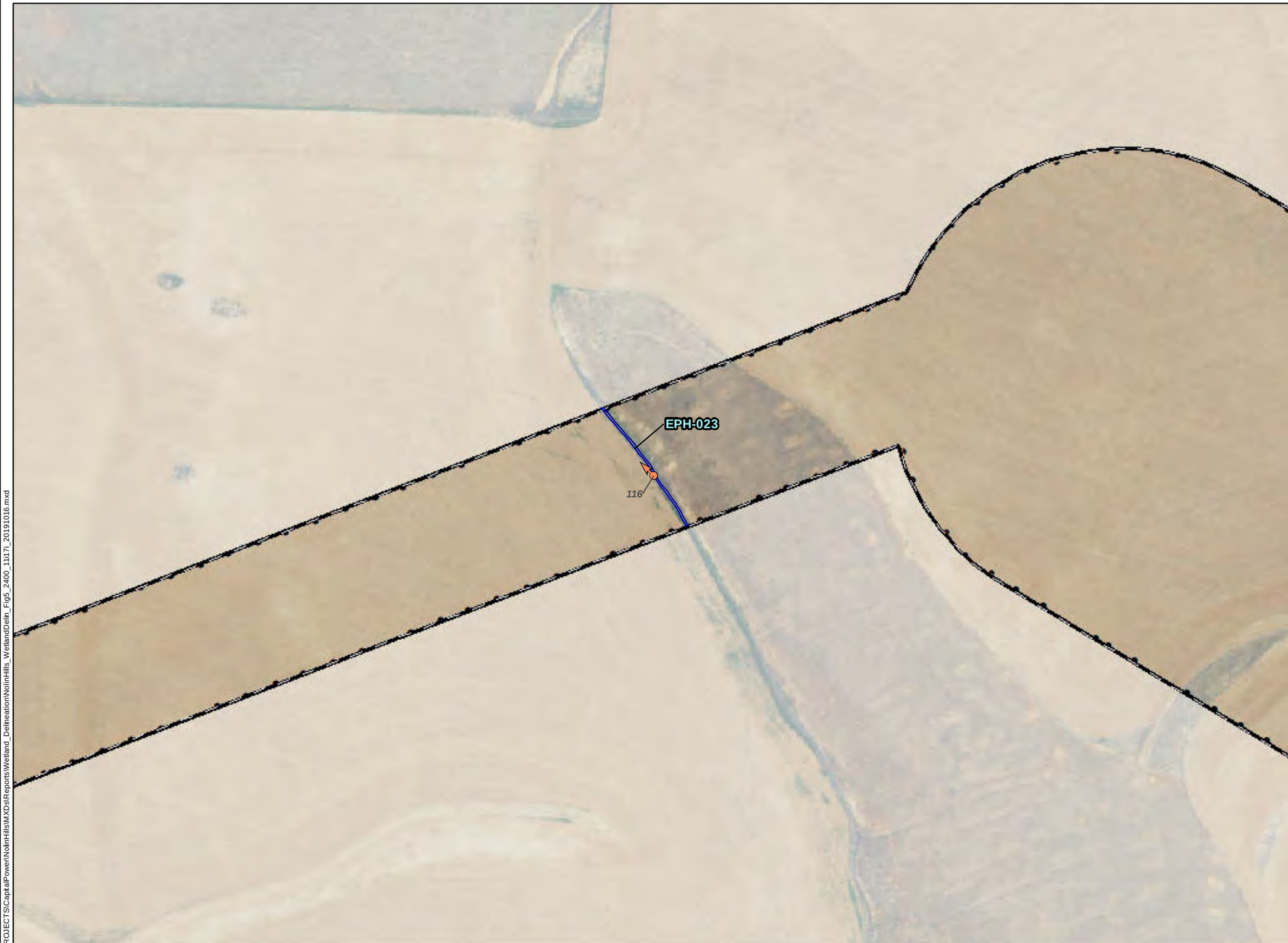
Nolin Hills Wind Power Project

Figure 5.1.61
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

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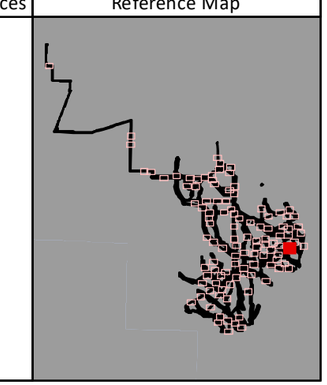
TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.62 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

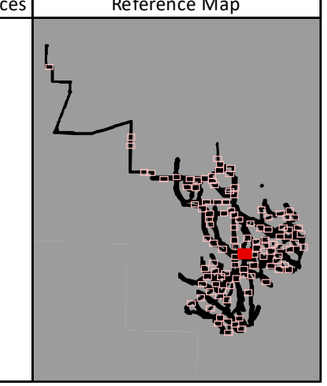
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.63
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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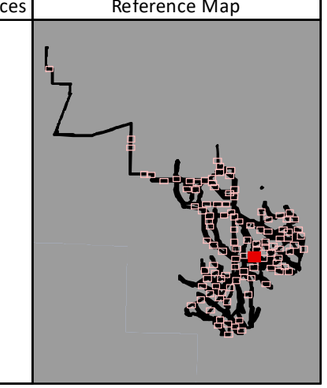
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.64
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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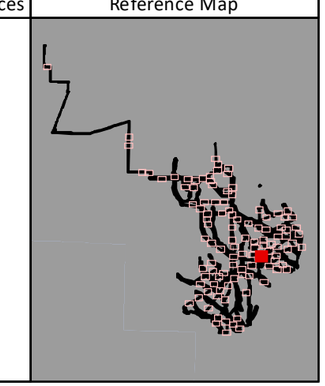
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.65
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

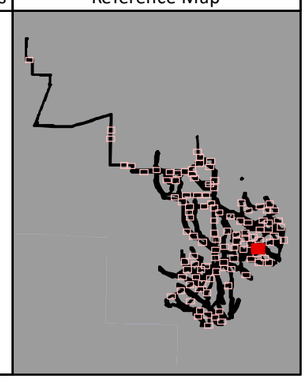
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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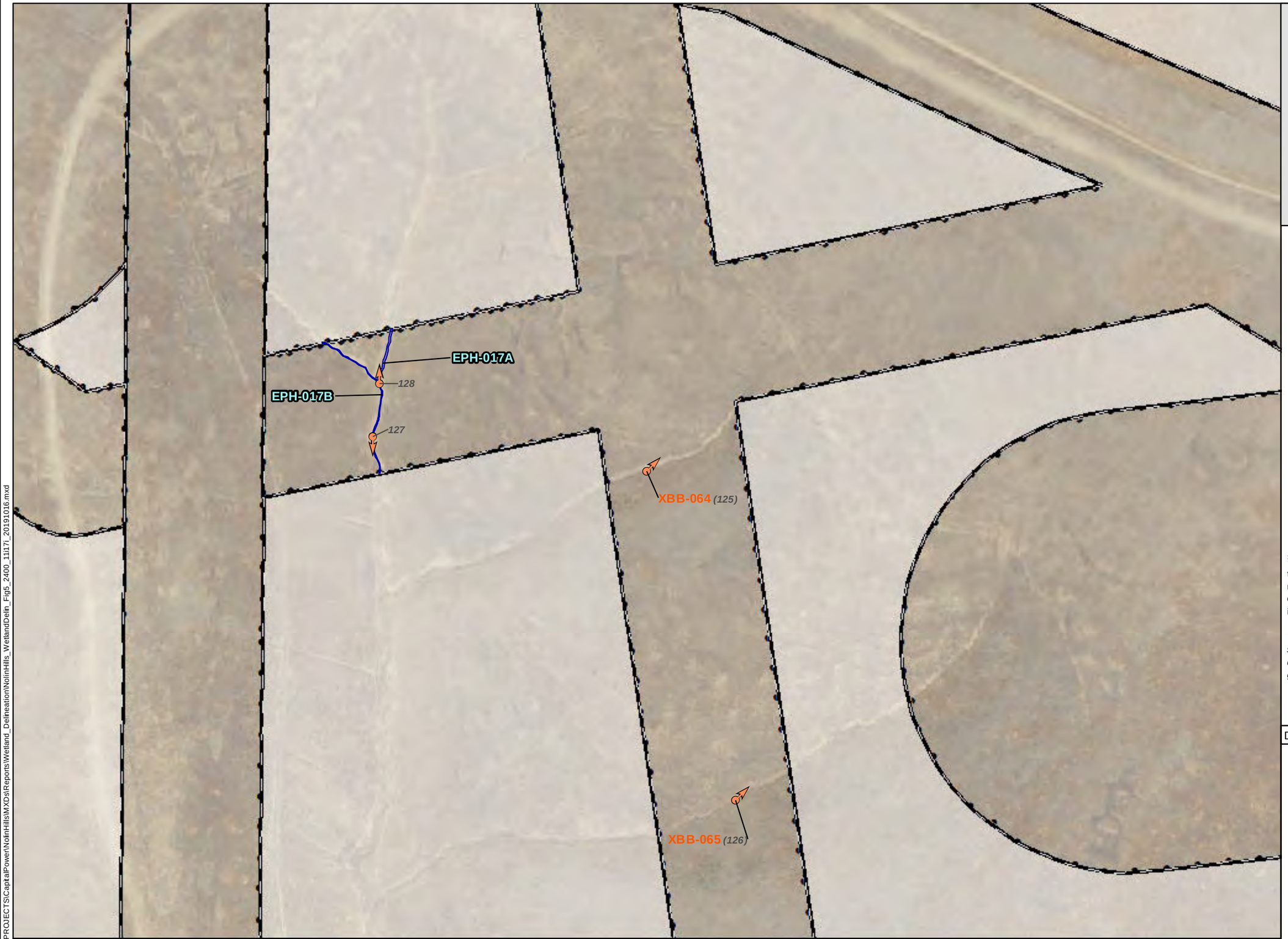
Nolin Hills Wind Power Project

Figure 5.1.66
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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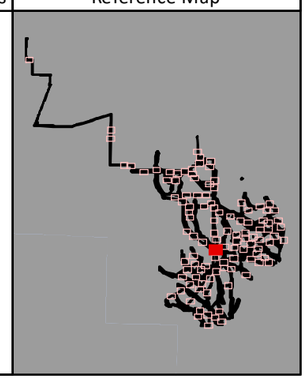
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.67 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

EPH-012 was fully delineated only in the vicinity of where potential project impacts might occur. The stream continues to the West, outside of the study area, and to the NE.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

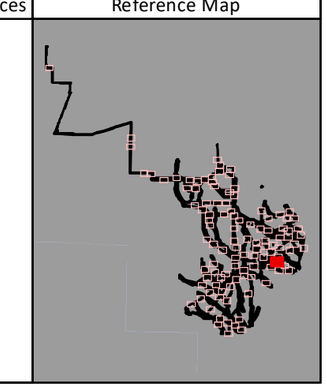
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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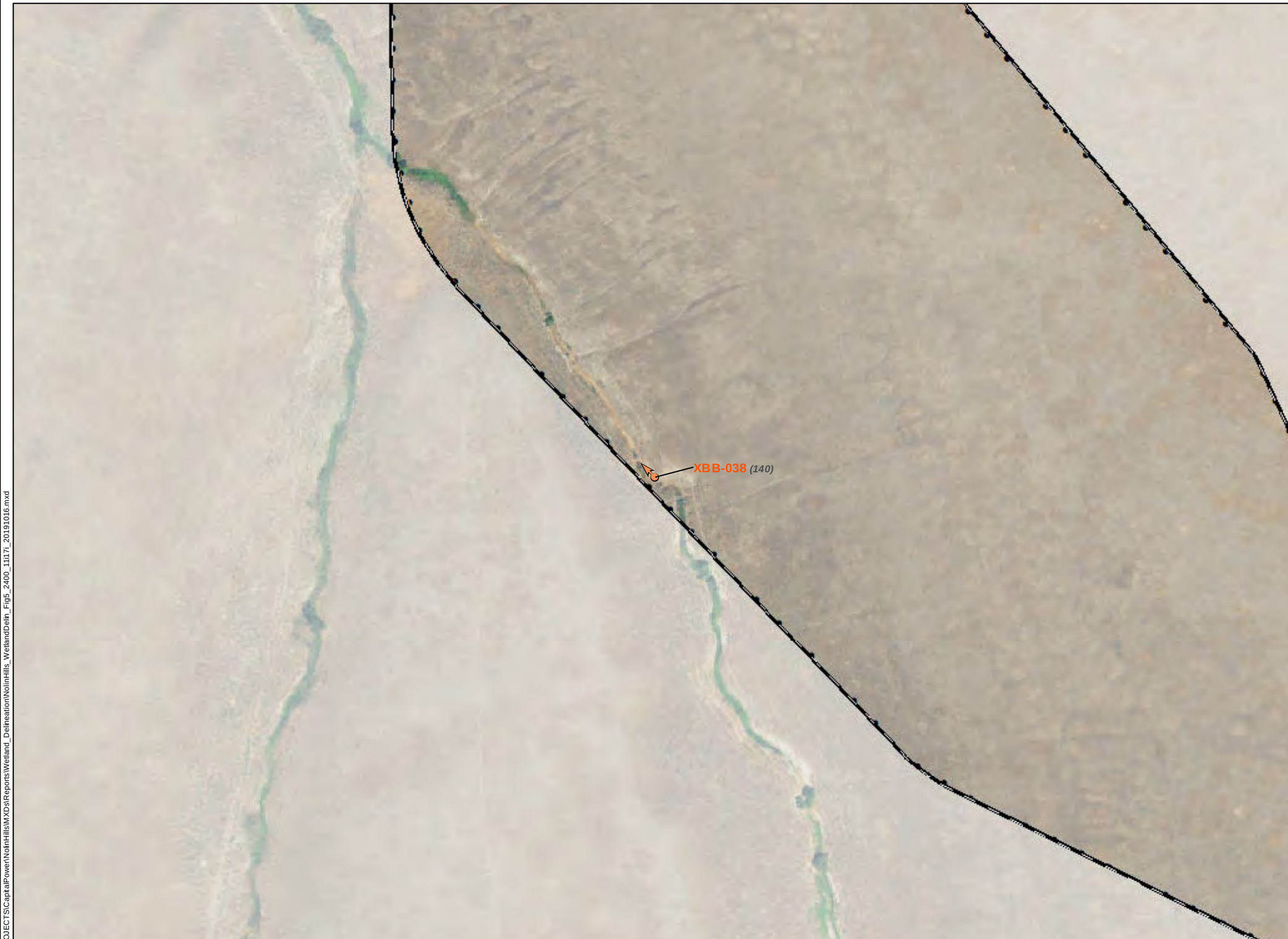

Nolin Hills Wind Power Project

Figure 5.1.68 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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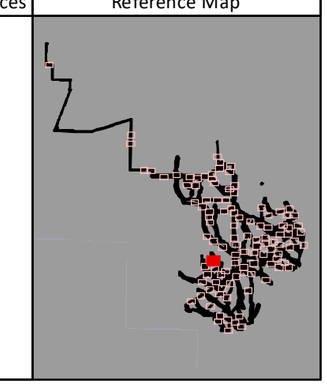
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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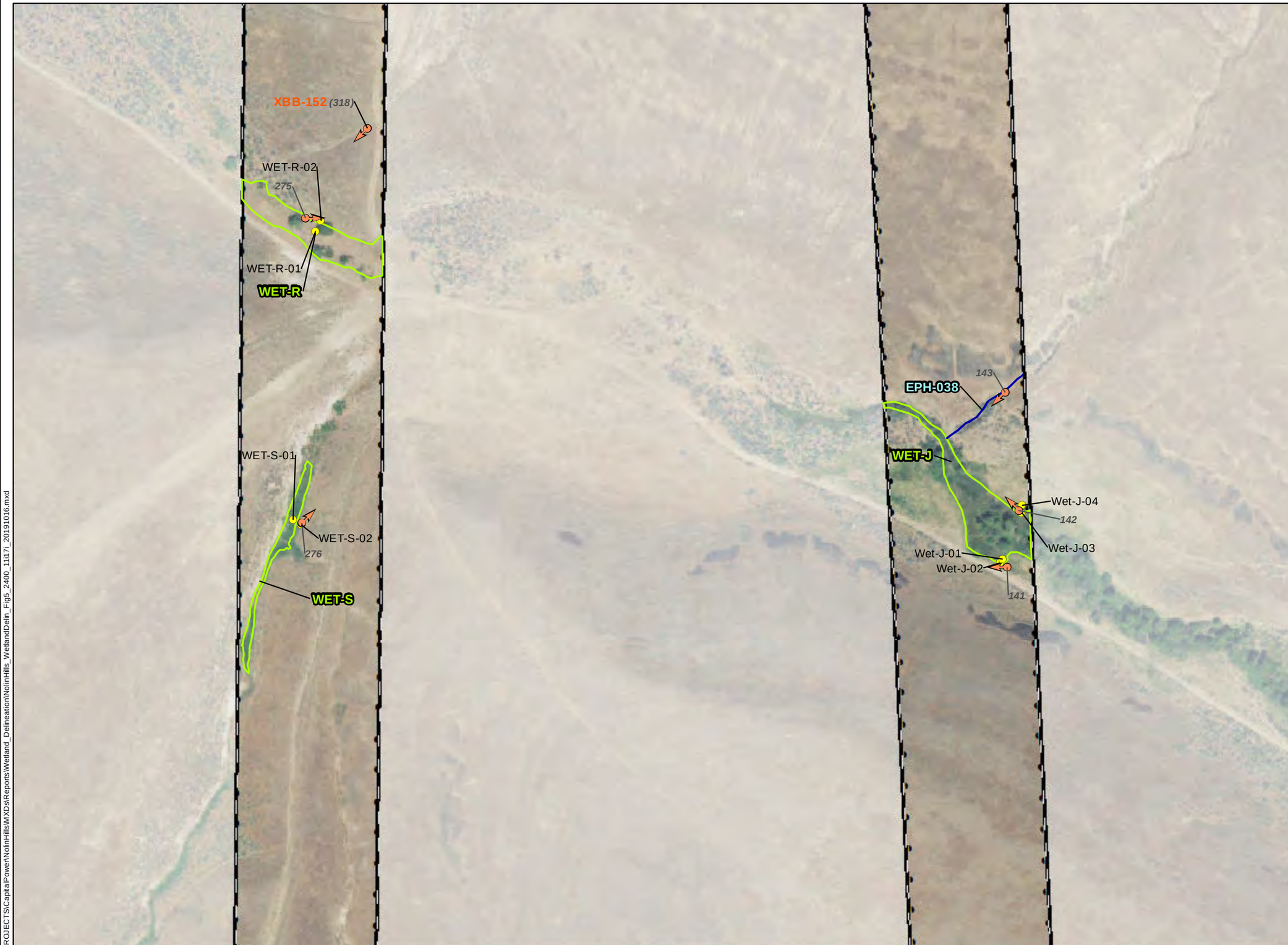
Nolin Hills Wind Power Project

Figure 5.1.69
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



Wetlands and Waters Study Area
No Access (7/9/2019)
Stream-Delineated (Maximum OWHL Width)[1]
Photo Point (# Photo Number)
Sample Plot
Culverts
Wetland Boundary-Delineated[1]

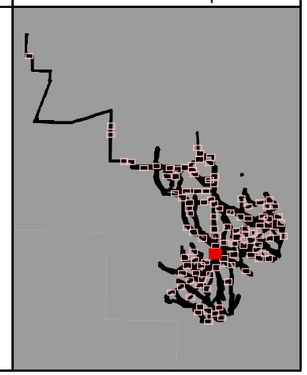
[1]WET-S is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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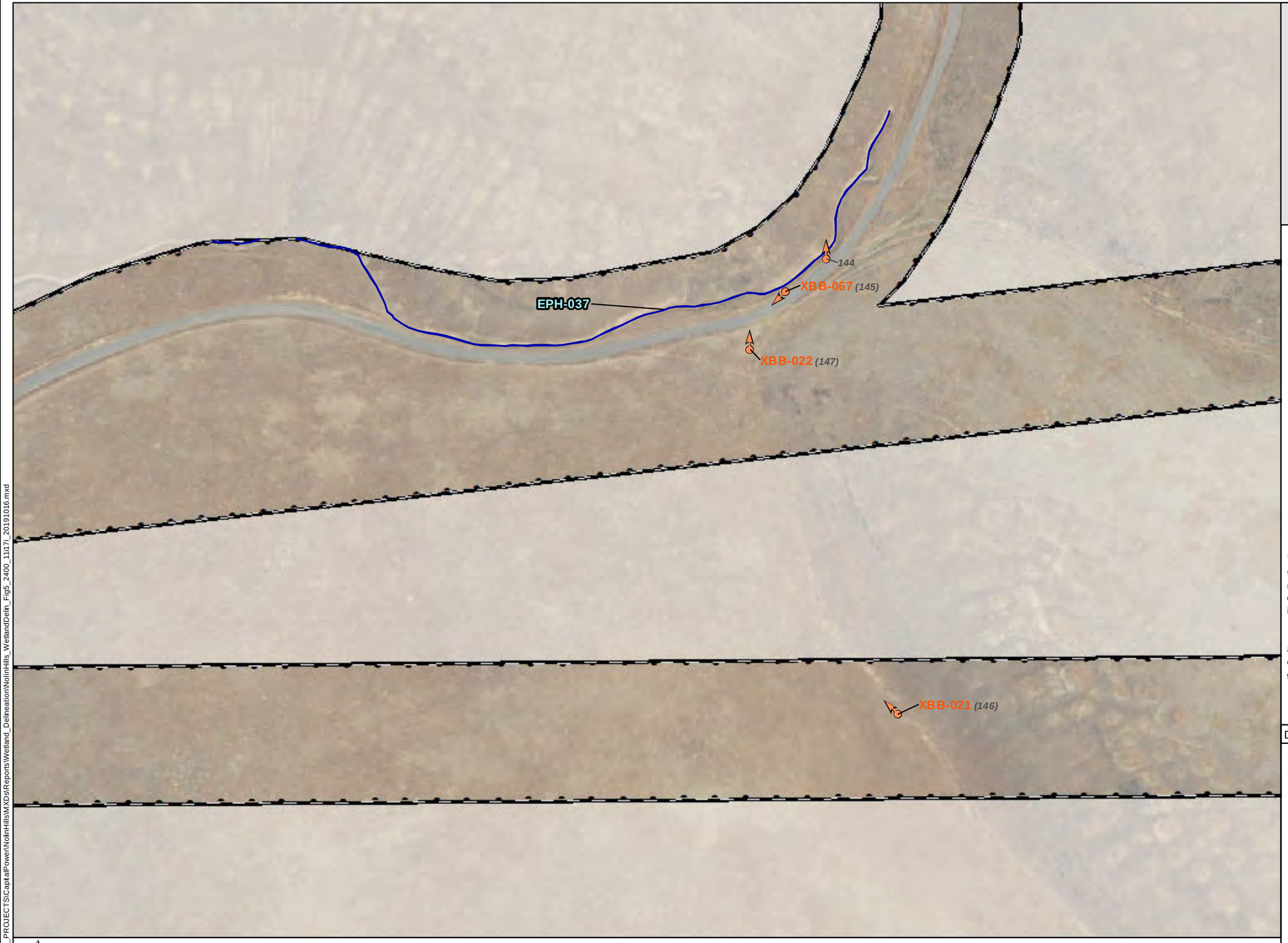
Nolin Hills Wind Power Project

Figure 5.1.70
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

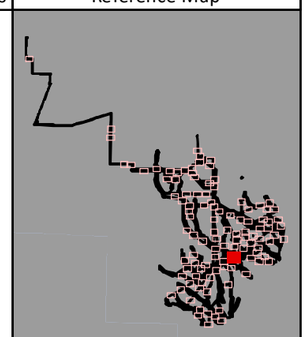
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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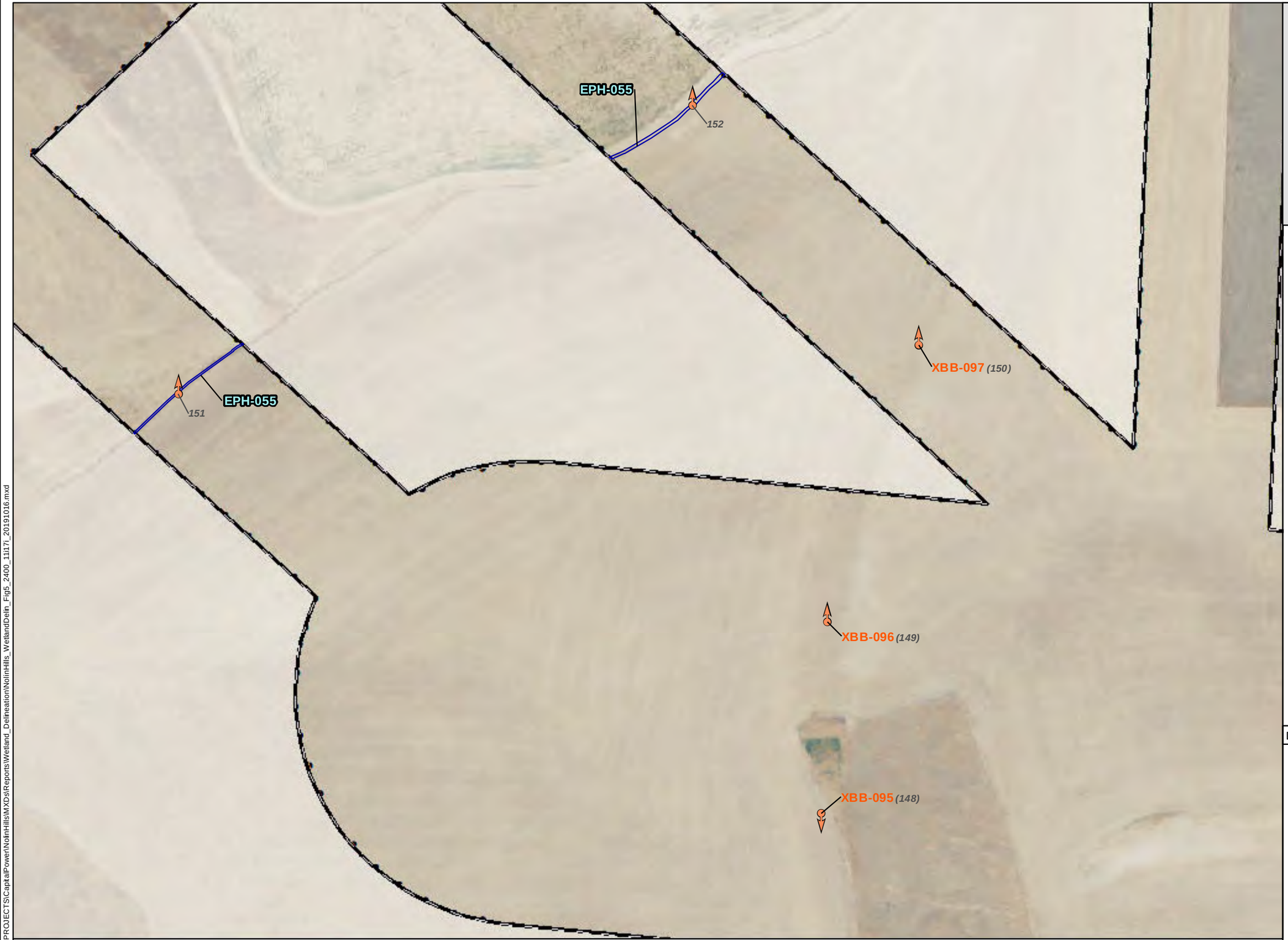
Nolin Hills Wind Power Project

Figure 5.1.71
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

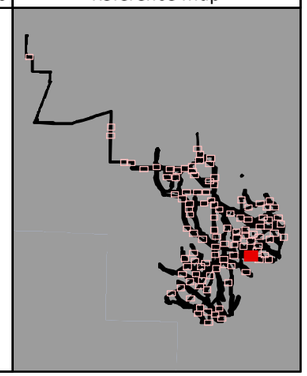
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.72 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

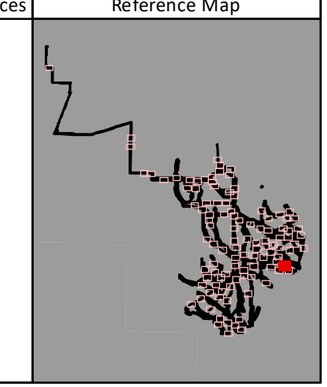
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.73
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

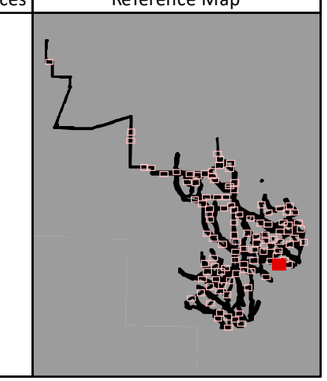
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.74
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

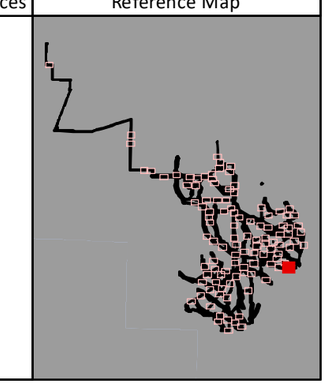
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.75 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

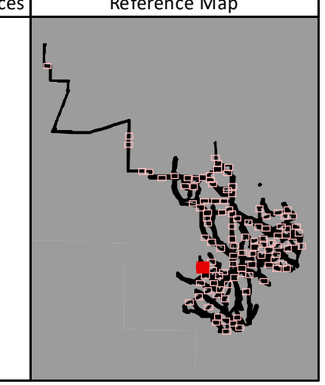
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.76
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

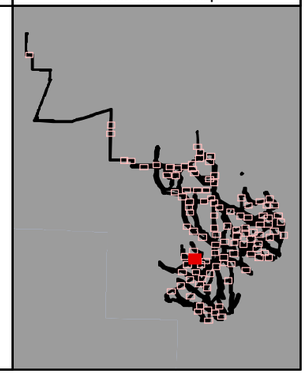
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.77
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

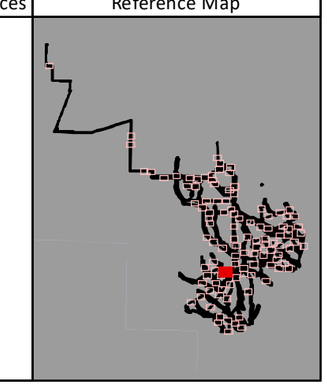
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.78
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]WET-H and WET-G are completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

1:2,400 WGS 1984 UTM Zone 11N

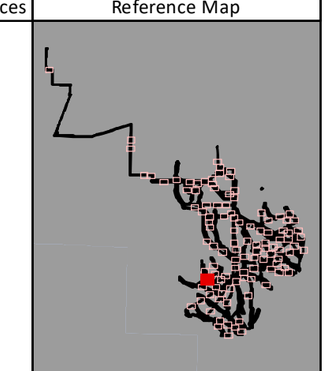
0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.79
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

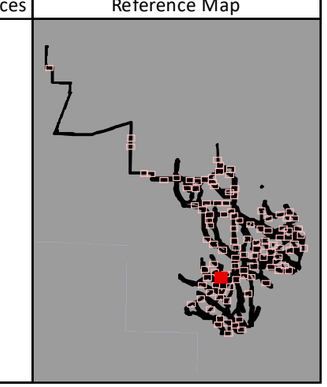
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.80
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

Wetlands and Waters Study Area
No Access (7/9/2019)
Stream-Delineated (Maximum OWHL Width)[1]
Photo Point (# Photo Number)
Sample Plot
Culverts
Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

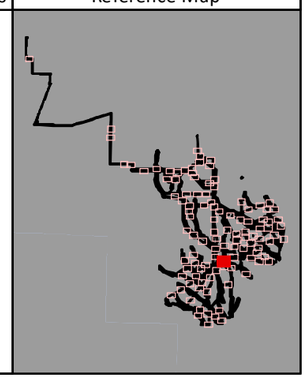
Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH
Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.81
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

Wetlands and Waters Study Area
No Access (7/9/2019)
Stream-Delineated (Maximum OWHL Width)[1]
Photo Point (# Photo Number)
Sample Plot
Culverts
Wetland Boundary-Delineated[1]

[1]POND-1, WET-N, POND-2 are completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

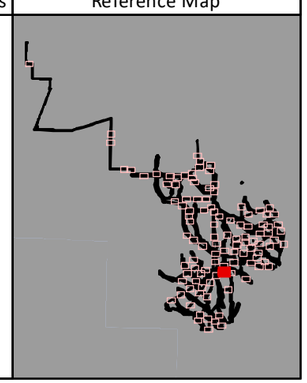
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.82
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

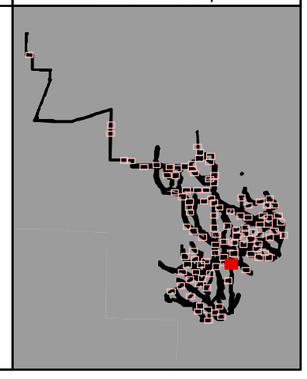
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.83 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]WET-C and EPH-039 are completely contained within the Study Area.

EPH-039 and INT-003 were fully delineated only in the vicinity of where potential project impacts might occur. EPH-039 continues to the NE, and INT-003 continues to the SW outside of the study area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

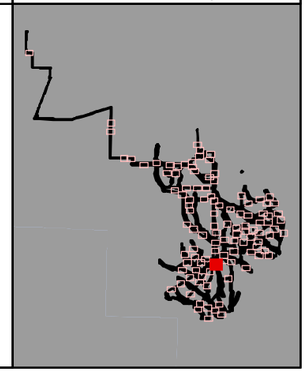
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.84
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

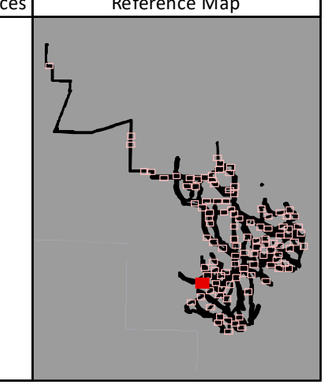
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.85 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

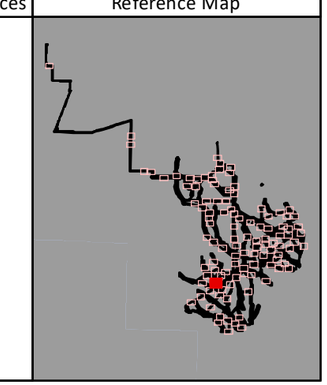
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



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Nolin Hills Wind Power Project

Figure 5.1.86
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

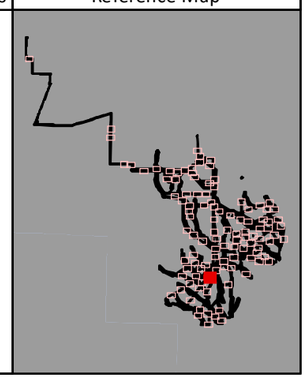
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.87
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

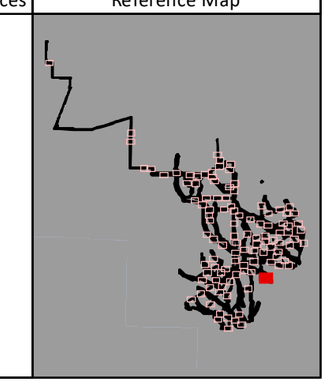
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.88
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]WET-F is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

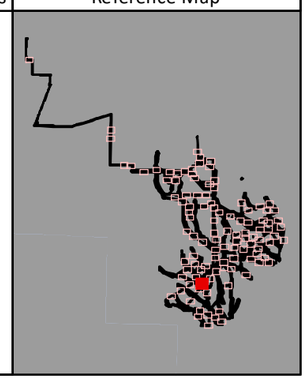
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.89 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

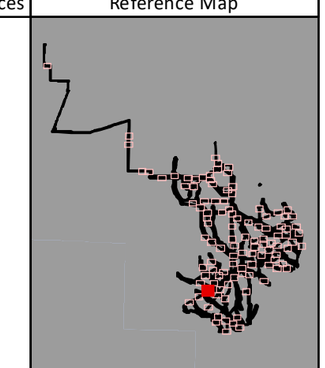
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.90 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

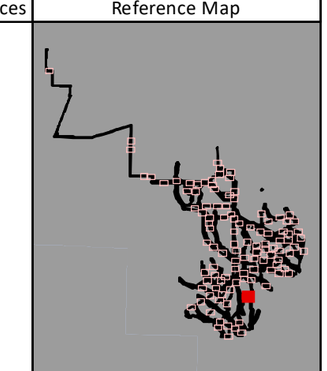
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.91 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]EPH-057 is completely contained within the Study Area.

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

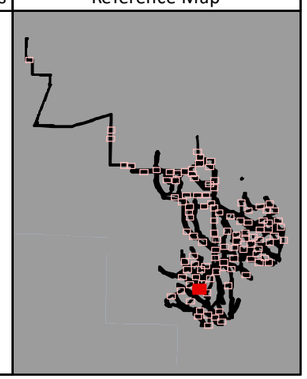
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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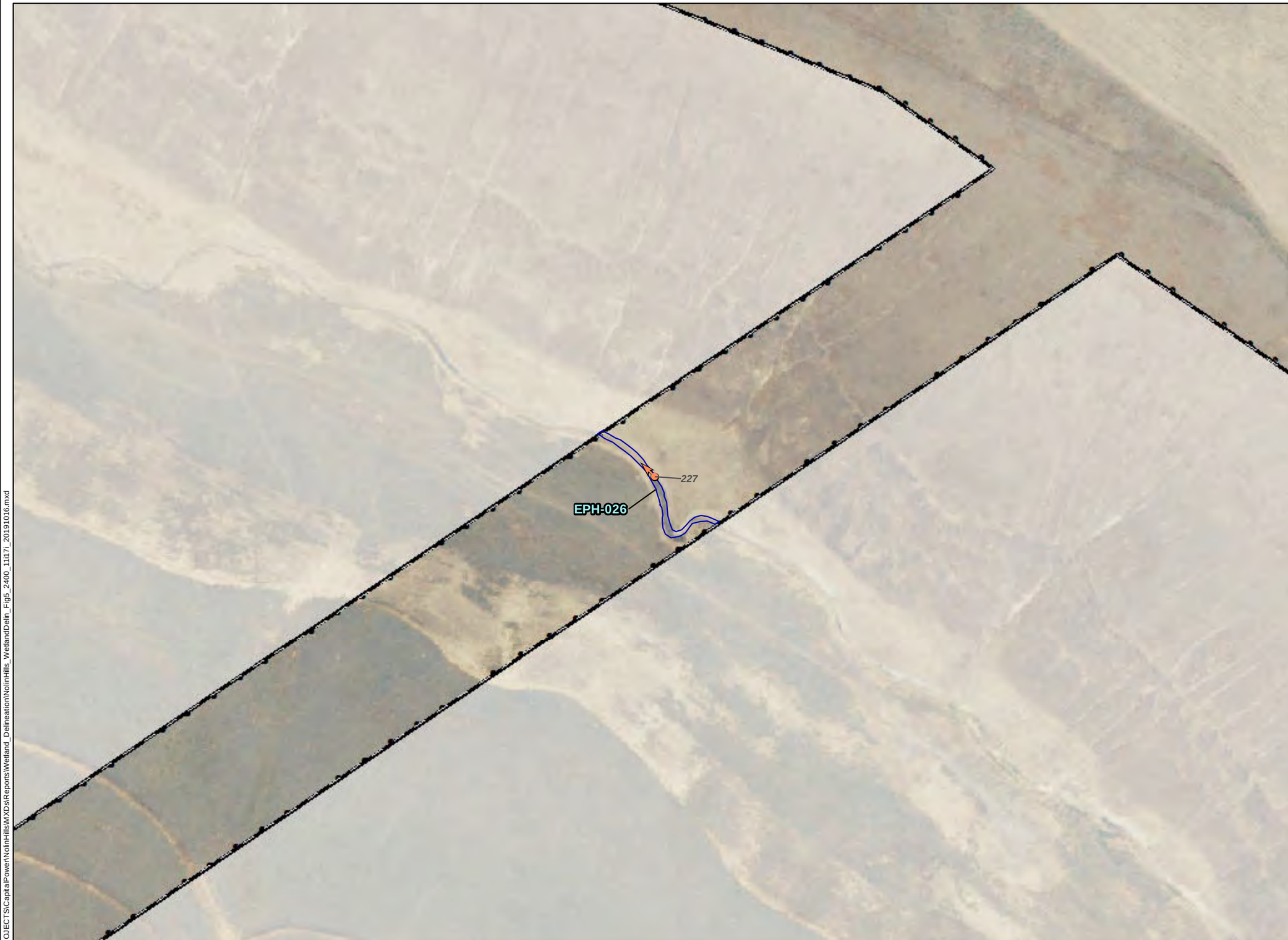


Nolin Hills Wind Power Project

Figure 5.1.92
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

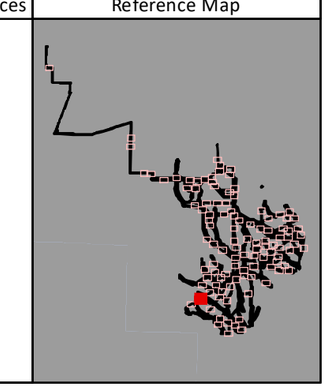
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.93
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

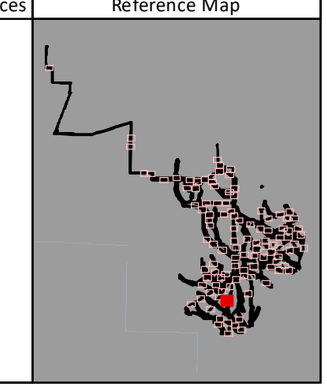
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.94
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

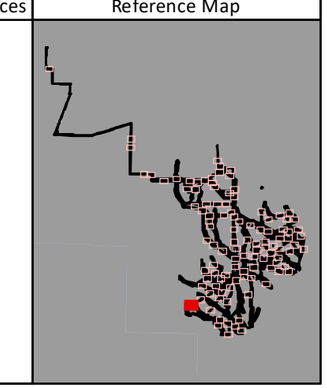
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.95 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

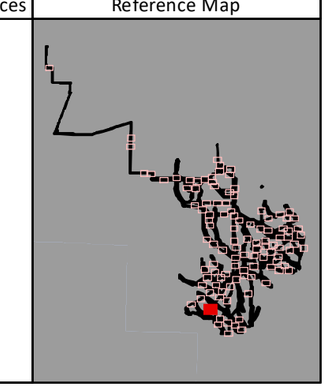
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.96
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

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Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

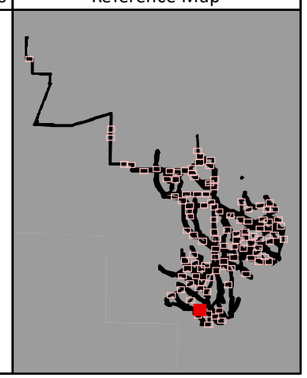
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.97
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

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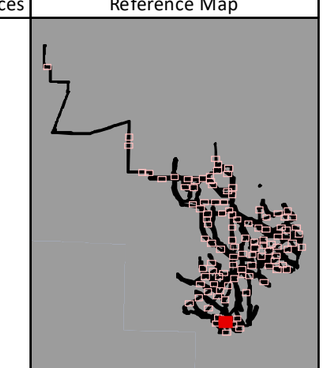
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.98
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

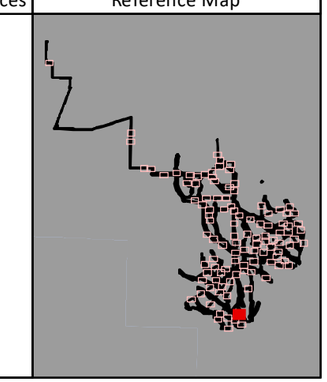
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.99 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

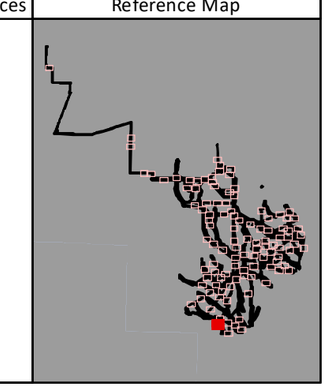
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.100
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

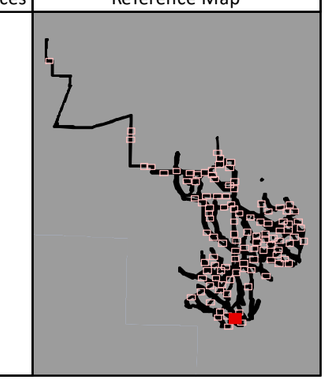
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.101 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

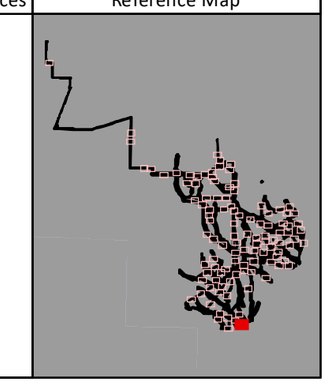
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.102 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

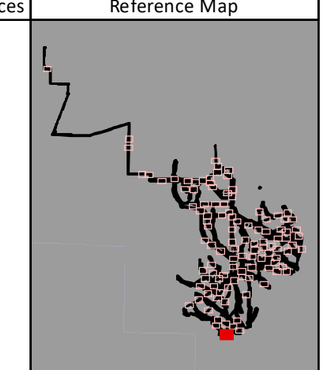
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

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Nolin Hills Wind Power Project

Figure 5.1.103 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

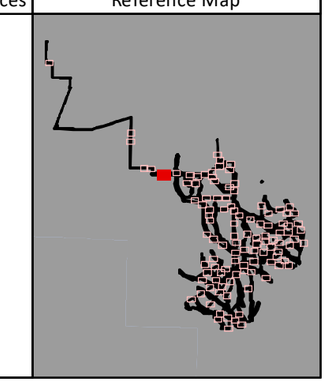
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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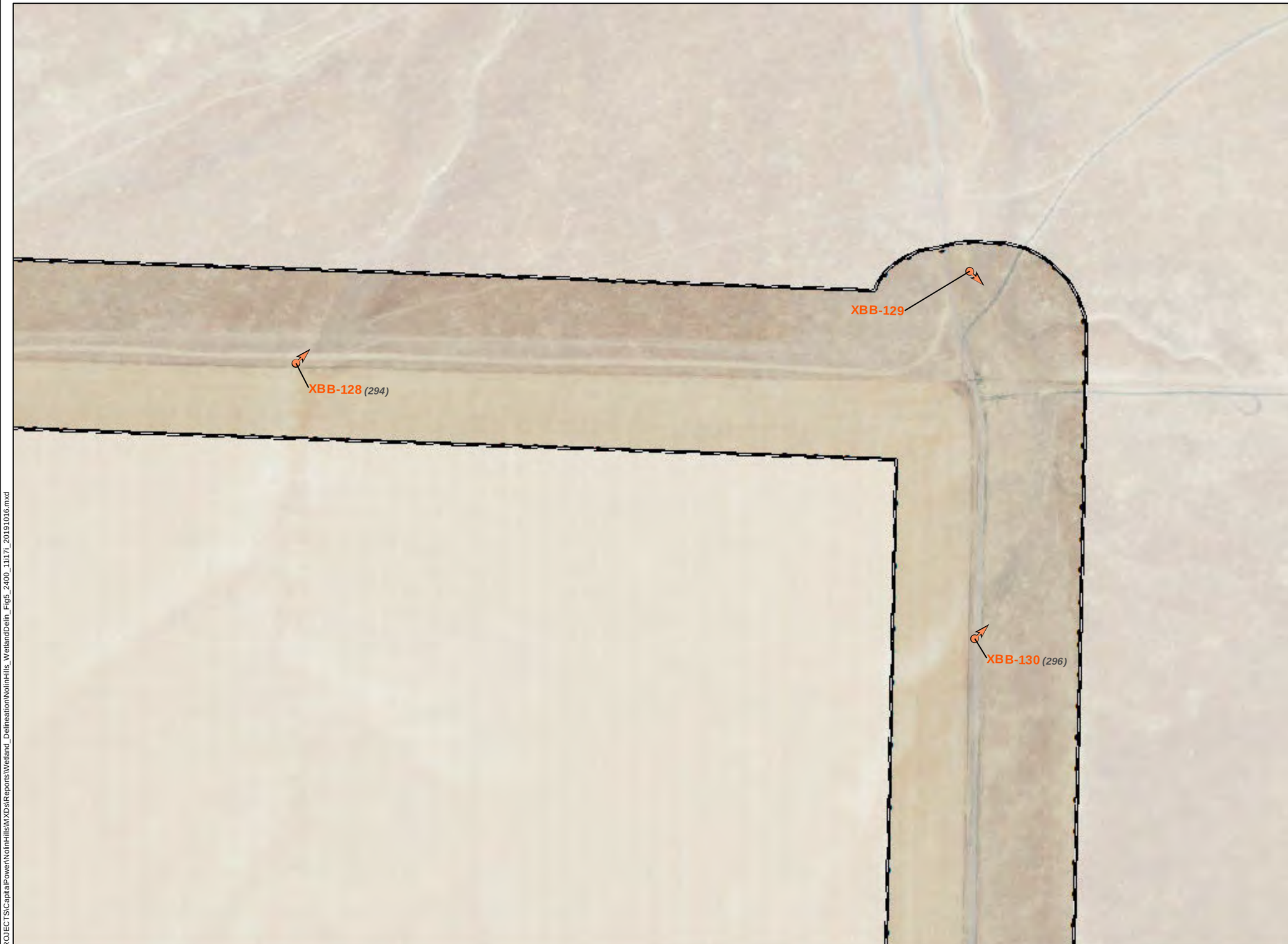
Nolin Hills Wind Power Project

Figure 5.1.104
Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON



- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

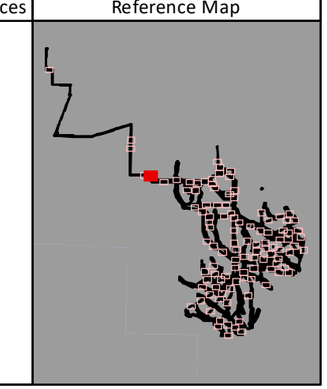
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

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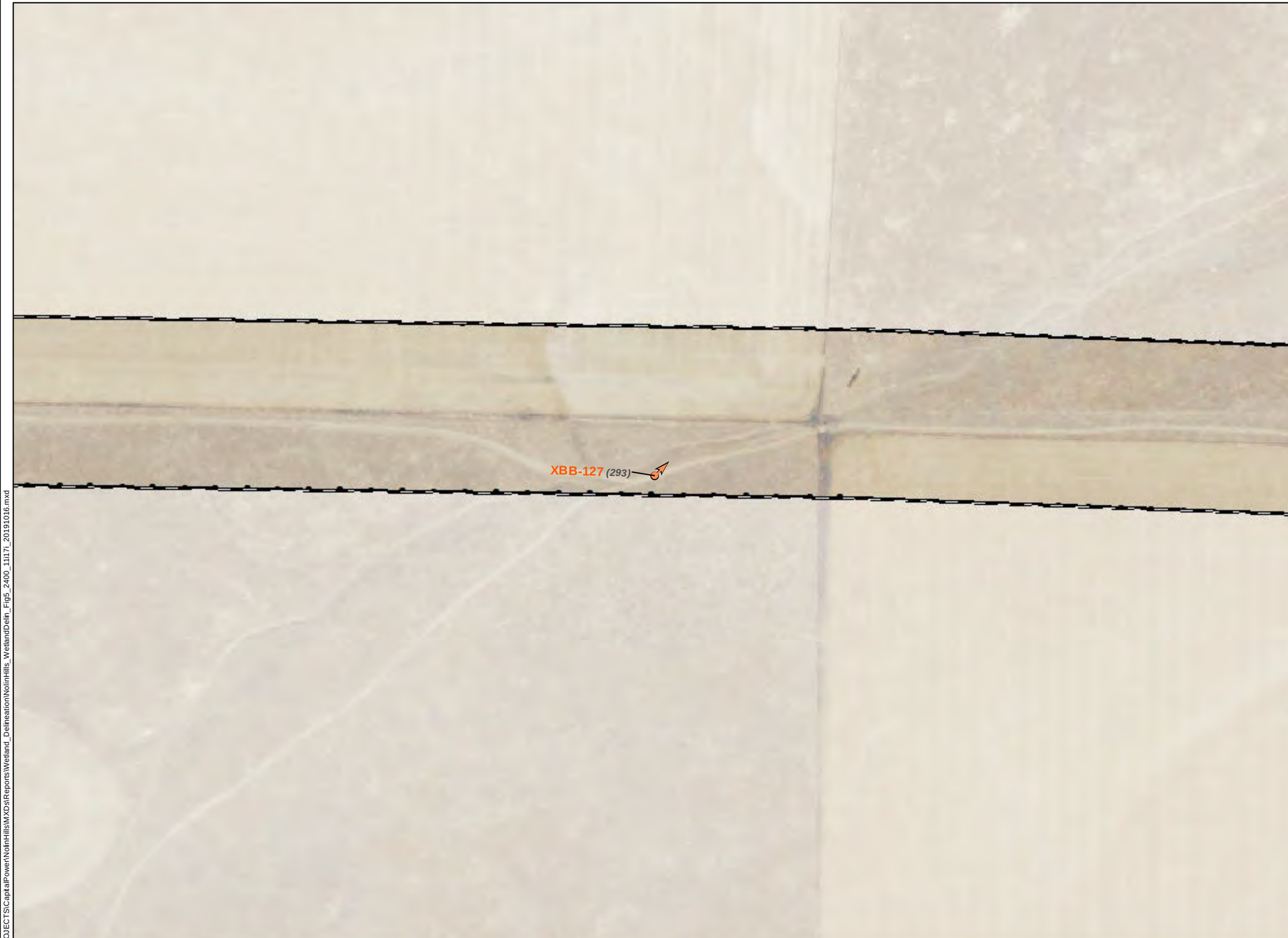

Nolin Hills Wind Power Project

Figure 5.1.105 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

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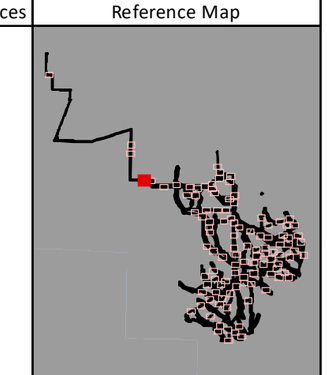
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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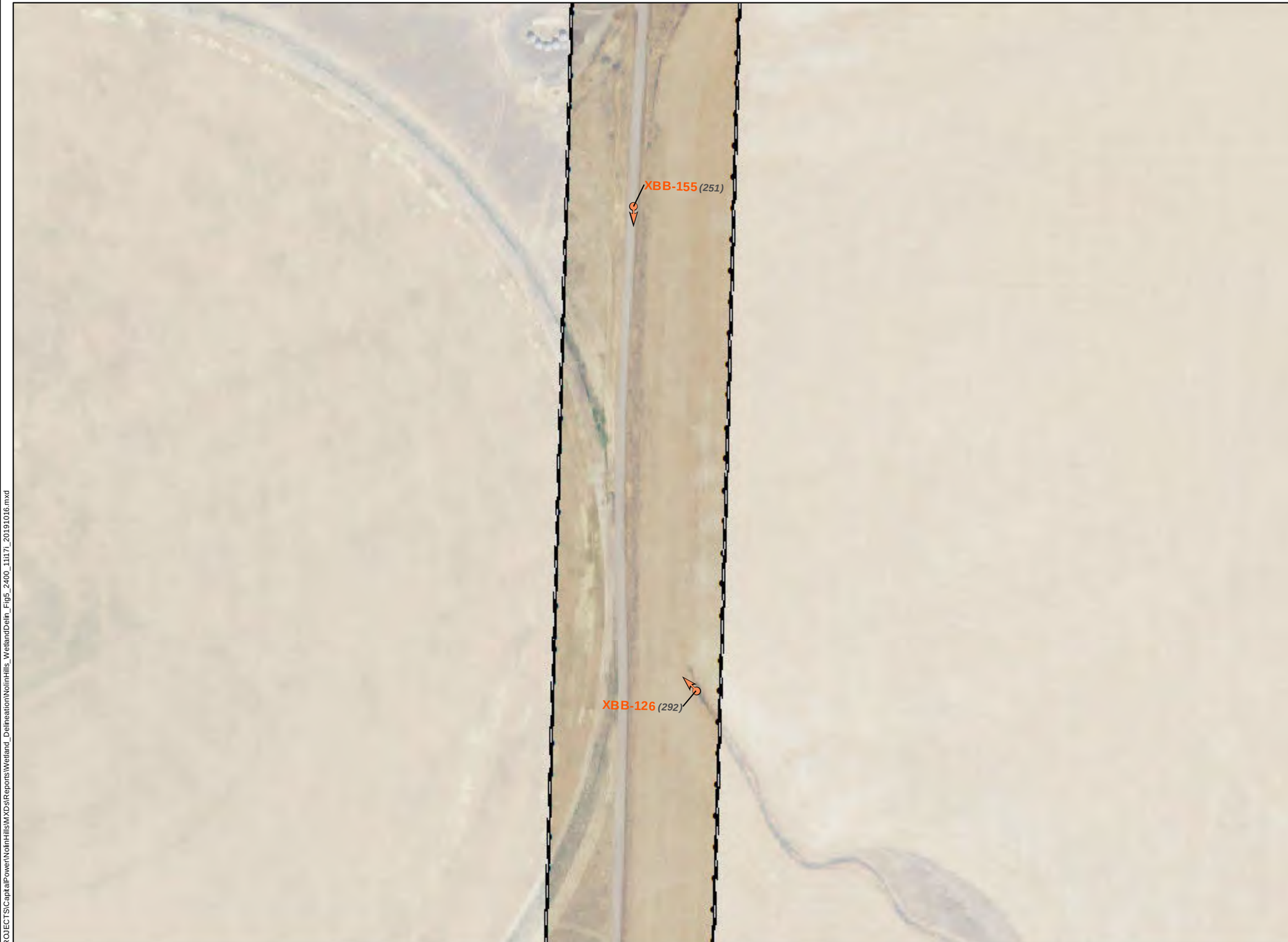


Nolin Hills Wind Power Project

Figure 5.1.106 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

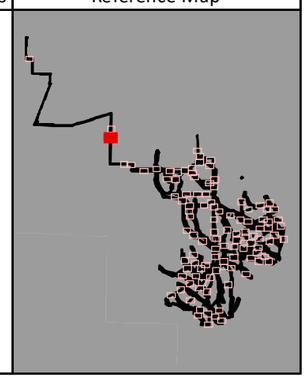
- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

TETRA TECH

Capital Power

Data Sources	Reference Map
Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads	

1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.107 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

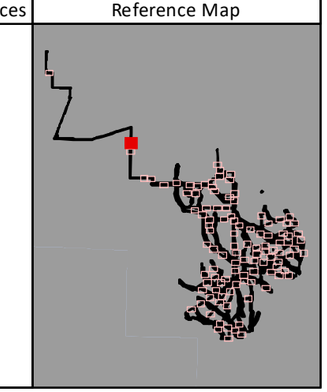
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Nolin Hills Wind Power Project

Figure 5.1.108 Wetland Delineation Detail Map

UMATILLA COUNTY, OREGON

- Wetlands and Waters Study Area
- No Access (7/9/2019)
- Stream-Delineated (Maximum OWHL Width)[1]
- Photo Point (# Photo Number)
- Sample Plot
- Culverts
- Wetland Boundary-Delineated[1]

[1]All delineated wetlands and other waters are considered to extend outside of the study area unless otherwise noted. Delineated wetlands and other waters that completely contained within the study area are noted in the figure legend.

Wetland and stream channel boundaries and sample plots were collected using survey grade GPS devices. Mapped features are within +/- 1 meter of ground location.

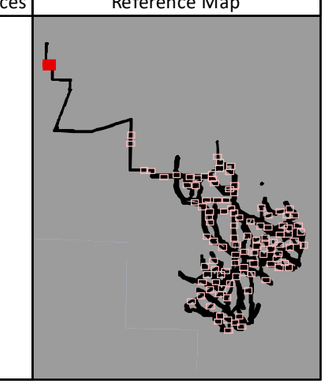
TETRA TECH

Capital Power

Data Sources

Capital Power-Project Infrastructure; USDA-Aerial Imagery; ESRI-Roads

Reference Map



1:2,400 WGS 1984 UTM Zone 11N

0 125 250 500 750 1,000 Feet

NOT FOR CONSTRUCTION

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Appendix A. Tables

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Table A-1. Wetlands Delineated

Feature Name	Map Number	Latitude	Longitude	Cowardin	HGM	Sample Plots	Photo Number	Additional Notes
POND-1	81	45.57357407	-119.0776749	PUBx	Depressional	–	186, 187	Boundary determination method: Abrupt break in topography, soil, hydrology, vegetation. Excavated. Excavated Push Up Dam. Excavated pond. Wetland occurs entirely within Study Area.
POND-2	81	45.5733223	-119.077446	PUBx	Depressional	–	188, 190	Boundary determination method: Abrupt break in hydrology, vegetation. Excavated. Wetland occurs entirely within Study Area.
WET-A	81	45.57305908	-119.0770798	PFO	Riverine flow through	WET_A_01, WET_A_02	182, 183, 191, 193	Boundary determination method: Abrupt break in soil, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the East.
WET-B	82	45.57232666	-119.0736694	PEM	Slope (headwater)	WET-B-01, WET-B-02	197	Boundary determination method: Abrupt break in soil, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the Southwest.
WET-C	83	45.5717659	-119.0915527	PEM_PSS	Slope (valley)	WET_C_01, WET_C_02, WET_C_03, WET_C_04	207, 208, 209	Boundary determination method: Abrupt break in hydrology. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-D	98	45.53010178	-119.0856934	PEM	Depressional	WET_D_01, WET_D_02	236	Boundary determination method: Abrupt break in hydrology, gradual break in soil, vegetation. Wetlands of Conservation Concern. Wetland continues off site to the West.
WET-E	88	45.55949783	-119.1160049	PEM	Depressional	WET_E_01, WET_E_02	223	Boundary determination method: Abrupt break in hydrology. Wetlands of Conservation Concern. Wetland continues off site to the East.
WET-F	88	45.55658722	-119.1146088	PEM	Depressional	WET_F_01, WET_F_02	224	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Study Area.
WET-G	78	45.57184601	-119.133194	PEM	Depressional	WET-G-01, WET_G_02	201	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Study Area.
WET-H	78	45.57197189	-119.1335526	PEM	Depressional	WET-H-01, WET-H-02	202	Boundary determination method: Wetlands of Conservation Concern. Wetland occurs entirely within Study Area.
WET-I	32	45.63411713	-119.0223236	PEM	Slope (valley)	WET-I-01, WET-I-02	069	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-J	69	45.58389282	-119.0917435	PEM	Riverine flow through	WET-J-01, WET-J-02, WET-J-03, WET-J-04	141, 142	Boundary determination method: Abrupt break in topography, hydrology, vegetation. wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the East, West.
WET-K	95	45.5395546	-119.127533	PEM	Riverine flow through	WET-K-01, WET-K- 02	231	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the North, South.
WET-L	90	45.55705643	-119.0741577	PEM	Riverine flow through	WET_L_01, WET_L_02	226	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the North, South.
WET-M	80,81	45.57391357	-119.077919	PEM	Riverine flow through	WET_M_01, WET_M_02, WET_M_03, WET_M_04	181, 184, 185, 185, 195, 281	Boundary determination method: Abrupt break in hydrology, vegetation. Gradual break in topography. Visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-N	81	45.573452	-119.0775986	PEM_PSS	Slope (headwater)	WET_N_01, WET_N_02	189	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-O	80	45.57952499	-119.0829697	PEM	Depressional	WET_O_01, WET_O_02	163, 282	Boundary determination method: Abrupt break in topography, soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-P	80	45.58082581	-119.0843887	PSS_PFO	Riverine flow through	WET-P-01, WET-P-02	288	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.

Feature Name	Map Number	Latitude	Longitude	Cowardin	HGM	Sample Plots	Photo Number	Additional Notes
WET-Q	48	45.60773087	-119.098381	PEM	Slope (valley)	WET-Q-01, WET-Q-02	264	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.
WET-R	69	45.58551788	-119.0974655	PEM_PFO	Depressional	WET-R-01, WET-R-02	275	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland continues off site to the West, North.
WET-S	69	45.58387375	-119.09758	PEM	Riverine flow through	WET-S-01, WET-S-02	276	Boundary determination method: Abrupt break in soil, hydrology, vegetation. Wetland edge is at toe of slope, visible change in vegetation community. Wetland occurs entirely within Study Area.

Table A-2. Waters Delineated

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-001	7	45.667030	-119.166626	Ephemeral	N	3	022, 290	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Grazed, Mowed, or Herbicided: Recent.
EPH-002	7,14	45.661545	-119.153900	Ephemeral	N	5	020, 026, 027, 256	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-004	23	45.640671	-119.144981	Ephemeral	W	5	044	Channel is single thread. Flow direction is west. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation. Grazed, Mowed, or Herbicided: Recent.
EPH-005	23,24	45.635963	-119.136932	Ephemeral	SE	4	048	Channel is single thread. Flow direction is southeast. Feature flows into Study Area. Grazed, Mowed, Herbicided: Recent.
EPH-006	24	45.634617	-119.129936	Ephemeral	N	3	050	Channel is single thread. Flow direction is north. Feature originates. Riparian vegetation absent. OHWL field indicators: presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation. Grazed, Mowed, Herbicided: Recent.
EPH-007	82	45.572845	-119.073517	Ephemeral	S	3	200	Channel is single thread. Flow direction is south. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-008	96	45.530891	-119.115425	Ephemeral	N	2	233	Channel is single thread. Flow direction is north. Feature entirely within Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-009	96,97	45.529640	-119.111374	Ephemeral	NW	10 - 28	234, 240, 235, 242, 243	Channel is single thread. Flow direction is northwest. Feature originates. Riparian vegetation absent. OHWL field indicators: clear, natural line impressed on the bank., presence of litter, debris, silt stained leaves, silt lines on tree trunks, Grazed, Mowed, or Herbicided: Recent.
EPH-010	21,25,27,35,36,50,54,67,65	45.639664	-119.100220	Ephemeral	NW	10-18	054, 055, 056, 037, 079, 081, 106, 113, 087, 138, 133, 110, 261,262, 268	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-011	36	45.623352	-119.064430	Ephemeral	NE	6	083, 086	Channel is single thread. Flow direction is northeast. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-012	67,65	45.588737	-119.038132	Ephemeral	E	4	137, 139	Channel is single thread. Flow direction is east. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: clear, natural line impressed on the bank., presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation. Grazed, Mowed, or Herbicided: Recent.
EPH-014	26	45.635586	-119.110016	Ephemeral	N	4	051	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: clear, natural line impressed on the bank., presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation. Grazed, Mowed, or Herbicided: Recent.
EPH-015	20,26	45.634426	-119.116287	Ephemeral	N	3	033, 052, 053	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-015B	20	45.646740	-119.117599	Ephemeral	N	3	034	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-016	77,79	45.576870	-119.111649	Ephemeral	N	3	176, 203, 178, 204	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation, Grazed, Mowed, or Herbicided: Recent.
EPH-016B	79	45.571671	-119.113884	Ephemeral	NE	3	204	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-017A	66	45.593151	-119.096069	Ephemeral	S	4	128	Channel is single thread. Flow direction is south. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-017B	66	45.593071	-119.096214	Ephemeral	S	2	127	Channel is single thread. Flow direction is south. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-018	36	45.621094	-119.056503	Ephemeral	SW	3	090	Channel is single thread. Flow direction is southwest. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-019	36	45.620831	-119.055679	Ephemeral	N	3	089	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-020	39,41	45.624725	-119.026672	Ephemeral	NW	6	093, 094	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-021	31	45.630943	-119.051537	Ephemeral	N	1	065	Channel is single thread. Flow direction is north. Feature originates. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-022	52,53	45.600487	-119.065002	Ephemeral	N	4	105, 120	Channel is single thread. Flow direction is north. Feature flows out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-023	61	45.601151	-119.017281	Ephemeral	NW	4.5	116	Channel is single thread. Flow direction is northwest. Feature flows out of Study Area. Riparian vegetation absent. Yes. Grazed, Mowed, or Herbicided: Recent.
EPH-024	89	45.556793	-119.128868	Ephemeral	W	2	225	Channel is single thread. Flow direction is west. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-025	84	45.564388	-119.140221	Ephemeral	SW	5	211	Channel is single thread. Flow direction is southwest. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-026	92	45.550362	-119.141632	Ephemeral	NW	8 - 15	227	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: clear, natural line impressed on the bank., presence of litter, debris, silt stained leaves, silt lines on tree trunks, Grazed, Mowed, or Herbicided: Recent.
EPH-027	32	45.634377	-119.022423	Ephemeral	NW	3	070	Channel is single thread. Flow direction is northwest. Feature originates. Grazed, Mowed, or Herbicided: Recent.
EPH-028	28	45.628746	-119.133690	Ephemeral	NW	3	073	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: clear, natural line impressed on the bank., slope angle break in bank, change in vegetation, Grazed, Mowed, or Herbicided: Recent.
EPH-029	99	45.524780	-119.116310	Ephemeral	N	5	245, 246	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: slope angle break in bank, change in vegetation. Grazed, Mowed, or Herbicided: Recent.
EPH-030	93	45.549156	-119.104927	Ephemeral	NE	4	229	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-031	86	45.564896	-119.103706	Ephemeral	E	3	217, 220	Channel is single thread. Flow direction is east. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-032	25,27	45.634876	-119.098022	Ephemeral	N	3	058, 269	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-033	34	45.628601	-119.090340	Ephemeral	N	3	074, 075, 076	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-034	48	45.610981	-119.094757	Ephemeral	NE	6	104	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-035	58	45.602348	-119.092537	Ephemeral	NE	10	119	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-036	49	45.612064	-119.078003	Ephemeral	NW	15	100	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-037	70	45.584785	-119.067734	Ephemeral	W	3	144	Channel is single thread. Flow direction is west. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-038	69	45.584606	-119.091850	Ephemeral	SW	3	143	Channel is single thread. Flow direction is southwest. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-039	83	45.569176	-119.094284	Ephemeral	NE	3	205	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation. Grazed, Mowed, or Herbicided: Recent.
EPH-041	32,40	45.633034	-119.021950	Ephemeral	NW	2	067, 068, 097, 098, 099	Channel is single thread. Flow direction is northwest. Feature flows in and out of Study Area. Riparian vegetation is in the bed and banks: Moderate. Riparian vegetation is in non-wetland riparian zone: Moderate. OHWL field indicators: presence of litter, debris, silt stained leaves, silt lines on tree trunks, change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-042	40	45.625092	-119.009392	Ephemeral	NE	2	095	Channel is single thread. Flow direction is northeast. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, Grazed, Mowed, or Herbicided: Recent.
EPH-043	40	45.623249	-119.005898	Ephemeral	N	3	096	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-044	55	45.607391	-119.010902	Ephemeral	W	2	114	Channel is single thread. Flow direction is west. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, Grazed, Mowed, or Herbicided: Recent.
EPH-045	74	45.582634	-119.016464	Ephemeral	W	2	169	Channel is single thread. Flow direction is west. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-046	72,74	45.583569	-119.019936	Ephemeral	W	3	172, 173, 154	Channel is single thread. Flow direction is west. Feature originates. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-047	72,73	45.581547	-119.028976	Ephemeral	NE	3	153, 166	Channel is single thread. Flow direction is northeast. Feature entirely within Study Area. Riparian vegetation absent. OHWL field indicators: change in vegetation, textural change of depositional sediment or soil. Grazed, Mowed, or Herbicided: Recent.
EPH-048	20	45.646656	-119.126808	Ephemeral	N	3	036	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-049	35	45.626671	-119.076607	Ephemeral	N	3	078	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-050	35	45.625725	-119.071022	Ephemeral	N	4	080	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-051	50,51	45.607254	-119.053230	Ephemeral	N	3	111, 107, 108	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-052	54,60	45.599640	-119.043205	Ephemeral	N	6	112	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Feature flows into stream or wetland. Grazed, Mowed, or Herbicided: Recent.
EPH-053	57	45.603420	-119.032135	Ephemeral	W	12	115	Channel is single thread. Flow direction is west. Feature flows into Study Area. Riparian vegetation absent. OHWL field indicators: slope angle break in bank. Feature flows into stream or wetland. Grazed, Mowed, or Herbicided: Recent.
EPH-054	65	45.593842	-119.033989	Ephemeral	E	4	132	Channel is single thread. Flow direction is east. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-055	71	45.586288	-119.043144	Ephemeral	N	4	151, 152	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-056	60	45.597046	-119.044708	Ephemeral	N	3	123	Channel is single thread. Flow direction is north. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-057	91	45.552338	-119.115913	Ephemeral	W	4	228	Channel is single thread. Flow direction is west. Feature entirely within Study Area. Riparian vegetation absent. Plowed and Planted Grazed, Mowed, Herbicided: Recent.
EPH-058	2,4,10,11	45.679379	-119.123672	Ephemeral	NE	8	014, 017, 007, 018, 252, 253, 254	Channel is single thread. Flow direction is northeast. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-059	10,11,12	45.670074	-119.131882	Ephemeral	NW	2	016, 257	Channel is single thread. Flow direction is northwest. Feature flows into Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-060	19	45.646755	-119.133690	Ephemeral	N	8	032	Channel is single thread. Flow direction is north. Feature flows in and out of Study Area. Riparian vegetation absent. Grazed, Mowed, or Herbicided: Recent.
EPH-061	9	45.580700	-119.084167	Ephemeral	NW	3	255	Channel is single thread. Flow direction is northwest. Feature originates. Yes. Grazed, Mowed, or Herbicided: Recent.
EPH-062	11	45.669437	-119.132095	Ephemeral	SW	3	258	Channel is single thread. Flow direction is southwest. Feature originates. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-063	15	45.663433	-119.096451	Ephemeral	SW	2	259	Channel is single thread. Flow direction is southwest. Feature flows in and out or the Study Area. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.

Feature Name	Map Number	Latitude	Longitude	Flow Duration	Flow Direction	OHWL Width (feet)	Photo Number	Additional Notes
EPH-064	15	45.661991	-119.096550	Ephemeral	NE	3	267	Channel is single thread. Flow direction is northeast. Feature originates. No riparian vegetation. Grazed, Mowed, Herbicided: Recent.
EPH-065	25	45.641354	-119.099411	Ephemeral	NE	2	260	Channel is single thread. Flow direction is northeast. Feature flow into the Study Area. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-066	47	45.605488	-119.126976	Ephemeral	SW	2	263	Channel is single thread. Flow direction is southwest. Feature originates. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-067	46	45.610317	-119.134995	Ephemeral	SW	3	270	Channel is single thread. Flow direction is southwest. Feature flows in out of the Study Area. Riparian vegetation is absent. Grazed, Mowed, Herbicided: Recent.
EPH-068	48	45.608189	-119.097649	Ephemeral	NE	3	266	Channel is single thread. Flow direction is northeast. Feature originates. Riparian vegetation is absent. Grazed, Mowed, Herbicided: Recent.
EPH-069	48	45.607204	-119.098282	Ephemeral	NE	3	265	Channel is single thread. Flow direction is north. Feature flows into the Study Area. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-070	5	45.677364	-119.108368	Ephemeral	NE	3	271	Channel is single thread. Flow direction is northeast. Feature flows into the Study Area. Riparian vegetation absent. Grazed, Mowed, Herbicided: Recent.
EPH-071	5	45.677410	-119.109138	Ephemeral	SE	2	272, 277	Channel is single thread. Flow direction is southeast. Feature originates. No riparian vegetation. Grazed, Mowed, Herbicided: Recent.
EPH-072	5	45.674053	-119.101509	Ephemeral	NE	2	273	Channel is single thread. Flow direction is northeast. Feature flows in and out of the Study Area. Grazed, Mowed, Herbicided: Recent.
EPH-073	30	45.636677	-119.031120	Ephemeral	NE	4	278, 279	Channel is single thread. Flow direction is northeast. Feature originates. No riparian vegetation. Grazed, Mowed, Herbicided: Recent.
EPH-074	30	45.636944	-119.031906	Ephemeral	NE	3	274	Channel is single thread. Flow direction is northeast. Feature originates. No riparian vegetation. Grazed, Mowed, Herbicided: Recent.
INT-001	108	45.777473	-119.366615	Intermittent	SW	6	280	Channel is single thread. Flow direction is southwest. Feature flows in and out of the Study Area. Feature is a constructed irrigation canal.
INT-002	80	45.582230	-119.086563	Intermittent	NW	2	283, 284	Channel is single thread. Flow direction is northwest. Feature flows in and out of the Study Area. Riparian vegetation within and adjacent to the channel. Grazed, Mowed, Herbicided: Recent.
INT-003	83	45.568283	-119.094582	Intermittent	N	3	206, 289	Channel is single thread. Flow direction is north. Feature flows into the Study Area. Riparian vegetation is in the bed and banks: Moderate density. OHWL field indicators: change in vegetation. Grazed, Mowed, Herbicided: Recent.
Umatilla River	1	45.690338	-119.123306	Perennial	NW	17	287	Channel is single thread. Flow direction is west. Feature flows in out of the Study Area. Only the south bank of the river was delineated. Access to the north bank was restricted.

Table A-3. Other Features

Feature Name	Map Number	Lat	Long	Photograph Number	Feature Characteristics
SP-02-UP	83	45.568741	-119.094391	206	NWI mapped PEM1C. Feature mapped as an R4 stream east of the county road, and ephemeral west of the road crossing.
SP-03-UP	67	45.589836	-119.034134	135, 136	Upland confirmation plot at overflowing livestock water tank.
SP-04-UP	80	45.581947	-119.086372	None	NWI mapped PEM1C. Feature was mapped as an R4 stream.
SP-05-UP	82	45.571407	-119.073708	None	NWI mapped PEM1C. No wetland present.
SP-06-UP	46	45.610291	-119.135025	270	In ephemeral stream channel. No wetland present.
SP-07-UP	1	45.689022	-119.123055	286	At base of hill and swale. No wetland present.
XBB-001	6	45.672901	-119.179901	010	Upland swale. No defined bed and bank.
XBB-002-2	6	45.671638	-119.182327	011	Upland swale. No stream present.
XBB-003	6	45.667767	-119.182701	012	Wheat field. No stream present.
XBB-004	18	45.646347	-119.155830	039	Upland swale. No stream present.
XBB-006	18	45.641716	-119.150681	042	Upland swale. No stream present.
XBB-007	18	45.640991	-119.150703	043	Upland swale. No stream present.
XBB-008-2	82	45.572075	-119.073563	196	Upland swale. No stream present.
XBB-009-1	87	45.567879	-119.049568	221	Upland swale. No stream present.
XBB-010	97	45.527824	-119.105911	241	Upland swale. No defined bed and bank.
XBB-011	97	45.527348	-119.098404	244	Upland swale. No stream present.
XBB-012	100	45.525948	-119.096230	247	Upland swale. No stream present.
XBB-013	100	45.524300	-119.092270	248	Upland swale. No stream present.
XBB-014-1	85	45.564766	-119.120483	213	Wheat field. No stream present.
XBB-014-2	85	45.564751	-119.122437	214	Wheat field. No stream present.
XBB-015	22	45.641785	-119.060204	060	Upland swale. No stream present.
XBB-016	22	45.641411	-119.060570	061	Upland swale. No stream present.
XBB-017	22	45.641083	-119.060745	062	Wheat field. No stream present.
XBB-018	22	45.640083	-119.058685	063	Upland swale. No stream present.
XBB-019	25	45.636059	-119.106300	057	Upland swale. No stream present.
XBB-020	18	45.642239	-119.158424	040	Wheat field. No stream present.
XBB-021	70	45.582607	-119.065079	146	Upland swale. No stream present.
XBB-022	70	45.584743	-119.066406	147	Upland swale. No stream present.
XBB-023	80	45.582180	-119.079269	157	Upland swale. No defined bed and bank.
XBB-024	80	45.582287	-119.078835	164	Upland swale. No defined bed and bank.

Feature Name	Map Number	Lat	Long	Photograph Number	Feature Characteristics
XBB-026-1	77	45.574890	-119.102943	175	Upland swale. No defined bed and bank.
XBB-026-2	77	45.574802	-119.103035	177	Upland swale. No defined bed and bank.
XBB-028	37	45.620621	-119.048752	091	Upland swale. No stream present.
XBB-029	39	45.622780	-119.031380	092	Wheat field. No stream present.
XBB-031-2	31	45.633347	-119.044838	066	Upland swale. No stream present.
XBB-032-2	59	45.599369	-119.113075	124	Upland swale. No stream present.
XBB-033	101	45.520580	-119.082527	249	Upland swale. No stream present.
XBB-035	94	45.544319	-119.155716	230	Upland swale. No stream present.
XBB-036-2	76	45.577610	-119.122559	174	Upland swale. No stream present.
XBB-037-2	75	45.580063	-119.137146	156	Upland swale. No stream present.
XBB-038	68	45.585892	-119.125092	140	Upland swale. No stream present.
XBB-039-2	82	45.575470	-119.075180	198	Upland swale. No stream present.
XBB-040	82	45.575432	-119.067307	199	Upland swale. No stream present.
XBB-042-1	10	45.672596	-119.132545	013	Upland swale. No stream present.
XBB-042-2	10	45.672596	-119.132545	019	Upland swale. No stream present.
XBB-043	8	45.665672	-119.147881	023	Upland swale. No defined bed and bank.
XBB-044	14	45.659203	-119.153542	025	Upland swale. No defined bed and bank.
XBB-045-1	7	45.669613	-119.157722	021	Upland swale. No defined bed and bank.
XBB-046A	23	45.638554	-119.140717	041	Upland swale. No stream present.
XBB-046B	23	45.637421	-119.139244	045	Upland swale. No stream present.
XBB-048	28	45.627060	-119.132774	072	Upland swale. No defined bed and bank.
XBB-049	24	45.632187	-119.134186	049	Upland swale. No defined bed and bank.
XBB-051	38	45.624203	-119.131668	082	Wheat field. No stream present.
XBB-053	102	45.516201	-119.101280	250	Upland swale. No stream present.
XBB-054	96	45.530754	-119.115440	232	Upland swale. No stream present.
XBB-055-1	97	45.528187	-119.102104	237	Upland swale. No stream present.
XBB-055-2	97	45.528191	-119.102112	238	Upland swale. No stream present.
XBB-056	97	45.527668	-119.103363	239	Upland swale. No stream present.
XBB-057	86	45.560863	-119.097885	215	Upland swale. No stream present.
XBB-058	86	45.560829	-119.098328	216	Upland swale. No stream present.
XBB-059-1	86	45.565197	-119.096962	218	Upland swale. No stream present.
XBB-060	15,16	45.659859	-119.099968	028	Wheat field. No stream present.
XBB-063	42	45.621597	-119.096687	088	Upland swale. No defined bed and bank.
XBB-064	66	45.592529	-119.093834	125	Upland swale. No stream present.
XBB-065	66	45.590591	-119.093018	126	Upland swale. No stream present.
XBB-066	34	45.629814	-119.091431	077	Upland swale. No defined bed and bank.

Feature Name	Map Number	Lat	Long	Photograph Number	Feature Characteristics
XBB-067	70	45.585094	-119.066116	145	Upland swale. No stream present.
XBB-068	80	45.581913	-119.081535	158	Upland swale. No defined bed and bank.
XBB-070	81	45.574455	-119.085861	179	Upland swale. No defined bed and bank.
XBB-071	81	45.575481	-119.085327	180	Upland swale. No defined bed and bank.
XBB-072	29	45.639763	-119.018181	064	Wheat field. No stream present.
XBB-076	43	45.617184	-119.005386	102	Wheat field. No stream present.
XBB-077	43	45.614853	-118.997612	103	Upland swale. No stream present.
XBB-078	56	45.604794	-118.997116	117	Wheat field. No stream present.
XBB-079	56	45.603832	-118.997131	118	Wheat field. No stream present.
XBB-080	44	45.614174	-119.019882	101	Wheat field. No stream present.
XBB-081	74	45.582726	-119.016937	168	Upland swale. No stream present.
XBB-082	72,74	45.583256	-119.019447	170	Wheat field. No stream present.
XBB-083	74	45.579075	-119.016434	171	Wheat field. No stream present.
XBB-085	72	45.585945	-119.027306	155	Upland swale. No defined bed and bank.
XBB-086	21	45.646236	-119.110176	038	Wheat field. No stream present.
XBB-089A	20	45.646893	-119.126343	035	Upland swale. No defined bed and bank.
XBB-089B	27	45.634647	-119.097305	059	Upland swale. No defined bed and bank.
XBB-090	36	45.623474	-119.064743	084	Upland swale. No defined bed and bank.
XBB-091	36	45.624084	-119.065170	085	Upland swale. No defined bed and bank.
XBB-092	50	45.610706	-119.051880	109	Upland swale. No stream present.
XBB-093	73	45.580070	-119.029839	165	Upland swale. No stream present.
XBB-094	73	45.581169	-119.032684	167	Wheat field. No stream present.
XBB-095	71	45.582241	-119.041695	148	Wheat field. No stream present.
XBB-096	71	45.583374	-119.041687	149	Wheat field. No stream present.
XBB-097	71	45.585030	-119.040970	150	Wheat field. No stream present.
XBB-098	62	45.595516	-119.081192	129	Wheat field. No stream present.
XBB-099	67	45.589607	-119.034264	134	Upland swale. No defined bed and bank.
XBB-100	60	45.598679	-119.043747	121	Wheat field. No stream present.
XBB-101	60	45.596447	-119.044739	122	Upland swale. No defined bed and bank.
XBB-102	80	45.581284	-119.082542	159	Upland swale. No defined bed and bank.
XBB-103	80	45.581387	-119.082283	160	Upland swale. No defined bed and bank.
XBB-104	85	45.564636	-119.119957	212	Upland swale. No defined bed and bank.
XBB-105	88	45.560394	-119.107910	222	Upland swale. No stream present.
XBB-106	86	45.564514	-119.104492	219	Upland swale. No defined bed and bank.
XBB-107	17	45.652756	-119.095963	030	Wheat field. No stream present.
XBB-108	3	45.678864	-119.099823	001	Upland swale. No stream present.

Feature Name	Map Number	Lat	Long	Photograph Number	Feature Characteristics
XBB-109	3	45.679161	-119.101768	002	Upland swale. No stream present.
XBB-111	3	45.682774	-119.106735	003	Upland swale. No stream present.
XBB-112	4	45.677849	-119.121216	005	Upland swale. No stream present.
XBB-113	4	45.678867	-119.120720	006	Upland swale. No stream present.
XBB-114	10	45.670967	-119.132790	015	Upland swale. No defined bed and bank.
XBB-115	12	45.663803	-119.126526	024	Wheat field. No stream present.
XBB-116	19	45.646545	-119.141441	031	Upland swale. No defined bed and bank.
XBB-118	4	45.677807	-119.117188	008	Upland swale. No stream present.
XBB-119	4	45.678890	-119.116989	009	Upland swale. No stream present.
XBB-120	16	45.660042	-119.109642	029	Wheat field. No stream present.
XBB-121	63	45.594826	-119.067337	130	Wheat field. No stream present.
XBB-122	64	45.593498	-119.054138	131	Upland swale. No stream present.
XBB-123	33	45.633461	-119.011673	071	Upland swale. No defined bed and bank.
XBB-125	107	45.709461	-119.247810	291	Upland swale. No defined bed and bank. No stream present.
XBB-126	106	45.699615	-119.247925	292	No stream present at NHD line adjacent to and crossing gravel road.
XBB-127	105	45.674400	-119.227234	293	Upland swale. No stream present.
XBB-128	104	45.674713	-119.221100	294	Upland swale. No stream present.
XBB-129	104	45.675358	-119.215508	295	Upland swale. No stream present.
XBB-130	104	45.673218	-119.215385	296	Upland swale. No stream present.
XBB-131	103	45.668518	-119.202965	297	No stream present at NHD line adjacent to and crossing gravel road.
XBB-132	103	45.667786	-119.202087	298	Upland swale. No stream present.
XBB-133	103	45.669064	-119.201782	299	No stream, no channel.
XBB-134	103	45.668804	-119.196442	300	Upland swale. No stream present.
XBB-135	9	45.668232	-119.145584	None	Upland swale. No defined bed and bank.
XBB-136	8	45.670155	-119.156044	302	Upland swale. No stream present.
XBB-137	7	45.670116	-119.165886	303	Upland swale. No defined bed and bank.
XBB-138	7	45.667618	-119.166405	304	Upland swale. No defined bed and bank.
XBB-139	7	45.666351	-119.166779	305	Upland swale. No defined bed and bank.
XBB-140	13	45.660488	-119.165611	306	Wheat field. No stream present.
XBB-141	13	45.660591	-119.165833	307	Wheat field. No stream present.
XBB-142	13	45.660690	-119.165573	308	Wheat field. No stream present.
XBB-143	11,12	45.665455	-119.126923	309	Upland swale. No defined bed and bank.
XBB-144	11	45.669819	-119.132416	310	Upland swale. No stream present.

Feature Name	Map Number	Lat	Long	Photograph Number	Feature Characteristics
XBB-145	17	45.654572	-119.098190	311	Upland swale. No defined bed and bank.
XBB-146	17	45.655052	-119.098389	312	Upland swale. No defined bed and bank.
XBB-147	16,17	45.655396	-119.101479	313	Wheat field. No stream present.
XBB-148	16	45.655293	-119.105278	314	Wheat field. No stream present.
XBB-149	27	45.633026	-119.098412	315	Upland swale. No defined bed and bank.
XBB-150	30	45.636826	-119.032013	316	Upland swale. No stream present.
XBB-151	48	45.609200	-119.098557	317	Upland swale. No stream present.
XBB-152	69	45.586140	-119.097054	318	Upland swale. No stream present.
XBB-153	45	45.613701	-119.031052	319	Upland swale. No stream present.
XBB-154	46	45.609493	-119.134148	320	Upland swale. No stream present.
XBB-155	106	45.702438	-119.248566	251	Upland swale, no defined bed or bank.

Table A-4. Deviations from the National Wetlands Inventory

Feature Name	Map Number	Lat	Long	Photograph Number	NWI Classification	Field Cowardin Classification	Reason for Deviation
EPH-009	96,97	45.5296402	-119.1113739	234, 240, 235, 242, 243	R4SBC	Ephemeral	SDAM guidance was used to determine that the stream is ephemeral.
EPH-010	21,25,27,35,36,50,54,67, 65	45.6396637	-119.1002197	054, 055, 056, 037, 079, 081, 106, 113, 087, 138, 133, 110, 261,262, 268	R4SBC	Ephemeral	Multiple segments of EPH-010 were delineated, and SDAM guidance was used to determine that the stream is ephemeral.
EPH-016	77,79	45.57686996	-119.1116486	176, 178, 203, 204	R4SBC	Ephemeral	Two segments of EPH-016 were delineated within the study area. SDAM guidance was used to determine that the stream is ephemeral.
EPH-020	39,41	45.62472534	-119.0266724	093, 094	R4SBC	Ephemeral	Multiple segments of EPH-020 were delineated, and SDAM guidance was used to determine that the stream is ephemeral.
EPH-025	84	45.56438828	-119.1402206	211	R4SBC	Ephemeral	SDAM guidance was used to determine that the stream is ephemeral.
EPH-026	92	45.55036163	-119.1416321	227	R4SBC	Ephemeral	SDAM guidance was used to determine that the stream is ephemeral.
EPH-061	9	45.58069992	-119.0841675	163	PEM1C	Ephemeral	Within the study area, immediately west of County Road 1363, the NWI feature was determined to be an ephemeral stream, with the exception of WET-J.
INT-003	83	45.56828308	-119.0945816	206, 289	PEM1C	Intermittent	Within the study area at this crossing, the feature was determined to be an ephemeral stream, and not wetland. See sample plot SP-02-UP
POND-1	81	45.57357407	-119.0776749	186, 187	PEM1C	PEMx	Feature is an excavated pond created approximately within the alignment of the NWI wetland.
POND-2	81	45.5733223	-119.077446	188, 190	PEM1C	PEMx	Feature is an excavated pond created approximately within the alignment of the NWI wetland.
WET-A	81	45.57305908	-119.0770798	182, 183, 191, 193	PEM1C	PFO-PEM	Vegetation community in linear swale feature includes tree height Salix amygdaloides
WET-B	82	45.57232666	-119.0736694	197	-	PEM	Not mapped by NWI
WET-C	83	45.5717659	-119.0915527	207, 208, 209	PEM1C	PSS	Vegetation community in linear swale feature includes shrub class Salix amygdaloides. Wetland does not continue to the extend indicated by NWI.
WET-D	98	45.53010178	-119.0856934	236	-	PEM	Not mapped by NWI
WET-E	88	45.55949783	-119.1160049	223	-	PEM	Not mapped by NWI
WET-F	88	45.55658722	-119.1146088	224	-	PEM	Not mapped by NWI
WET-G	78	45.57184601	-119.133194	201	-	PEM	Not mapped by NWI
WET-H	78	45.57197189	-119.1335526	202	-	PEM	Not mapped by NWI
WET-I	32	45.63411713	-119.0223236	069	-	PEM	Not mapped by NWI
WET-J	69	45.58389282	-119.0917435	141, 142	PEM1C	PEM	Within the study area, the wetland is larger than the NWI feature.
WET-K	95	45.5395546	-119.127533	231	R4SBC	PEM	Within the study area, the delineated feature is a well vegetated PEM and not an intermittent stream.
WET-L	90	45.55705643	-119.0741577	226	R4SBC	PEM	Within the study area, the delineated feature is a vegetated PEM wetland inside the channel, and not an intermittent stream.

Feature Name	Map Number	Lat	Long	Photograph Number	NWI Classification	Field Cowardin Classification	Reason for Deviation
XBB-011	97	45.52734756	-119.0984039	244	R4SBC	-	Feature was determined to be an upland swale feature and not a stream. Conclusion based on lack of defined bed and bank, lack of physical hydrology indicators, no hydrophytes, no macroinvertebrates.
XBB-012	100	45.52594757	-119.0962296	247	R4SBC	-	Feature was determined to be an upland swale feature and not a stream. Conclusion based on lack of defined bed and bank, lack of physical hydrology indicators, no hydrophytes, no macroinvertebrates.
XBB-013	100	45.52429962	-119.0922699	248	R4SBC	-	Feature was determined to be an upland swale feature and not a stream. Conclusion based on lack of defined bed and bank, lack of physical hydrology indicators, no hydrophytes, no macroinvertebrates.
XBB-033	101	45.52058029	-119.0825272	249	R4SBC	-	Feature was determined to be an upland swale feature and not a stream. Conclusion based on lack of defined bed and bank, lack of physical hydrology indicators, no hydrophytes, no macroinvertebrates.
XBB-038	68	45.58589172	-119.1250916	140	PEM1C	-	Feature was determined to not be wetland or a stream. Vegetation consisted of Bromus hordeaceus, Cirsium arvense, Achillea millifolium, Bromus tectorum, Cynoglossum officinale, Lepidium perfoliatum, and Urtica dioica. Dead willow was also observed in the ravine.

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Appendix B. Wetland and SDAM Datasheets

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WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 26-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **SP-02-UP**

Investigator(s): ES,KB **Section, Township, Range:** **S** 17 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): drainage **Local relief (concave, convex, none):** concave **Slope:** 3.0 % / 1.7 °

Subregion (LRR): LRR B **Lat.:** 45.568741 **Long.:** -119.094391 **Datum:** WGS84

Soil Map Unit Name: 56E-Morrow silt loam, 20 to 35 percent slopes **NWI classification:** PEM1C

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: NWI confirmation plot. No wetland present. EPH-040 stream with willow as the dominant woody species in the riparian area adjacent to the channel.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1. Salix amygdaloides	80	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	80	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Conium maculatum	60	☑ 60.0%	FACW
2. Bromus tectorum	20	☑ 20.0%	UPL
3. Stellaria media	20	☑ 20.0%	FACU
4.		☐ 0.0%	
5.		☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	140	x 2 =	280
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	20	x 5 =	100
Column Totals:	180 (A)		460 (B)

Prevalence Index = B/A = 2.556

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP-02-UP

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-10	10YR	2/2	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Roots and Rocks

Depth (inches): 10

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **SP-03-UP**

Investigator(s): ES **Section, Township, Range:** **S** 2 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** none **Slope:** 3.0 % / 1.7 °

Subregion (LRR): LRR B **Lat.:** 45.589836 **Long.:** -119.034134 **Datum:** WGS84

Soil Map Unit Name: 19D-Condon silt loam, 12 to 20 percent north 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: Overflowing cattle watering tank extends downslope approximately 20' from the tank.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Hordeum jubatum	100	☑ 100.0%	FAC
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 3.000

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:

Kochia (Bassia scorparia) is dominant on the slightly higher ground out from the saturation zone.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP-03-UP

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Compacted gravel and soils

Depth (inches): 3

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 18-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **SP-04-UP**

Investigator(s): ES **Section, Township, Range:** **S** 8 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 2.0 **%** / 1.1 **°**

Subregion (LRR): LRR B **Lat.:** 45.581947 **Long.:** -119.086372 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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: Plot established in the channel of drainage feature (EPH-061).

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	60	☑ 85.7%	NI
2. Juncus balticus	5	☐ 7.1%	FACW
3. Xanthium strumarium	5	☐ 7.1%	FAC
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	70	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	10 (A)		25 (B)

Prevalence Index = B/A = 2.500

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP-04-UP

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	98	10YR	3/6	2	C	M	Sandy Loam	
3-12	10YR	2/2	100						Sandy Loam	
12-16	10YR	3/2	100							

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Plot is located within an ephemeral channel.

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) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** **Sampling Point:** **SP-05-UP**

Investigator(s): ES **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Drainage **Local relief (concave, convex, none):** concave **Slope:** 3.0 **%** / 1.7 **°**

Subregion (LRR): LRR B **Lat.:** 45.571407 **Long.:** -119.073708 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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: Plot is located about 750 feet SE of WET-A in a grassy swale adjacent to mapped NWI & NHD features. No wetland was present.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	70	☑ 60.9%	NI
2. Cynoglossum officinale	30	☑ 26.1%	FACU
3. Schedonorus arundinaceus	10	☐ 8.7%	FACU
4. Conium maculatum	5	☐ 4.3%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	115	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	0	x 5 =	0
Column Totals:	45 (A)		170 (B)

Prevalence Index = B/A = 3.778

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: SP-05-Up

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	100						Silt Loam	
6-16	10YR	3/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/10/2019

Applicant/Owner: Capital Power State: OR Sampling Point: SP-06-UP

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): upland swale Local relief (concave, convex, none): concave Slope (%): 40-70

Subregion (LRR): LRR B Lat: 45.6102905273437 Long: -119.135025024414 Datum: WGS84

Soil Map Unit Name: Lickskillet-Rock outcrop complex, 40 to 70 percent slopes NWI classification: none

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

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

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

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

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

Remarks:
Plot confirming no wetland in steep upland swale. Small area is slightly moister than surrounding swale.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Leymus cinereus*	10	No	FAC
2. *Chenopodium album*	60	Yes	FACU
3. *Sisymbrium altissimum*	10	No	FACU
4. *Lactuca serriola*	5	No	FACU
5. *Bromus japonicus*	25	Yes	FACU
6.			
7.			
8.			
	110 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	10	x 3 = 30
FACU species	100	x 4 = 400
UPL species	0	x 5 = 0
Column Totals:	110 (A)	430 (B)

Prevalence Index = B/A = 3.91

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** X

Remarks:

SOIL

Sampling Point: SP-06-UP

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 %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 2/2	100					Loamy/Clayey	Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 14

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
No primary indicators of hydrology despite soil having slightly more moisture than surrounding areas.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: SP-07-UP

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): Floodplain Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR B Lat: 45.6890220642089 Long: -119.123054504394 Datum: WGS84

Soil Map Unit Name: Shano silt loam, 12 to 25 percent slopes NWI classification: none

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

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

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

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

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

Remarks:
This plot was sampled to confirm that there is not a wetland on the edge of the alfalfa field on the toe of the slope. The adjacent field is watered with wheel lines and it is suspected that the vegetation within the plot is receiving tail water from the lines.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Conium maculatum*	85	Yes	FACW
2. *Convolvulus arvensis*	15	No	UPL
3.			
4.			
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	85	x 2 =	170
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	15	x 5 =	75
Column Totals:	100 (A)		245 (B)

Prevalence Index = B/A = 2.45

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

____ Prevalence Index is ≤3.0[1]

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

____ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: SP-07-UP

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 %	Type[1]	Loc[2]	Texture	Remarks
0-18	10YR 3/2	100					Loamy/Clayey	Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___
Water Table Present? Yes ___ No x Depth (inches): ___
Saturation Present? Yes ___ No x Depth (inches): ___
(includes capillary fringe)

Wetland Hydrology Present? **Yes** ___ **No** x

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

Remarks:
Soil is dry throughout the profile.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-A-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Channel (active) **Local relief (concave, convex, none):** concave **Slope:** 3.0 **%** / 1.7 **°**

Subregion (LRR): LRR B **Lat.:** 45.573115 **Long.:** -119.077184 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland lies within a narrow channel located in the bottom of a dry valley. Wetland extends outside of the study area to the southeast.Wetland is hydrologically connected to POND-2.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix amygdaloides	40	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	40	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Agrostis stolonifera	40	☑ 30.8%	FACW
2. Schedonorus arundinaceus	25	☑ 19.2%	FACU
3. Juncus effusus	20	☑ 15.4%	FACW
4. Thinopyrum intermedium	15	☐ 11.5%	NI
5. Xanthium strumarium	10	☐ 7.7%	FAC
6. Juncus torreyi	5	☐ 3.8%	FACW
7. Schoenoplectus acutus	5	☐ 3.8%	OBL
8. Xanthium strumarium	5	☐ 3.8%	FAC
9. Veronica anagallis-aquatica	5	☐ 3.8%	OBL
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	130	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	10	x 1 =	10
FACW species	105	x 2 =	210
FAC species	15	x 3 =	45
FACU species	25	x 4 =	100
UPL species	0	x 5 =	0
Column Totals:	155 (A)		365 (B)

Prevalence Index = B/A = 2.355

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-A-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	2/2	100						Silt Loam	
5-12	10YR	2/1	98	10YR	3/4	2	C	M	Silt Loam	
12-16	10YR	2/1	100						Silt Loam	
16-20	10YR	2/1	80	10YR	3/4	20	C	M	Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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): 16
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 4

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-A-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Valley bottom **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.5730511 **Long.:** -119.0771839 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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: Sample plot is located at the top of the slope from the wetland, adjacent to the existing farm road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1. Salix amygdaloides	50	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Distichlis spicata	35	☑ 46.7%	FAC
2. Thinopyrum intermedium	15	☑ 20.0%	NI
3. Euphorbia glyptosperma	15	☑ 20.0%	UPL
4. Chenopodium album	10	☐ 13.3%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	75	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 25 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	2	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	35	x 3 =	105
FACU species	10	x 4 =	40
UPL species	15	x 5 =	75
Column Totals:	110 (A)		320 (B)

Prevalence Index = B/A = 2.909

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-A-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/3	80						Silt Loam	Two matrix colors
	10YR	4/3	20							

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-B-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** concave **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR B **Lat.:** 45.572287 **Long.:** -119.0736693 **Datum:** WGS84

Soil Map Unit Name: 50F—Lickskillet-Rock outcrop complex, 40 to 70 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: Slope PEM wetland is located in a swale feature on a hillside.Wetland continues to the south outside of the study area. This feature is not mapped by NWI.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Schoenoplectus tabernaemontani	30	☑ 28.6%	OBL
2. Nasturtium officinale	30	☑ 28.6%	OBL
3. Juncus effusus	20	☐ 19.0%	FACW
4. Bidens frondosa	10	☐ 9.5%	FACW
5. Agropyron intermedium	10	☐ 9.5%	UPL
6. Rumex crispus	5	☐ 4.8%	FAC
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	105	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	60	x 1 =	60
FACW species	30	x 2 =	60
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	105 (A)		185 (B)

Prevalence Index = B/A = 1.762

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:

Salix amygdaloides is in the portion of the wetland outside of the study area.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-B-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/2	95	7.5YR	3/4	5	C	M	Silt Loam	
6-12	10YR	2/2	100						Fine Sandy Loam	
12-20	10YR	3/3	95	10YR	3/6	5	C	M	Fine Sandy Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☑ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☑ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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):	0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches):	0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-B-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 10.0 % / 5.7 °

Subregion (LRR): LRR B **Lat.:** 45.572267 **Long.:** -119.07365 **Datum:** WGS84

Soil Map Unit Name: 50F—Lickskillet-Rock outcrop complex, 40 to 70 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 is about 5 feet higher than the wetland on the upland slope adjacent to the wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1. Chrysothamnus nauseosus	15	☑ 100.0%	UPL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Agropyron intermedium	50	☑ 100.0%	UPL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 50 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	0	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	0.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	65	x 5 =	325
Column Totals:	65 (A)		325 (B)

Prevalence Index = B/A = 5.000

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-B-02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-3	10YR	2/2	100						Silt Loam	
3-16	10YR	3/2	100						Silt Loam	
16-20	10YR	4/2	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-C-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 17 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 4.0 % / 2.3 °

Subregion (LRR): LRR B **Lat.:** 45.5723867 **Long.:** -119.0904159 **Datum:** WGS84

Soil Map Unit Name: 56E - Morrow silt loam, 20-35% slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Linear PSS wetland lies in a low area adjacent to an improved gravel ranch road. Wetland is about 6 feet lower than the adjacent upland - road side. Dry upland slope constrains the NW side of the wetland. Deviation from mapped NWI wetland classification.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Salix amygdaloides	35	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	35		= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Juncus effusus	50	☑	47.6%	FACW
2. Agrostis stolonifera	30	☑	28.6%	FACW
3. Urtica dioica	10	☐	9.5%	FAC
4. Cirsium arvense	10	☐	9.5%	FACU
5. Agropyron intermedium	5	☐	4.8%	UPL
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	105		= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	115	x 2 =	230
FAC species	10	x 3 =	30
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	140 (A)		325 (B)

Prevalence Index = B/A = 2.321

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-C-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	2/2	98	10YR	3/6	2	C	M/PL	Silt Loam	
3-16	10YR	2/2	90	10YR	3/6	10	C	M/PL	Silt Loam	
16-20	10YR	3/2	90	10YR	3/6	10	C	M/PL	Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-17

Applicant/Owner: Capital Power **State:** **Sampling Point:** **WET-C-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 17 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 15.0 % / 8.5 °

Subregion (LRR): LRR B **Lat.:** 45.572421 **Long.:** -119.090427 **Datum:** WGS84

Soil Map Unit Name: 56E - Morrow silt loam, 20-35% slopes **NWI classification:** PEM1C

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 is on the hillslope to the NW of the wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1. Salix amygdaloides	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Agropyron intermedium	80	☑ 84.2%	UPL
2. Cirsium arvense	10	☐ 10.5%	FACU
3. Juncus effusus	5	☐ 5.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	95	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 5 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	2	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	50.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	80	x 5 =	400
Column Totals:	105 (A)		470 (B)

Prevalence Index = B/A = 4.476

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-C-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-12	10YR	3/2	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-C-03**

Investigator(s): ES,KB **Section, Township, Range:** **S** 17 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Swale **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.571438 **Long.:** -119.092041 **Datum:** WGS84

Soil Map Unit Name: 56E - Morrow silt loam, 20-35% slopes **NWI classification:** PEM1C

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: SW continuation of the same PSS wetland swale documented at WET-C-01. Deviation from mapped NWI classification.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Typha latifolia	20	☑ 22.2%	OBL
2. Scirpus microcarpus	20	☑ 22.2%	OBL
3. Polypogon monspeliensis	15	☑ 16.7%	FACW
4. Epilobium ciliatum	15	☑ 16.7%	FACW
5. Chenopodium album	15	☑ 16.7%	FACU
6. Juncus effusus	5	☐ 5.6%	FACW
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	5	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	80.0%	(A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	40	x 1 =	40
FACW species	35	x 2 =	70
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	0	x 5 =	0
Column Totals:	90 (A)		170 (B)

Prevalence Index = B/A = 1.889

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-C-03

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 %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	3/2	98	10YR	3/6	2	C	M	Silt Loam	
7-20	10YR	3/1	90	7.5YR	4/6	10	C	M	Silty Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-C-04**

Investigator(s): ES, ST **Section, Township, Range:** **S** 17 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.571419 **Long.:** -119.091995 **Datum:** WGS84

Soil Map Unit Name: 56E - Morrow silt loam, 20-35% slopes **NWI classification:** PEM1C

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 ◉

Hydric Soil Present? Yes ○ No ◉

Wetland Hydrology Present? Yes ○ No ◉

Is the Sampled Area within a Wetland? Yes ○ No ◉

Remarks: Upland plot located on the fill slope of the adjacent improved gravel ranch road.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1. Artemisia tridentata	15	☑ 100.0%	UPL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Agropyron intermedium	80	☑ 88.9%	UPL
2. Bromus tectorum	5	☐ 5.6%	UPL
3. Cirsium arvense	5	☐ 5.6%	FACU
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	100	x 5 =	500
Column Totals:	105 (A)		520 (B)

Prevalence Index = B/A = 4.952

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-C-04

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 %	Type[1]	Loc[2]	Texture	Remarks
0-7	10YR	3/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Compacted fill material and rock

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

Plot is about 5 feet higher than the wetland.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-D-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 29 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.530444 **Long.:** -119.086068 **Datum:** WGS84

Soil Map Unit Name: 56B - Morrow silt loam, 1 to 7 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: Vernal pool located on the top of a broad hill. The wetland is surrounded by tilled wheat fields.A farm road runs adjacent to the north side of the wetland. The wetland is 1 to 2 feet lower than the adjacent farm road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	
Herb Stratum (Plot size: 5')			
1. Polygonum aviculare	25	☑ 83.3%	FAC
2. Navarretia intertexta	5	☐ 16.7%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	30	= Total Cover	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 70 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	1	(A)
Total Number of Dominant Species Across All Strata:	1	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	30 (A)		85 (B)

Prevalence Index = B/A = 2.833

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-D-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Silty Clay	

[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 Muck 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.

Restrictive Layer (if present):

Type: rock

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil does not technically meet hydric soil criteria. Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of rock) and seasonally ponds water. Therefore, it is assumed that the site would meet the hydric soils definition despite the lack of typical hydric soils characteristics.

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) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-D-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 29 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.53046 **Long.:** -119.086174 **Datum:** WGS84

Soil Map Unit Name: 56B - Morrow silt loam, 1 to 7 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 plots is about 1.5' higher than the adjacent wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Triticum cylindricum	30	☑ 60.0%	UPL
2. Elymus elymoides	10	☑ 20.0%	FACU
3. Chenopodium album	5	☐ 10.0%	FACU
4. Bromus tectorum	5	☐ 10.0%	UPL
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	15	x 4 =	60
UPL species	35	x 5 =	175
Column Totals:	50 (A)		235 (B)

Prevalence Index = B/A = 4.700

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-D-02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-4	10YR 3/2						Silty Clay	pebbles and cobbles mixed throughout

[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 Muck 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.

Restrictive Layer (if present):

Type: cobble and gravel

Depth (inches): 4

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-E-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 18 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.559378 **Long.:** -119.115996 **Datum:** WGS84

Soil Map Unit Name: 56B - Morrow silt loam, 1 to 7 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: Wetland is a vernal pool adjacent to an existing farm road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Polygonum aviculare	25	☑ 71.4%	FAC
2. Psilocarphus elatior	5	☐ 14.3%	FACW
3. Navarretia intertexta	5	☐ 14.3%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	35	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 65 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	25	x 3 =	75
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	35 (A)		95 (B)

Prevalence Index = B/A = 2.714

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-E-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR	3/2	100						Silty Clay	

[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 Muck 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.

Restrictive Layer (if present):

Type: Dry clay

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil does not technically meet hydric soil criteria. Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of clay) and seasonally ponds water. Therefore, it is assumed that the site would meet the hydric soils definition despite the lack of typical hydric soils characteristics.

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) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-E-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 18 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.55933 **Long.:** -119.115959 **Datum:** WGS84

Soil Map Unit Name: 56B - Morrow silt loam, 1 to 7 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 is located in the wheat field adjacent to the vernal pool.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Triticum x aestivum	35	☑ 87.5%	UPL
2. Bromus tectorum	5	☐ 12.5%	UPL
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	40	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 60 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	40	x 5 =	200
Column Totals:	40 (A)		200 (B)

Prevalence Index = B/A = 5.000

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-E-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	100						Silt Loam	
6-14	10YR	3/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: dry clay

Depth (inches): 14

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-F-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 19 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.5564647 **Long.:** -119.1146018 **Datum:** WGS84

Soil Map Unit Name: 59D - Morrow-Bakeoven complex, 2 to 20 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: Vernal pool located on the top of a broad hill. The wetland is surrounded by tilled wheat fields. A farm road runs adjacent to the west side of the wetland. The wetland is 1 to 2 feet lower than the adjacent farm road. A berm surrounds the wetland on the west, north and south sides.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Bromus tectorum	30	☑	33.3%	UPL
2. Polygonum aviculare	20	☑	22.2%	FAC
3. Hordeum marinum	20	☑	22.2%	FAC
4. Psilocarphus elatior	15	☐	16.7%	FACW
5. Navarretia intertexta	5	☐	5.6%	FACW
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	90		= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 66.7% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	20	x 2 =	40
FAC species	40	x 3 =	120
FACU species	0	x 4 =	0
UPL species	30	x 5 =	150
Column Totals:	90 (A)		310 (B)

Prevalence Index = B/A = 3.444

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-F-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silty Clay	

[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 Muck 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.

Restrictive Layer (if present):

Type: rock

Depth (inches): 3

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil does not technically meet hydric soil criteria. Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of rock) and seasonally ponds water. Therefore, it is assumed that the site would meet the hydric soils definition despite the lack of typical hydric soils characteristics.

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) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-F-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 19 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Flat **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.556419 **Long.:** -119.114612 **Datum:** WGS84

Soil Map Unit Name: 59D - Morrow-Bakeoven complex, 2 to 20 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:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Triticum cylindricum	40	☑ 50.0%	UPL
2. Poa bulbosa	15	☑ 18.8%	FACU
3. Bromus tectorum	10	☐ 12.5%	UPL
4. Hordeum murinum	10	☐ 12.5%	FACU
5. Bromus hordeaceus	5	☐ 6.3%	FACU
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	80	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	30	x 4 =	120
UPL species	50	x 5 =	250
Column Totals:	80 (A)		370 (B)

Prevalence Index = B/A = 4.625

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-F-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Silty Clay	

[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 Muck 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.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 3

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-G-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 13 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.571993 **Long.:** -119.133181 **Datum:** WGS84

Soil Map Unit Name: 18B - Condon silt loam, 1 to 7 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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Vernal pool located on the top of a broad hill. The wetland is surrounded by tilled wheat fields and grassland. A farm road runs adjacent to the north side of the wetland. The wetland is about 1 foot lower than the adjacent farm road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5')				
1. Navarretia intertexta	30	☑	75.0%	FACW
2. Polygonum aviculare	10	☑	25.0%	FAC
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	40		= Total Cover	

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 60 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	30	x 2 =	60
FAC species	10	x 3 =	30
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	40 (A)		90 (B)

Prevalence Index = B/A = 2.250

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-G-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR	3/2	95	10YR	3/6	5	C	PL	Silty Clay	
3-5	10YR	3/2	100						Silty Clay	

[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 Muck 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.

Restrictive Layer (if present):

Type: rock

Depth (inches): 5

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil does not technically meet hydric soil criteria for F6, due to shallow soil layer. Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of rock) and seasonally ponds water. Therefore, it is assumed that the site would meet the hydric soils definition despite the lack of typical hydric soils characteristics.

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) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-G-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 13 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.572026 **Long.:** -119.133158 **Datum:** WGS84

Soil Map Unit Name: 18B - Condon silt loam, 1 to 7 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:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Poa bulbosa	15	☑ 33.3%	FACU
2. Elymus trachycaulus	15	☑ 33.3%	FACU
3. Madia gracilis	10	☑ 22.2%	UPL
4. Achillea millefolium	5	☐ 11.1%	FACU
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	45	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 60 **% Cover of Biotic Crust** 0

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: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	10	x 5 =	50
Column Totals:	45 (A)		190 (B)

Prevalence Index = B/A = 4.222

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-G-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Silt Loam	
4-7	10YR	4/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: rock and compacted silt

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-H-01**

Investigator(s): ES, ST **Section, Township, Range:** **S** 13 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.5719884 **Long.:** -119.1334717 **Datum:** WGS84

Soil Map Unit Name: 18B - Condon silt loam, 1 to 7 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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Vernal pool located on the top of a broad hill. The wetland is surrounded by tilled wheat fields and grassland.A farm road runs adjacent to the north side of the wetland. The wetland is about 1 foot lower than the adjacent farm road.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	= Total Cover	

Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Navarretia intertexta	15	☑ 60.0%	FACW
2. Poa bulbosa	10	☑ 40.0%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	25	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

% Bare Ground in Herb Stratum: 75 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	0	x 5 =	0
Column Totals:	25 (A)		70 (B)

Prevalence Index = B/A = 2.800

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:

This feature lies in the same landscape context as the adjacent veral pool (Wetland G). It is likely that wetland plants present earlier in the season had deteriorated by the time of the site visit. Therefore, it is assumed that this site meets the wetland vegetation criteria

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-H-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR 3/2	100					Silty Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: rock

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

The soil does not technically meet hydric soil criteria. Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of rock) and seasonally ponds water. Therefore, it is assumed that the site would meet the hydric soils definition despite the lack of typical hydric soils characteristics.

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) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 22-Jul-17

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-H-02**

Investigator(s): ES, ST **Section, Township, Range:** **S** 13 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Undulating **Local relief (concave, convex, none):** flat **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.571953 **Long.:** -119.13335 **Datum:** WGS84

Soil Map Unit Name: 18B - Condon silt loam, 1 to 7 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 located between Wetland G and Wetland H. Area is about 6" higher than the adjacent wetlands.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Poa bulbosa	90	☑ 95.7%	FACU
2. Achillea millefolium	2	☐ 2.1%	FACU
3. Madia gracilis	2	☐ 2.1%	UPL
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	94	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 6 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	92	x 4 =	368
UPL species	2	x 5 =	10
Column Totals:	94 (A)		378 (B)

Prevalence Index = B/A = 4.021

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-H-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Silt Loam	
4-7	10YR	4/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: rock

Depth (inches): 7

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 27-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-I-01**

Investigator(s): ES,KB **Section, Township, Range:** **S** 23 **T** 2N **R** 30E

Landform (hillslope, terrace, etc.): Gulch or Gully **Local relief (concave, convex, none):** concave **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.634163 **Long.:** -119.022285 **Datum:** WGS84

Soil Map Unit Name: 49F—Lickskillet-Nansene association, 35 to 70 percent slopes **NWI classification:** R4SBC

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland lies in a swale adjacent to the west side of Mud Springs Road and is estimated to be 12-15 feet below the road elevation. Ephemeral stream (EPH-027) continues to the NW from the wetland and outside of the study area.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5')				
1. Conium maculatum	60	☑	63.2%	FACW
2. Typha latifolia	20	☑	21.1%	OBL
3. Bromus tectorum	10	☐	10.5%	UPL
4. Dipsacus fullonum	5	☐	5.3%	FAC
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	95		= Total Cover	

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 5 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	20	x 1 =	20
FACW species	60	x 2 =	120
FAC species	5	x 3 =	15
FACU species	0	x 4 =	0
UPL species	10	x 5 =	50
Column Totals:	95 (A)		205 (B)

Prevalence Index = B/A = 2.158

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-I-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	3/2	100						Sand	includes some gravel
6-12	10YR	3/2	95	10YR	3/4	5		M	Silt Loam	
12-20	10YR	3/2	100						Sand	

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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): 11

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Water Table was not present in the soil profile, however, saturation was eminating from subsurface and is assumed a water table would be present if soil pit was continued.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 27-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-I-02**

Investigator(s): ES,KB **Section, Township, Range:** **S** 23 **T** 2N **R** 30E

Landform (hillslope, terrace, etc.): Hillside **Local relief (concave, convex, none):** convex **Slope:** 0.0 % / 0.0 °

Subregion (LRR): LRR B **Lat.:** 45.634178 **Long.:** -119.022255 **Datum:** WGS84

Soil Map Unit Name: 49F—Lickskillet-Nansene association, 35 to 70 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 is located on the steep hillslope to the east of the wetland, about 4 feet higher than the wetland.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1. Chrysothamnus nauseosus	10	☑ 66.7%	UPL
2. Symphoricarpos albus	5	☑ 33.3%	FACU
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	15	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Bromus tectorum	40	☑ 47.1%	UPL
2. Poa bulbosa	20	☑ 23.5%	FACU
3. Xanthium strumarium	5	☐ 5.9%	FAC
4. Dipsacus fullonum	5	☐ 5.9%	FAC
5. Leymus cinereus	5	☐ 5.9%	FAC
6. Conium maculatum	5	☐ 5.9%	FACW
7. Cirsium arvense	5	☐ 5.9%	FACU
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	85	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 15 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	5	x 2 =	10
FAC species	15	x 3 =	45
FACU species	30	x 4 =	120
UPL species	50	x 5 =	250
Column Totals:	100 (A)		425 (B)

Prevalence Index = B/A = 4.250

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-I-02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-16	10YR	4/2	100						Loam	fill slope of adjacent roadway

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 26-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-J-01**

Investigator(s): ES,KB **Section, Township, Range:** **S** 8 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 4.0 % / 2.3 °

Subregion (LRR): LRR B **Lat.:** 45.634132 **Long.:** -119.091667 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix amygdaloides	10	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	10	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Juncus effusus	50	☑ 50.0%	FACW
2. Thinopyrum intermedium	30	☑ 30.0%	NI
3. Euthamia occidentalis	20	☑ 20.0%	FACW
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 75.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.000

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:

Thinopyrum intermedium is actually Thinopyrum ponticum (not in the drop down list)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-J-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR	2/2	100						Silt Loam	
10-20	10YR	2/2	100						Fine Sandy Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Seasonally ponded 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) (Noneriverine)
- ☐ 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 Plowed 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): 2
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 26-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-J-02**

Investigator(s): ES,KB **Section, Township, Range:** **S** 8 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** convex **Slope:** 8.0 % / 4.6 °

Subregion (LRR): LRR B **Lat.:** 45.583694 **Long.:** -119.091682 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 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:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	95	☑ 100.0%	NI
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	95	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 5 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0.000

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:

Thinopyrum intermedium is actually Thinopyrum ponticum (not in the drop down list)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-J-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/2	100						Silt Loam	
4-20	10YR	3/2	100						Fine Sandy Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 26-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-J-03**

Investigator(s): ES,KB **Section, Township, Range:** **S** 8 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 1.0 % / 0.6 °

Subregion (LRR): LRR B **Lat.:** 45.583988 **Long.:** -119.091515 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Juncus effusus	40	☑	50.0%	FACW
2. Thinopyrum intermedium	40	☑	50.0%	NI
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	80		= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 20 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 50.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.000

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:

Thinopyrum intermedium is actually Thinopyrum ponticum (not in the drop down list). Vegetation disturbed by long-term and frequent cattle grazing.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-J-03

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/2	100						Silt Loam	
8-20	10YR	3/2	95	10YR	3/4	5	C	M	Fine Sandy Loam	Distinct redox concentrations

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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): 8

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 26-Apr-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-J-04**

Investigator(s): ES,KB **Section, Township, Range:** **S** 8 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** convex **Slope:** 4.0 % / 2.3 °

Subregion (LRR): LRR B **Lat.:** 45.584034 **Long.:** -119.091515 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 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:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	98	☑ 98.0%	NI
2. Conium maculatum	2	☐ 2.0%	FACW
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 2.000

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:

Thinopyrum intermedium is actually Thinopyrum ponticum (not in the drop down list)

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-J-04

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	10YR	3/2	100						Silt Loam	
8-14	10YR	3/2	100						Fine Sandy Loam	
14-20	10YR	4/3	100						Fine Sandy Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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): 14

Wetland Hydrology Present? Yes ○ No ◉

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-K-01**

Investigator(s): ES **Section, Township, Range:** **S** 25 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 3.0 **%** / 1.7 **°**

Subregion (LRR): LRR B **Lat.:** 45.539883 **Long.:** -119.127502 **Datum:** WGS84

Soil Map Unit Name: 43A - Kimberly silt loam, 0 to 3 percent slopes **NWI classification:** R4SBC

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: Wetland lies within an incised drainage.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Juncus effusus	45	☑ 45.0%	FACW
2. Conium maculatum	15	☑ 15.0%	FACW
3. Hordeum jubatum	15	☑ 15.0%	FAC
4. Veronica americana	15	☑ 15.0%	OBL
5. Typha latifolia	10	☐ 10.0%	OBL
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC:	4	(A)
Total Number of Dominant Species Across All Strata:	4	(B)
Percent of dominant Species That Are OBL, FACW, or FAC:	100.0%	(A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	25	x 1 =	25
FACW species	60	x 2 =	120
FAC species	15	x 3 =	45
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	100 (A)		190 (B)

Prevalence Index = B/A = 1.900

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-K-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR	2/1	80	10YR	3/6	20	C	M/PL	Silt Loam	
6-12	10YR	3/1	70	10YR	3/6	30	C	M	Sandy Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: cobble

Depth (inches): 12

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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): 6

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

Saturation likely associated with a water table below the soil refusal depth.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 19-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-K-02**

Investigator(s): ES **Section, Township, Range:** **S** 25 **T** 1N **R** 29E

Landform (hillslope, terrace, etc.): Lowland **Local relief (concave, convex, none):** flat **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR B **Lat.:** 45.539875 **Long.:** -119.127441 **Datum:** WGS84

Soil Map Unit Name: 43A - Kimberly silt loam, 0 to 3 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 is about 7 feet higher and occurs at the top of bank above wetland plot WET-K-01.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	70	☑ 77.8%	NI
2. Lepidium perfoliatum	10	☐ 11.1%	FACU
3. Bromus tectorum	10	☐ 11.1%	UPL
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	10	x 4 =	40
UPL species	10	x 5 =	50
Column Totals:	20 (A)		90 (B)

Prevalence Index = B/A = 4.500

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-K-02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-20	10YR	3/2	100						Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-L-01**

Investigator(s): ES **Section, Township, Range:** **S** 21 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 3.0 % / 1.7 °

Subregion (LRR): LRR B **Lat.:** 45.556923 **Long.:** -119.074142 **Datum:** WGS84

Soil Map Unit Name: 57D-Morrow silt loam, 12 to 20 percent north slopes **NWI classification:** R4SBC

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: Wetland is located in a steep sided stream channel.

VEGETATION - Use scientific names of plants.

	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
Tree Stratum (Plot size: 30')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Juncus effusus	50	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	50	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 50 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	50	x 2 =	100
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	50 (A)		100 (B)

Prevalence Index = B/A = 2.000

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-L-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-1	10YR	3/2	95	10YR	3/6	5	C	PL	Silt Loam	
1-6	10YR	3/2	80	N	2.5/1	20	C	M	Silty Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: rock in channel

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-L-02**

Investigator(s): ES **Section, Township, Range:** **S** 21 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 8.0 **%** / 4.6 °

Subregion (LRR): LRR B **Lat.:** 45.556938 **Long.:** -119.074120 **Datum:** WGS84

Soil Map Unit Name: 57D-Morrow silt loam, 12 to 20 percent north slopes **NWI classification:** R4SBC

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 is about 3 feet higher on steep slope above the wetland plot (WET-L-01).

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1. Chrysothamnus nauseosus	10	☑ 100.0%	UPL
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	10	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Lepidium perfoliatum	50	☑ 62.5%	FACU
2. Bromus tectorum	30	☑ 37.5%	UPL
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	80	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 20 **% Cover of Biotic Crust** 0

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: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	50	x 4 =	200
UPL species	40	x 5 =	200
Column Totals:	90 (A)		400 (B)

Prevalence Index = B/A = 4.444

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-L-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-8	2.5Y	4/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 8

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-M-01**

Investigator(s): ES **Section, Township, Range:** **S** 9 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 2.0 % / 1.1 °

Subregion (LRR): LRR B **Lat.:** 45.573784 **Long.:** -119.077881 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland is located on the valley floor, at the toe of a steep hillslope. The south end of the wetland includes a small grove of Salix amygdaloides where water from constructed ponds east of the wetland flows towards WET-M.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species? Rel.Strat. Cover	Indicator Status
1. Salix amygdaloides	50	☑ 100.0%	FACW
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	50	= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	= Total Cover	

Herb Stratum (Plot size: 5')			
1. Nasturtium officinale	30	☑ 35.3%	OBL
2. Hordeum jubatum	30	☑ 35.3%	FAC
3. Poa pratensis	15	☐ 17.6%	FAC
4. Conium maculatum	10	☐ 11.8%	FACW
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	85	= Total Cover	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	= Total Cover	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	30	x 1 =	30
FACW species	60	x 2 =	120
FAC species	45	x 3 =	135
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	135 (A)		285 (B)

Prevalence Index = B/A = 2.111

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:

15 percent of the plot is open water.

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-M-01

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-6	10YR	2/1	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Rock

Depth (inches): 6

Hydric Soil Present? Yes ◉ No ○

Remarks:

Using the Problematic hydric soils criteria, the site is a concave surface (with shallow soils and a restrictive layer of rock) and seasonally ponds water.

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) (Noneriverine)
- ☐ 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 Plowed 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): 0
Saturation Present? (includes capillary fringe)	Yes ◉	No ○	Depth (inches): 0

Wetland Hydrology Present? Yes ◉ No ○

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-M-02**

Investigator(s): ES **Section, Township, Range:** **S** 9 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 4.0 **%** / 2.3 **°**

Subregion (LRR): LRR B **Lat.:** 45.573788 **Long.:** -119.077942 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 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 is about 3-4 feet higher than the wetland plot (WET-M-01).

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size:)	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	
Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	65	☑ 65.0%	NI
2. Conium maculatum	10	☐ 10.0%	FACW
3. Bassia scoparia	10	☐ 10.0%	FAC
4. Bromus tectorum	10	☐ 10.0%	UPL
5. Cirsium arvense	5	☐ 5.0%	FACU
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	100	**= Total Cover**	
Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

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

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	10	x 2 =	20
FAC species	10	x 3 =	30
FACU species	5	x 4 =	20
UPL species	10	x 5 =	50
Column Totals:	35 (A)		120 (B)

Prevalence Index = B/A = 3.429

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-M-02

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 %	Redox Features Type[1]	Redox Features Loc[2]	Texture	Remarks
0-14	10YR 3/2	100					Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-M-03**

Investigator(s): ES **Section, Township, Range:** **S** 9 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 4.0 % / 2.3 °

Subregion (LRR): LRR B **Lat.:** 45.574375 **Long.:** -119.078583 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Continuation of Wetland M.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		**= Total Cover**	

Herb Stratum (Plot size: 5')				
1. Hordeum jubatum	20	☑	40.0%	FAC
2. Juncus balticus	15	☑	30.0%	FACW
3. Rumex crispus	5	☐	10.0%	FAC
4. Ventenata dubia	5	☐	10.0%	UPL
5. Chenopodium album	5	☐	10.0%	FACU
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	50		**= Total Cover**	

Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		**= Total Cover**	

% Bare Ground in Herb Stratum: 50 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	15	x 2 =	30
FAC species	25	x 3 =	75
FACU species	5	x 4 =	20
UPL species	5	x 5 =	25
Column Totals:	50 (A)		150 (B)

Prevalence Index = B/A = 3.000

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:

Bare ground from early season shallow ponding

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-M-03

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR	3/2	95	10YR	3/4	5	C	M	Silt Loam	Distinct redox concentrations

[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 Muck 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.

Restrictive Layer (if present):

Type: _____

Depth (inches): _____

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☑ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-M-04**

Investigator(s): ES **Section, Township, Range:** **S** 9 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 4.0 **%** / 2.3 **°**

Subregion (LRR): LRR B **Lat.:** 45.574352 **Long.:** -119.078629 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 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 is about 1 foot higher than the wetland plot (WET-M-03). Vegetation and soils significantly disturbed by heavy cattle use.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	**Absolute % Cover**	**Dominant Species? Rel.Strat. Cover**	**Indicator Status**
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
	0	**= Total Cover**	

Sapling/Shrub Stratum (Plot size: 15')			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
	0	**= Total Cover**	

Herb Stratum (Plot size: 5')			
1. Thinopyrum intermedium	90	☑ 100.0%	NI
2.	0	☐ 0.0%	
3.	0	☐ 0.0%	
4.	0	☐ 0.0%	
5.	0	☐ 0.0%	
6.	0	☐ 0.0%	
7.	0	☐ 0.0%	
8.	0	☐ 0.0%	
9.	0	☐ 0.0%	
10.	0	☐ 0.0%	
11.	0	☐ 0.0%	
	90	**= Total Cover**	

Woody Vine Stratum (Plot size:)			
1.	0	☐ 0.0%	
2.	0	☐ 0.0%	
	0	**= Total Cover**	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

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

Prevalence Index = B/A = 0.000

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-M-04

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 %	Type[1]	Loc[2]	Texture	Remarks
0-4	10YR	3/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: Compacted soils and rock

Depth (inches): 4

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-M-07

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): drainage in valley bottom Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5787277221679 Long: -119.08201599121 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:
PEM is in drainage in valley bottom, well defined channel with wetland vegetation throughout.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Ranunculus sceleratus*	50	Yes	OBL
2. *Juncus bufonius*	20	Yes	FACW
3. *Juncus effusus*	10	No	FACW
4. *Nasturtium officinale*	5	No	OBL
5.			
6.			
7.			
8.			
	85 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 15 % Cover of Biotic Crust ____

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	55	x 1 =	55
FACW species	30	x 2 =	60
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	85 (A)		115 (B)

Prevalence Index = B/A = 1.35

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-M-07

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 %	Type[1]	Loc[2]	Texture	Remarks
0-5	10YR 3/2	60	N 2.5/	40			Loamy/Clayey	Silt

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

Hydric Soil Present? **Yes** x **No** ___

Remarks:
Wetland is present in a channel with running water at certain times of the year.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Wetland is in a well-defined drainage, further upstream there is still standing water present in the channel.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-M-08

Investigator(s): ES, JT Section, Township, Range: T02N, R29E and R30E

Landform (hillside, terrace, etc.): drainage in valley bottom Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5787048339843 Long: -119.082054138183 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:
This plot is located on a terrace 3 to 4 feet in elevation above the wetland in the drainage feature.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Chondrilla juncea*	60	Yes	UPL
2. *Centaurea solstitialis*	20	No	UPL
3. *Bromus japonicus*	40	Yes	FACU
4. *Erodium cicutarium*	30	Yes	UPL
5.			
6.			
7.			
8.			
	150 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum ____ % 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: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	40	x 4 =	160
UPL species	110	x 5 =	550
Column Totals:	150 (A)		710 (B)

Prevalence Index = B/A = 4.73

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** X

Remarks:

SOIL

Sampling Point: WET-M-08

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/3	100					Sandy	Sandy Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-N-01**

Investigator(s): ES **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** concave **Slope:** 2.0 **%** / 1.1 **°**

Subregion (LRR): LRR B **Lat.:** 45.573441 **Long.:** -119.077576 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 percent slopes **NWI classification:** PEM1C

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 ○

Hydric Soil Present? Yes ◉ No ○

Wetland Hydrology Present? Yes ◉ No ○

Is the Sampled Area within a Wetland? Yes ◉ No ○

Remarks: Wetland N is located between POND-1 and POND-2, north of an overflow culvert.

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		= Total Cover	

Sapling/Shrub Stratum (Plot size: 15')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Salix amygdaloides	15	☑	100.0%	FACW
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	15		= Total Cover	

Herb Stratum (Plot size: 5')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1. Nasturtium officinale	35	☑	36.8%	OBL
2. Hordeum jubatum	30	☑	31.6%	FAC
3. Juncus effusus	20	☑	21.1%	FACW
4. Veronica americana	10	☐	10.5%	OBL
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	95		= Total Cover	

Woody Vine Stratum (Plot size:)	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		= Total Cover	

% Bare Ground in Herb Stratum: 15 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

Number of Dominant Species That are OBL, FACW, or FAC: 4 (A)

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

Percent of dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	45	x 1 =	45
FACW species	35	x 2 =	70
FAC species	30	x 3 =	90
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	110 (A)		205 (B)

Prevalence Index = B/A = 1.864

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-N-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-1	N	2.5/1	100						Muck	
1-4	10Y	3/1	100						Sandy Clay Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: rock from constructed spillway

Depth (inches): 4

Hydric Soil Present? Yes ◉ No ○

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☑ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

Water Table was not present in the soil profile, however, saturation was eminating from subsurface and is assumed a water table would be present if soil pit was continued.

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Nolin Hills Wind Power Project **City/County:** Umatilla **Sampling Date:** 20-Jul-18

Applicant/Owner: Capital Power **State:** OR **Sampling Point:** **WET-N-02**

Investigator(s): ES **Section, Township, Range:** **S** 16 **T** 1N **R** 30E

Landform (hillslope, terrace, etc.): Floodplain **Local relief (concave, convex, none):** flat **Slope:** 3.0 **%** / 1.7 **°**

Subregion (LRR): LRR B **Lat.:** 45.573456 **Long.:** -119.077545 **Datum:** WGS84

Soil Map Unit Name: 42A- Kimberly fine sandy loam, 0 to 3 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:

VEGETATION - Use scientific names of plants.

Tree Stratum (Plot size: 30')	Absolute % Cover	Dominant Species?	Rel.Strat. Cover	Indicator Status
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
	0		**= Total Cover**	
Sapling/Shrub Stratum (Plot size: 15')				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
3.	0	☐	0.0%	
4.	0	☐	0.0%	
5.	0	☐	0.0%	
	0		**= Total Cover**	
Herb Stratum (Plot size: 5')				
1. Cirsium arvense	60	☑	66.7%	FACU
2. Chenopodium album	15	☐	16.7%	FACU
3. Thinopyrum intermedium	15	☐	16.7%	NI
4.	0	☐	0.0%	
5.	0	☐	0.0%	
6.	0	☐	0.0%	
7.	0	☐	0.0%	
8.	0	☐	0.0%	
9.	0	☐	0.0%	
10.	0	☐	0.0%	
11.	0	☐	0.0%	
	90		**= Total Cover**	
Woody Vine Stratum (Plot size:)				
1.	0	☐	0.0%	
2.	0	☐	0.0%	
	0		**= Total Cover**	

% Bare Ground in Herb Stratum: 10 **% Cover of Biotic Crust** 0

Dominance Test worksheet:

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

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

Percent of dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

	Total % Cover of:	Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	75	x 4 =	300
UPL species	0	x 5 =	0
Column Totals:	75 (A)		300 (B)

Prevalence Index = B/A = 4.000

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:

*Indicator suffix = National status or professional decision assigned because Regional status not defined by FWS.

Soil

Sampling Point: WET-N-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-2	10YR	3/3	100						Silt Loam	

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

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

- ☐ Histosol (A1)
- ☐ Histic Epipedon (A2)
- ☐ Black Histic (A3)
- ☐ Hydrogen Sulfide (A4)
- ☐ Stratified Layers (A5) (LRR C)
- ☐ 1 cm Muck (A9) (LRR D)
- ☐ Depleted Below Dark Surface (A11)
- ☐ Thick Dark Surface (A12)
- ☐ Sandy Muck 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.

Restrictive Layer (if present):

Type: compacted soils and rock from cattle and earthwork for pond creation

Depth (inches): 2

Hydric Soil Present? Yes ○ No ◉

Remarks:

Hydrology

Wetland Hydrology Indicators:

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

- ☐ Surface Water (A1)
- ☐ High Water Table (A2)
- ☐ Saturation (A3)
- ☐ Water Marks (B1) (Nonriverine)
- ☐ Sediment Deposits (B2) (Nonriverine)
- ☐ Drift deposits (B3) (Noneriverine)
- ☐ 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 Plowed 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, monitor well, aerial photos, previous inspections), if available:

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-O-01

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): drainage in valley bottom Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5796356201171 Long: -119.083198547363 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:
This wetland is on the west side of the county road with a large culvert.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Veronica americana*	30	Yes	OBL
2. *Dipsacus fullonum*	20	Yes	FAC
3. *Polypogon monspeliensis*	15	Yes	FACW
4. *Bromus japonicus*	5	No	FACU
5.			
6.			
7.			
8.			
	70 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 30 % 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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	30	x 1 = 30
FACW species	15	x 2 = 30
FAC species	20	x 3 = 60
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	70 (A)	140 (B)

Prevalence Index = B/A = 2.00

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-O-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-10	10YR 3/2	65	2.5YR 4/8	10		PL	Sandy	

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: Rock

Depth (inches): 10

Hydric Soil Present? **Yes** x **No** ___

Remarks:
This wetland is within a drainage and during high flows sediment is transported and deposited. Soils are naturally problematic.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
x Oxidized Rhizospheres on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Wetland is present at the outflow of a culvert and in a drainage.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-O-02

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): Terrace above drainage in valley Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5796737670898 Long: -119.083145141601 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: 5ft)			
1. *Artemisia tridentata*	15	Yes	UPL
2.			
3.			
4.			
5.			
	15 =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Bromus tectorum*	50	Yes	UPL
2. *Thinopyrum intermedium*	50	Yes	UPL
3. *Sisymbrium altissimum*	5	No	FACU
4.			
5.			
6.			
7.			
8.			
	105 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum ____ % 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: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	0	x 1 = 0
FACW species	0	x 2 = 0
FAC species	0	x 3 = 0
FACU species	5	x 4 = 20
UPL species	115	x 5 = 575
Column Totals:	120 (A)	595 (B)

Prevalence Index = B/A = 4.96

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** X

Remarks:

SOIL

Sampling Point: WET-O-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/4	100					Sandy	Sandy Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Plot is on a terrace 3 feet above the wetland feature.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-P-01

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): Drainage in valley bottom Local relief (concave, convex, none): concave Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5808753967285 Long: -119.084403991699 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 4x10feet)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix amygdaloides*	10	Yes	FACW
2.			
3.			
4.			
	10	=Total Cover	
Sapling/Shrub Stratum (Plot size: 4x10feet)			
1. *Salix amygdaloides*	20	Yes	FACW
2.			
3.			
4.			
5.			
	20	=Total Cover	
Herb Stratum (Plot size: 4x10feet)			
1. *Sisymbrium altissimum*	15	Yes	FACU
2. *Bromus arvensis*	20	Yes	FACU
3. *Juncus effusus*	15	Yes	FACW
4. *Conium maculatum*	5	No	FACW
5. *Polypogon monspeliensis*	5	No	FACW
6.			
7.			
8.			
	60	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

% Bare Ground in Herb Stratum 40 % 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: 5 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 60.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	0	x 3 =	0
FACU species	35	x 4 =	140
UPL species	0	x 5 =	0
Column Totals:	90 (A)		250 (B)

Prevalence Index = B/A = 2.78

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-P-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 3/2	80	10YR 4/4	20		PL/M	Sandy	Sandy Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___
Water Table Present? Yes ___ No x Depth (inches): ___
Saturation Present? Yes ___ No x Depth (inches): ___
(includes capillary fringe)

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

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

Remarks:
Wetland is in drainage channel in valley bottom.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/12/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-P-02

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): Drainage in valley bottom Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5808982849121 Long: -119.084381103515 Datum: WGS84

Soil Map Unit Name: _____ NWI classification: PEM1C

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____	=Total Cover	
Sapling/Shrub Stratum (Plot size: 20ft)			
1. *Artemisia tridentata*	15	Yes	UPL
2.			
3.			
4.			
5.			
	15	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Thinopyrum intermedium*	5	No	UPL
2. *Centaurea solstitialis*	60	Yes	UPL
3. *Festuca myuros*	10	No	FACU
4. *Bromus japonicus*	10	No	FACU
5.			
6.			
7.			
8.			
	85	=Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	=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: 2 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	80	x 5 =	400
Column Totals:	100 (A)		480 (B)

Prevalence Index = B/A = 4.80

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** X

Remarks:

SOIL

Sampling Point: WET-P-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-17	7.5YR 4/2	100					Loamy/Clayey	Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Plot is on terrace above wetland.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/10/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-Q-01

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): hillside drainage Local relief (concave, convex, none): concave Slope (%): 20-30

Subregion (LRR): LRR B Lat: 45.6076965332031 Long: -119.098472595214 Datum: WGS84

Soil Map Unit Name: Mikkalo silt loam, 20 to 35 percent slopes NWI classification: none

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

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

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

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

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

Remarks:
PEM wetland is in a drainage.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: _____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	_____	=Total Cover	
Sapling/Shrub Stratum (Plot size: _____)			
1.			
2.			
3.			
4.			
5.			
	_____	=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Polypogon monspeliensis*	50	Yes	FACW
2. *Veronica americana*	10	No	OBL
3. *Juncus tenuis*	10	No	FACW
4.			
5.			
6.			
7.			
8.			
	70	=Total Cover	
Woody Vine Stratum (Plot size: _____)			
1.			
2.			
	_____	=Total Cover	

% Bare Ground in Herb Stratum 40 % 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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	10	x 1 =	10
FACW species	60	x 2 =	120
FAC species	0	x 3 =	0
FACU species	0	x 4 =	0
UPL species	0	x 5 =	0
Column Totals:	70 (A)		130 (B)

Prevalence Index = B/A = 1.86

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-Q-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-3	10YR 3/2	100					Loamy/Clayey	Silt Loam
3-7	10YR 3/2	95	10YR 4/6	5	C	PL	Loamy/Clayey	Prominent redox concentrations

[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)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
x Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
x 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___
Water Table Present? Yes ___ No x Depth (inches): ___
Saturation Present? Yes ___ No x Depth (inches): ___
(includes capillary fringe)

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

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

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/10/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-Q-02

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): swale Local relief (concave, convex, none): none Slope (%): 20-35

Subregion (LRR): LRR B Lat: 45.6076622009277 Long: -119.098457336425 Datum: WGS84

Soil Map Unit Name: Mikkalo silt loam, 20 to 35 percent slopes NWI classification: none

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

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

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

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

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

Remarks:
Upland plot for PEM wetland.

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Pseudoroegneria spicata*	70	Yes	UPL
2. *Ericameria nauseosa*	5	No	UPL
3. *Poa bulbosa*	15	No	FACU
4. *Lactuca serriola*	5	No	FACU
5.			
6.			
7.			
8.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum ____ % 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: 1 (B)

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	20	x 4 =	80
UPL species	75	x 5 =	375
Column Totals:	95 (A)		455 (B)

Prevalence Index = B/A = 4.79

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** X

Remarks:

SOIL

Sampling Point: WET-Q-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-16	10YR 4/3	100					Loamy/Clayey	Silt Loam, dry throughout

[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)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Upland plot is 6 feet higher in elevation than the wetland plot. No hydrologic indicators were present.

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/11/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-R-01

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): valley floor Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): LRR B Lat: 45.5855293273925 Long: -119.097465515136 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:
PEM-PFO wetland in valley bottom

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: 20ft)	Absolute % Cover	Dominant Species?	Indicator Status
1. *Salix amygdaloides*	30	Yes	FACW
2.			
3.			
4.			
	30	=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Hordeum jubatum*	50	Yes	FAC
2. *Conium maculatum*	25	Yes	FACW
3. *Sisymbrium altissimum*	10	No	FACU
4. *Daucus carota*	5	No	UPL
5.			
6.			
7.			
8.			
	90	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=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: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	55	x 2 =	110
FAC species	50	x 3 =	150
FACU species	10	x 4 =	40
UPL species	5	x 5 =	25
Column Totals:	120 (A)		325 (B)

Prevalence Index = B/A = 2.71

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-R-01

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 %	Type[1]	Loc[2]	Texture	Remarks
0-14	10YR 3/2	90	5YR 4/6	10	C	PL/M	Loamy/Clayey	Prominent redox concentrations

[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)
X Redox Dark Surface (F6)
___ Depleted Dark Surface (F7)
x Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)
x Oxidized Rhizospheres on 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 (minimum of two required)

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

Field Observations:

Surface Water Present? Yes ___ No x Depth (inches): ___

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

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

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

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

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/11/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-R-02

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): valley bottom Local relief (concave, convex, none): none Slope (%): 0-3

Subregion (LRR): LRR B Lat: 45.5855903625488 Long: -119.097419738769 Datum: WGS84

Soil Map Unit Name: Kimberly fine sandy loam, 0 to 3 percent slopes NWI classification: PEM1C

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Bromus tectorum*	50	Yes	UPL
2. *Thinopyrum intermedium*	40	Yes	UPL
3. *Lactuca serriola*	5	No	FACU
4. *Krascheninnikovia lanata*	5	No	UPL
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	5	x 4 =	20
UPL species	95	x 5 =	475
Column Totals:	100 (A)		495 (B)

Prevalence Index = B/A = 4.95

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** X

Remarks:

SOIL

Sampling Point: WET-R-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-20	10YR 3/3	100					Loamy/Clayey	Silt Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/11/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-S-01

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 20

Subregion (LRR): LRR B Lat: 45.5838356018066 Long: -119.097587585449 Datum: WGS84

Soil Map Unit Name: Condon silt loam, 20 to 35 percent slopes NWI classification: none

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

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

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

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

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

Remarks:
PEM is in drainage

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
		=Total Cover	
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
		=Total Cover	
Herb Stratum (Plot size: 5ft)			
1. *Polypogon monspeliensis*	30	Yes	FACW
2. *Chenopodium album*	5	No	FACU
3. *Urtica dioica*	30	Yes	FAC
4. *Polygonum persicaria*	5	No	FACW
5. *Juncus effusus*	15	No	FACW
6. *Echinochloa crus-galli*	10	No	FACW
7. *Veronica americana*	5	No	OBL
8.			
	100	=Total Cover	
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
		=Total Cover	

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

Dominance Test worksheet:

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

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

Percent of Dominant Species That Are OBL, FACW, or FAC: 100.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:
OBL species	5	x 1 = 5
FACW species	60	x 2 = 120
FAC species	30	x 3 = 90
FACU species	5	x 4 = 20
UPL species	0	x 5 = 0
Column Totals:	100 (A)	235 (B)

Prevalence Index = B/A = 2.35

Hydrophytic Vegetation Indicators:

X Dominance Test is >50%

X Prevalence Index is ≤3.0[1]

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

___ Problematic Hydrophytic Vegetation[1] (Explain)

[1]Indicators of hydric soil and wetland hydrology must be present, unless disturbed or problematic.

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

Remarks:

SOIL

Sampling Point: WET-S-01

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
0-15	10YR 3/2	80	5YR 4/6	20	C	M	Loamy/Clayey	Prominent redox concentrations

[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)
- X Redox Dark Surface (F6)
- ___ Depleted Dark Surface (F7)
- x Redox Depressions (F8)

Indicators for Problematic Hydric Soils[3]:

- ___ 1 cm Muck (A9) **(LRR C)**
- ___ 2 cm Muck (A10) **(LRR B)**
- ___ Iron-Manganese Masses (F12) **(LRR D)**
- ___ Reduced Vertic (F18)
- ___ Red Parent Material (F21)
- ___ Very Shallow Dark Surface (F22)
- ___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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)**
- x 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:

U.S. Army Corps of Engineers **WETLAND DETERMINATION DATA SHEET – Arid West Region** See ERDC/EL TR-07-24; the proponent agency is CECW-CO-R	***OMB Control #: 0710-xxxx, Exp: Pending*** ***Requirement Control Symbol EXEMPT:*** ***(Authority: AR 335-15, paragraph 5-2a)***

Project/Site: Nolin Hills Wind Power Project City/County: Umatilla Sampling Date: 7/11/2019

Applicant/Owner: Capital Power State: OR Sampling Point: WET-S-02

Investigator(s): ES, JT Section, Township, Range: T02N, R30E

Landform (hillside, terrace, etc.): drainage Local relief (concave, convex, none): concave Slope (%): 10

Subregion (LRR): LRR B Lat: 45.5838088989257 Long: -119.097518920898 Datum: WGS84

Soil Map Unit Name: Condon silt loam, 20 to 35 percent slopes NWI classification: none

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

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

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

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

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

Remarks:

VEGETATION – Use scientific names of plants.

Tree Stratum (Plot size: ____)	Absolute % Cover	Dominant Species?	Indicator Status
1.			
2.			
3.			
4.			
	____ =Total Cover		
Sapling/Shrub Stratum (Plot size: ____)			
1.			
2.			
3.			
4.			
5.			
	____ =Total Cover		
Herb Stratum (Plot size: 5ft)			
1. *Thinopyrum intermedium*	20	Yes	UPL
2. *Medicago sativa*	5	No	UPL
3. *Bromus tectorum*	50	Yes	UPL
4. *Bromus japonicus*	25	Yes	FACU
5.			
6.			
7.			
8.			
	100 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum ____ % 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: 0.0% (A/B)

Prevalence Index worksheet:

Total % Cover of:		Multiply by:	
OBL species	0	x 1 =	0
FACW species	0	x 2 =	0
FAC species	0	x 3 =	0
FACU species	25	x 4 =	100
UPL species	75	x 5 =	375
Column Totals:	100 (A)		475 (B)

Prevalence Index = B/A = 4.75

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** X

Remarks:

SOIL

Sampling Point: WET-S-02

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 %	Type[1]	Loc[2]	Texture	Remarks
0-6	10YR 3/2	100					Loamy/Clayey	Sandy Loam

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

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

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

Indicators for Problematic Hydric Soils[3]:

___ 1 cm Muck (A9) **(LRR C)**
___ 2 cm Muck (A10) **(LRR B)**
___ Iron-Manganese Masses (F12) **(LRR D)**
___ Reduced Vertic (F18)
___ Red Parent Material (F21)
___ Very Shallow Dark Surface (F22)
___ Other (Explain in Remarks)

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

Restrictive Layer (if observed):

Type: _____

Depth (inches): _____

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

Remarks:

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (minimum of one is 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 on 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 (minimum of two required)

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

Field Observations:

Surface Water Present?	Yes ___	No x	Depth (inches): ___
Water Table Present?	Yes ___	No x	Depth (inches): ___
Saturation Present? (includes capillary fringe)	Yes ___	No x	Depth (inches): ___

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

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

Remarks:
Plot is 5 feet higher than wetland, no primary hydrologic indicators.

Streamflow Duration Field Assessment Form

Project # / Name Nolin Hills Wind Power Project	Assessor Ed Strohmaier
Address Umatilla County	Date 7/20/2017
Waterway Name EPH-009	Coordinates at downstream end (ddd.mm.ss) Lat. 45.533147 N
Reach Boundaries	Long. -119.118844 W
Precipitation w/in 48 hours (cm) Ø	Channel Width (m) 9-33 ft ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow Ø

% of reach w/any flow (surface or hyporheic) Ø

# of pools observed Ø

Observations

Observed Wetland Plants (and indicator status):

NONE

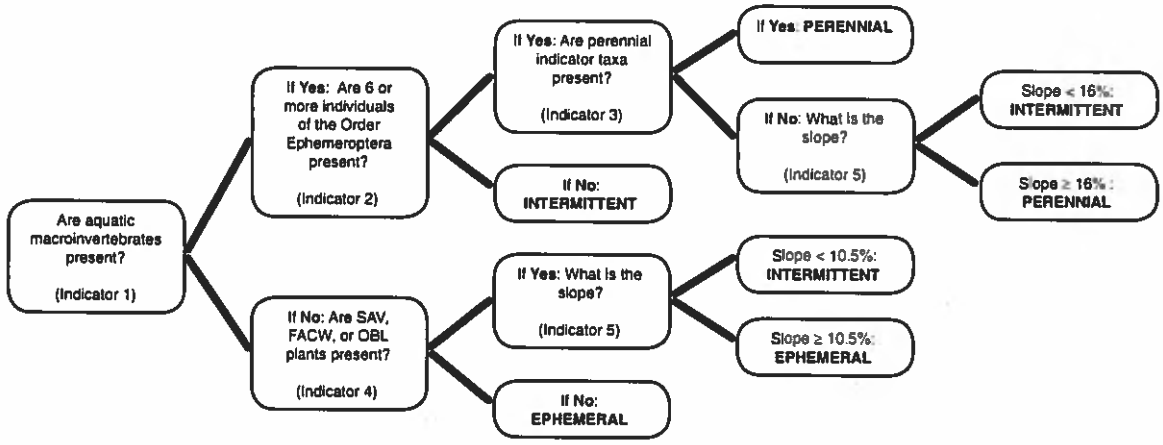
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☐ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☐ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☐ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☐ No
5. What is the slope? (In percent, measured for the valley, not the stream)	_____ %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

EPH-009

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Photos 234, 235, 239, 240, and 242.

Non-wetland vegetation community in ~~and~~ adjacent to the channel. No macroinvertebrates were observed.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name: Nolin Hills Wind Power Pr.	Assessor: ED Strohmaier
Address: Umatilla County	Date: 7-21-2017
Waterway Name: EPH-010	Coordinates at downstream end (ddd.mm.ss): Lat. 45.61236 N; Long. -119.05347 W
Reach Boundaries	
Precipitation w/in 48 hours (cm): Ø	Channel Width (m): 8-13 ft. ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow: Ø

% of reach w/any flow (surface or hyporheic): Ø

# of pools observed: Ø

Observations

Observed Wetland Plants (and indicator status):

NONE

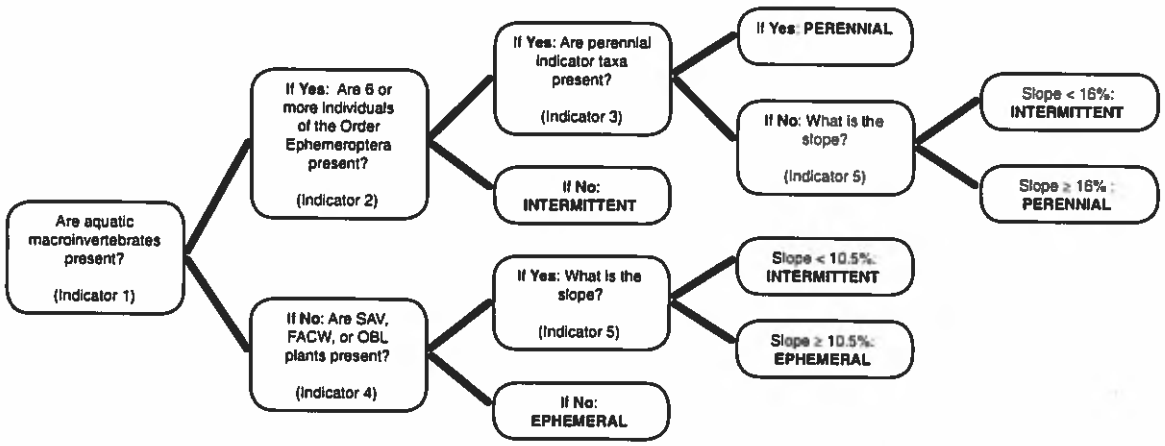
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	3 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

7-21-2017
EPH-010

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Photo 110. Upland vegetion community in and adjacent to the channel.
No macroinvertebrates were observed.
These conditions were consistent at each of the segments of EPH-010 that were delinated

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name: Nolin Hills Wind Power Project	Assessor: ED Strohmaier
Address	Date: 9/21/2017
Waterway Name: EPH-026	Coordinates at downstream end (ddd.mm.ss): Lat. 45.550694 N; Long. -119.142143 W
Reach Boundaries: UPSTREAM 45.550174, -119.141136	
Precipitation w/in 48 hours (cm): 0.80 N	Channel Width (m): 7-16 ft; ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow: Ø

% of reach w/any flow (surface or hyporheic): Ø

# of pools observed: Ø

Observations

Observed Wetland Plants (and indicator status):

NONE

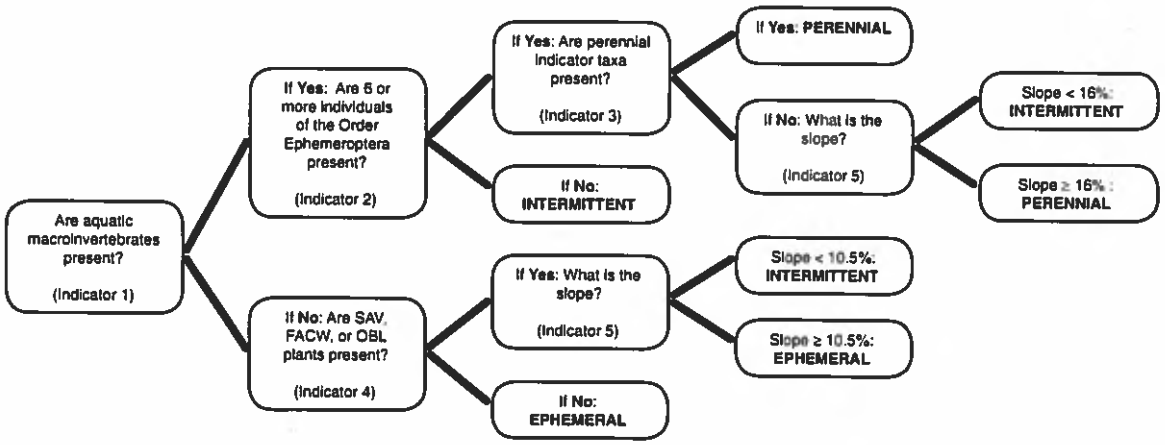
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	3 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form

EPH-026

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See photo 227.

Non-wetland vegetation was dominant in and adjacent to the channel. Non macroinvertebrates were observed.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name: Nolin Hills Wind Power Project	Assessor: ED Strohmaier
Address: Umatilla County	Date: 4/25/2018
Waterway Name: EPH-010	Coordinates at downstream end (ddd.mm.ss): Lat. 45.637329 N
Reach Boundaries: UPSTREAM 45.635335, -119.097157	Long. -119.099024 W
Precipitation w/in 48 hours (cm): Ø	Channel Width (m): 5-15 ft. ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow: Ø

% of reach w/any flow (surface or hyporheic): Ø

# of pools observed: Ø

Observations

Observed Wetland Plants (and indicator status):

NONE

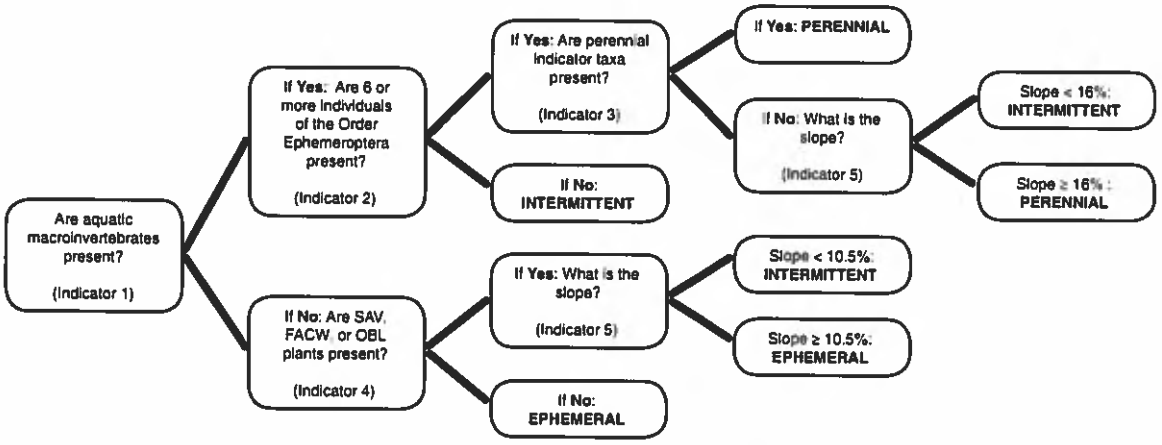
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	3 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

4/25/2018
EPH-010

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Photos 54, 55, and 56.

All segments of stream EPH-010 that were delineated were of similar character, bordered by upland vegetation community. No indicators were observed that would result in perennial or intermittent flow duration determinations

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed
0	0	0	0

Streamflow Duration Field Assessment Form

Project # / Name Nolin Hills Wind Power Project	Assessor ED Strohmaier
Address Umatilla County	Date 4/27/2018
Waterway Name EPH-041	Coordinates at downstream end (ddd.mm.ss) Lat. N
Reach Boundaries	Long. W
Precipitation w/in 48 hours (cm)	Channel Width (m) 3 ft. ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow 0

% of reach w/any flow (surface or hyporheic) 0

# of pools observed 0

Observations

Observed Wetland Plants (and indicator status):

NONE

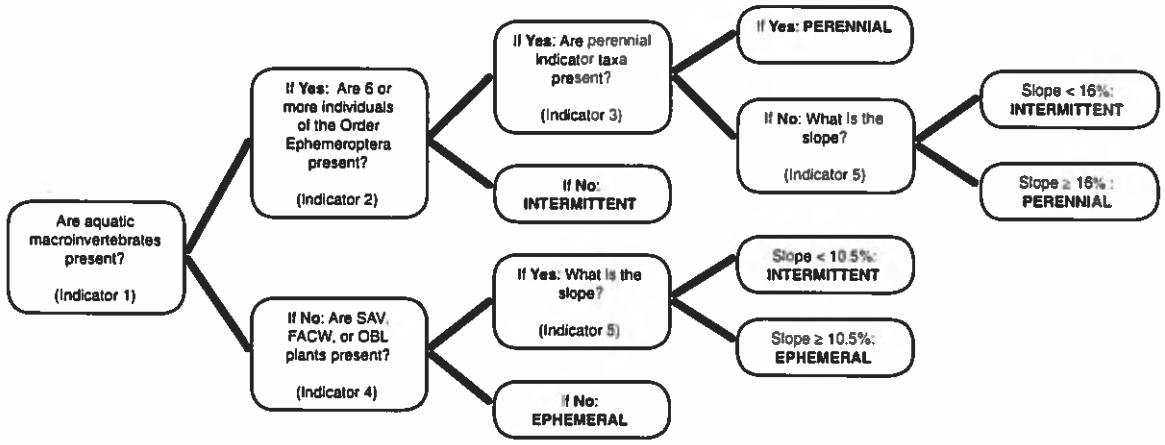
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	3 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

EPH-041

Streamflow Duration Field Assessment Form

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See photos 67, 68, 97, 98, and 99.
No indicators of perennial or intermittent flow were observed.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Streamflow Duration Field Assessment Form

Project # / Name: Nolin Hills Wind Power Project	Assessor: ED Strohmaier
Address: Umatilla County	Date: 7/20/2018
Waterway Name: EPH-058	Coordinates at downstream end (ddd.mm.ss): Lat. 45.671467 N
Reach Boundaries: UPSTREAM 45.671028, -119.133169	Long. -119.132694 W
Precipitation w/in 48 hours (cm): Ø	Channel Width (m): ☐ Disturbed Site / Difficult Situation (Describe in "Notes")

Observed Hydrology

% of reach w/observed surface flow: Ø

% of reach w/any flow (surface or hyporheic): Ø

# of pools observed: Ø

Observations

Observed Wetland Plants (and indicator status):

NONE

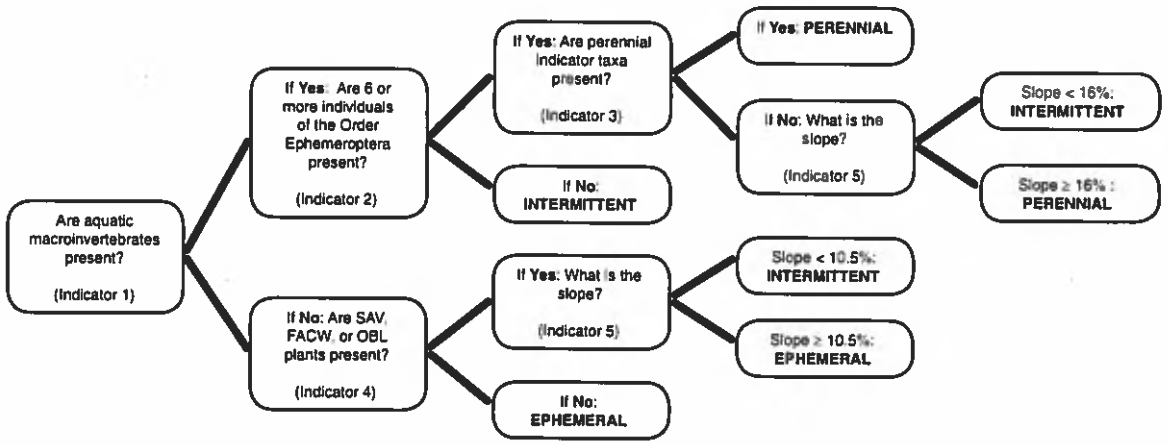
Observed Macroinvertebrates:

Taxon	Indicator Status	Ephemer-optera?	# of Individuals
NONE			

Indicators

1. Are aquatic macroinvertebrates present?	☐ Yes	☒ No
2. Are 6 or more individuals of the Order Ephemeroptera present?	☐ Yes	☒ No
3. Are perennial indicator taxa present? (refer to Table 1)	☐ Yes	☒ No
4. Are FACW, OBL, or SAV plants present? (Within ½ channel width)	☐ Yes	☒ No
5. What is the slope? (In percent, measured for the valley, not the stream)	2 %	

Conclusions



Single Indicators:
☐ Fish
☐ Amphibians

Finding:
☒ Ephemeral
☐ Intermittent
☐ Perennial

Streamflow Duration Field Assessment Form EPH-058

Notes: single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

- ☐ Prolonged Abnormal Rainfall / Snowpack
  - ☐ Below Average
  - ☐ Above Average
- ☐ Natural or Anthropogenic Disturbance
- ☐ Other: _____

Additional Notes: (sketch of site, description of photos, comments on hydrological observations, etc.) Attach additional sheets as necessary.

See Photos 4, 7, 14, 17, and 18.
No indicators were observed resulting in a determination of perennial or intermittent flow duration. Non-wetland vegetation in and adjacent to the channel.

Ancillary Information:

- ☐ Riparian Corridor
- ☐ Erosion and Deposition
- ☐ Floodplain Connectivity

Observed Amphibians, Snake, and Fish:

Taxa	Life History Stage	Location Observed	Number of Individuals Observed

Appendix C. Photolog

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Photo 1. Feature XBB-108. Mapped NHD line. Dry weedy farmland. No stream present. Looking NE. 7/20/2018. Lat/Long: 45.678864, -119.099823.

Photo 2. Feature XBB-109. Mapped NHD line. Dry weedy cattle feed lot area. No stream present. Looking N. 7/20/2018. Lat/Long: 45.679161, -119.101768.

Photo 3. Feature XBB-111. Mapped NHD line. Upland swale. No stream present. Looking N. 7/20/2018. Lat/Long: 45.682774, -119.106735.

Photo 5. Feature XBB-112. Mapped NHD line. Feature is an upland swale. No stream is present. Looking N. 7/20/2018. Lat/Long: 45.677849, -119.121216.

Photo 6. Feature XBB-113. Mapped NHD line. Feature is an upland swale. No stream is present. Looking N. 7/20/2018. Lat/Long: 45.678867, -119.12072.

Photo 7. Feature EPH-058. Mapped NHD line. Ephemeral channel located east of Cunningham Road. Looking SW. 7/21/2018. Lat/Long: 45.679295, -119.123932.

Photo 8. Feature XBB-118. Mapped NHD line. Upland swale. No stream present. Looking S. 7/21/2018. Lat/Long: 45.677807, -119.117188.

Photo 9. Feature XBB-119. Mapped NHD line. Upland swale. No stream present. Looking N. 7/21/2018. Lat/Long: 45.67889, -119.116989.

Photo 10. Feature XBB-001. Mapped NHD line. Upland swale bordered by a wheat field and CRP land. No stream present. Looking NE. 7/17/2017. Lat/Long: 45.672901, -119.179901.

Photo 11. Feature XBB-002-2. Mapped NHD line. Upland swale bordered by a wheat field and CRP land. No stream present. Looking NE. 7/17/2017. Lat/Long: 45.671638, -119.182327.

Photo 12. Feature XBB-003. Mapped NHD line in wheat field. No stream present. Looking E. 7/18/2017. Lat/Long: 45.667767, -119.182701.

Photo 13. Feature XBB-042-1. Mapped NHD line. Upland swale. No stream present upslope and downslope of road crossing. Looking NE. 4/23/2018. Lat/Long: 45.672596, -119.132545.

Photo 14. Feature EPH-058. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking SW. 7/21/2018. Lat/Long: 45.671246, -119.132874.

Photo 15. Feature XBB-114. Mapped NHD line. Upland grazing area. No stream is present. Looking S. 7/21/2018. Lat/Long: 45.670967, -119.13279.

Photo 16. Feature EPH-059. Mapped NHD line. Upland grazing area. Barely discernable evidence of infrequent hydrology. Looking NW. 7/21/2018. Lat/Long: 45.66993, -119.131302.

Photo 17. Feature EPH-058. Current conditions at ford location for the ephemeral stream. Looking N. 7/21/2018. Lat/Long: 45.670963, -119.133141.

Photo 18. Feature EPH-058. Mapped NHD line. Ephemeral channel bordered by upland vegetation community. Looking N. 7/21/2018. Lat/Long: 45.674683, -119.129288.

Photo 19. Feature XBB-042-2. Mapped NHD line. Upland swale. No stream present upslope and downslope of road crossing. Looking SW. 4/23/2018. Lat/Long: 45.672596, -119.132545.

Photo 20. Feature EPH-002. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking W. 4/23/2018. Lat/Long: 45.669567, -119.157608.

Photo 21. Feature XBB-045-1. Mapped NHD line. Upland swale. No stream present. Looking NE. 4/23/2018. Lat/Long: 45.669613, -119.157722.

Photo 22. Feature EPH-001. Mapped NHD line. Ephemeral channel is located in an incised channel at the base of a steep hillside growing wheat. Looking S. 7/18/2017. Lat/Long: 45.667454, -119.166512.

Photo 23. Feature XBB-043. Mapped NHD line. No stream present. Looking NE. 4/23/2018. Lat/Long: 45.665672, -119.147881.

Photo 24. Feature XBB-115. Mapped NHD line. Broad upland swale. All upland vegetation community. No stream is present. Looking S. 7/21/2018. Lat/Long: 45.663803, -119.126526.

Photo 25. Feature XBB-044. Mapped NHD line. No stream present. Looking S. 4/23/2018. Lat/Long: 45.659203, -119.153542.

Photo 26. Feature EPH-002. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking N. 4/23/2018. Lat/Long: 45.659462, -119.153549.

Photo 27. Feature EPH-002. Mapped NHD line. Ephemeral channel is located at the base of converging hillsides. Upland vegetation community. Looking S. 7/18/2017. Lat/Long: 45.66188, -119.153946.

Photo 28. Feature XBB-060. Mapped NHD line. No stream present upslope and downslope of road crossing. Looking NE. 4/25/2018. Lat/Long: 45.659859, -119.099968.

Photo 29. Feature XBB-120. Mapped NHD line. Broad upland swale. No stream present. Looking NE. 7/21/2018. Lat/Long: 45.660042, -119.109642.

Photo 30. Feature XBB-107. Mapped NHD line across wheat field. No stream present. Looking S. 7/20/2018. Lat/Long: 45.652756, -119.095963.

Photo 31. Feature XBB-116. Mapped NHD line. Upland swale bordered by wheat fields. No stream is present. Looking N. 7/21/2018. Lat/Long: 45.646545, -119.141441.

Photo 32. Feature EPH-060. Mapped NHD line. Deeply incised channel is choked with tumbleweed. Looking S. 7/21/2018. Lat/Long: 45.647022, -119.133629.

Photo 33. Feature EPH-015. Mapped NHD line. Barley discernable evidence of infrequent hydrology in steep ravine. Looking S. 7/17/2018. Lat/Long: 45.646793, -119.117218.

Photo 34. Feature EPH-015B. Mapped NHD line. Typical conditions observed in ephemeral drainages on steep hillsides within the Project. Barley discernable evidence of infrequent hydrology in steep ravine. Looking SW. 7/17/2018. Lat/Long: 45.646812, -119.117531.

Photo 35. Feature XBB-089A. Upland swale in area of highly erodable soil. No stream present. Looking SW. 7/17/2018. Lat/Long: 45.646893, -119.126343.

Photo 36. Feature EPH-048. Mapped NHD line. Narrow channel located in the bottom of an incised ravine. Soils in the area are highly erodable. Looking S. 9/6/2018. Lat/Long: 45.646969, -119.126732.

Photo 37. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical vegetation community along all segments of EPH-010. Looking SE. 7/17/2018. Lat/Long: 45.646683, -119.109421.

Photo 38. Feature XBB-086. Dry ravine upslope of EPH-010. No stream. Looking N. 7/17/2018. Lat/Long: 45.646236, -119.110176.

Photo 39. Feature XBB-004. Mapped NHD feature at farm road crossing of upland swale. No stream is present. Looking W. 7/18/2017. Lat/Long: 45.646347, -119.15583.

Photo 40. Feature XBB-020. Mapped NHD line across wheat field. No stream is present. Looking SW. 7/21/2017. Lat/Long: 45.642239, -119.158424.

Photo 41. Feature XBB-046A. Mapped NHD line. Upland swale. No stream present. Looking NW. 4/23/2018. Lat/Long: 45.638554, -119.140717.

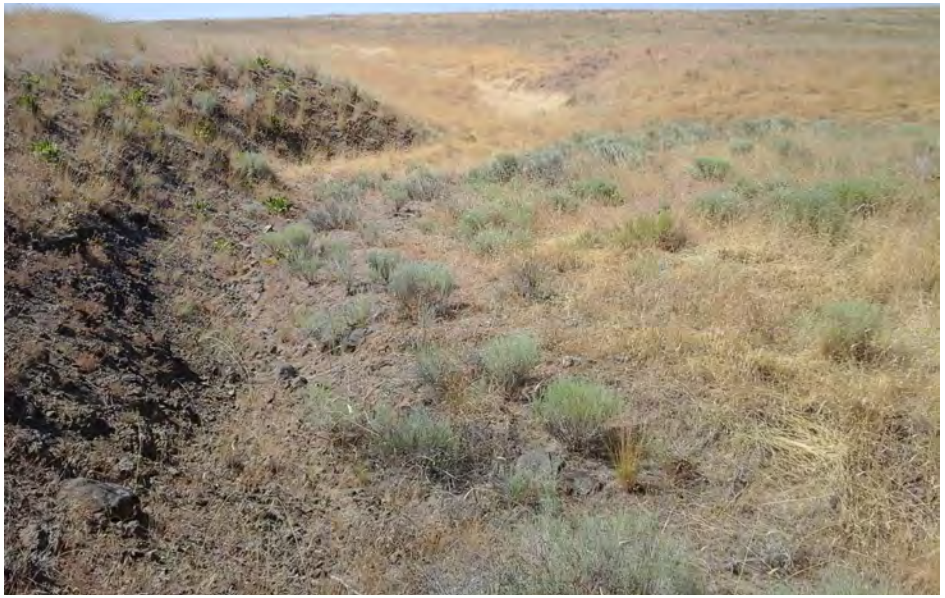

Photo 42. Feature XBB-006. Mapped NHD line. Upland swale. No stream present. Looking S. 7/18/2017. Lat/Long: 45.641716, -119.150681.

Photo 43. Feature XBB-007. Mapped NHD line. Upland swale. No indicators of hydrology. Upland vegetation community. Looking NW. 7/18/2017. Lat/Long: 45.640991, -119.150703.

Photo 44. Feature EPH-004. Mapped NHD line. Barely discernable evidence of infrequent hydrology. 3% slope. Looking E. 9/6/2018. Lat/Long: 45.640892, -119.147148.

Photo 45. Feature XBB-046B. Mapped NHD line. Upland swale. No stream present. Looking NW. 4/23/2018. Lat/Long: 45.637421, -119.139244.

Photo 48. Feature EPH-005. Mapped NHD line. Incised channel runs along the valley bottom adjacent to wheat fields. Looking N. 7/18/2017. Lat/Long: 45.634712, -119.135704.

Photo 49. Feature XBB-049. Mapped NHD line. No stream present in location between EPH-006 and EPH-028. Looking N. 4/23/2018. Lat/Long: 45.632187, -119.134186.

Photo 50. Feature EPH-006. Mapped NHD line. Incised channel runs along the valley bottom adjacent to CRP land. Channel is choked with tumble weed. Looking NW. 7/18/2017. Lat/Long: 45.634579, -119.129646.

Photo 51. Feature EPH-014. Mapped NHD line. Channel flows through a small, steep-sided valley. Barely discernable indicators of hydrology. Looking S. 7/21/2017. Lat/Long: 45.635323, -119.110077.

Photo 52. Feature EPH-015. Mapped NHD line. Channel flows through a small, steep-sided valley. Looking N. 7/21/2017. Lat/Long: 45.635643, -119.115509.

Photo 53. Feature EPH-015. Mapped NHD line. Channel flows through a small, steep-sided valley bordered by CRP land. Looking N. 7/21/2017. Lat/Long: 45.633919, -119.116608.

Photo 54. Feature EPH-010. Mapped NHD line. View of stream channel, and culvert under County Road 1363. Looking SE. 4/25/2018. Lat/Long: 45.636299, -119.098206.

Photo 55. Feature EPH-010. Mapped NHD line. View of stream channel and culvert from east side of County Road 1363. Looking NW. 4/25/2018. Lat/Long: 45.636009, -119.097801.

Photo 56. Feature EPH-010. Mapped NHD line. Overview of stream EPH-010 from cliff above the culvert crossing. Looking SE. 4/25/2018. Lat/Long: 45.636066, -119.097702.

Photo 57. Feature XBB-019. Upland swale. No stream is present. Looking N. 7/21/2017. Lat/Long: 45.636059, -119.1063.

Photo 58. Feature EPH-032. Mapped NHD line. Drainage swale runs along the west side of the road. Looking N. 4/25/2018. Lat/Long: 45.634151, -119.097778.

Photo 59. Feature XBB-089B. Mapped NHD line. Upland swale. No stream present. Looking SW. 7/17/2018. Lat/Long: 45.634647, -119.097305.

Photo 60. Feature XBB-015. Mapped NHD line along the edge of a CRP land. Upland vegetation community. No stream is present. Looking S. 7/21/2017. Lat/Long: 45.641785, -119.060204.

Photo 61. Feature XBB-016. Mapped NHD line along the edge of a CRP land and a wheat field. Upland vegetation community. No stream is present. Looking S. 7/21/2017. Lat/Long: 45.641411, -119.06057.

Photo 62. Feature XBB-017. Mapped NHD line through a plowed field. No stream is present. Looking S. 7/21/2017. Lat/Long: 45.641083, -119.060745.

Photo 63. Feature XBB-018. Mapped NHD line through CRP land. No stream is present. Looking NW. 7/21/2017. Lat/Long: 45.640083, -119.058685.

Photo 64. Feature XBB-072. Mapped NHD line. No stream present in wheat field. Looking N. 4/27/2018. Lat/Long: 45.639763, -119.018181.

Photo 65. Feature EPH-021. Mapped NHD line. Ephemeral channel is located along the edge of a harvested wheat field and CRP land. Looking N. 9/20/2017. Lat/Long: 45.63121, -119.051514.

Photo 66. Feature XBB-031-2. Erosional feature at the edge of a wheat field and CRP land. No stream is present. Looking NW. 9/20/2017. Lat/Long: 45.633347, -119.044838.

Photo 67. Feature EPH-041. Mapped NHD line adjacent to Mud Springs Road. Vegetation community west of Mud Springs Road is predominantly upland grasses with a riparian border consisting of black cottonwood and a few peachleaf willow. Looking W. 4/27/2018. Lat/Long: 45.632908, -119.021675.

Photo 68. Feature EPH-041. Mapped NHD line on east side of Mud Springs Road. Narrow ephemeral channel with dominant upland grasses and remnant cottonwood tree. Looking E. 4/27/2018. Lat/Long: 45.632839, -119.021385.

Photo 69. Feature WET-I. Wetland lies within a swale below the elevation of the adjacent Mud Springs Road. Looking S. 9/22/2017. Lat/Long: 45.634232, -119.022278.

Photo 70. Feature EPH-027. Mapped NHD line. Channel extends NW from WET-I. 6% slope. Looking NW. 9/6/2018. Lat/Long: 45.634262, -119.022293.

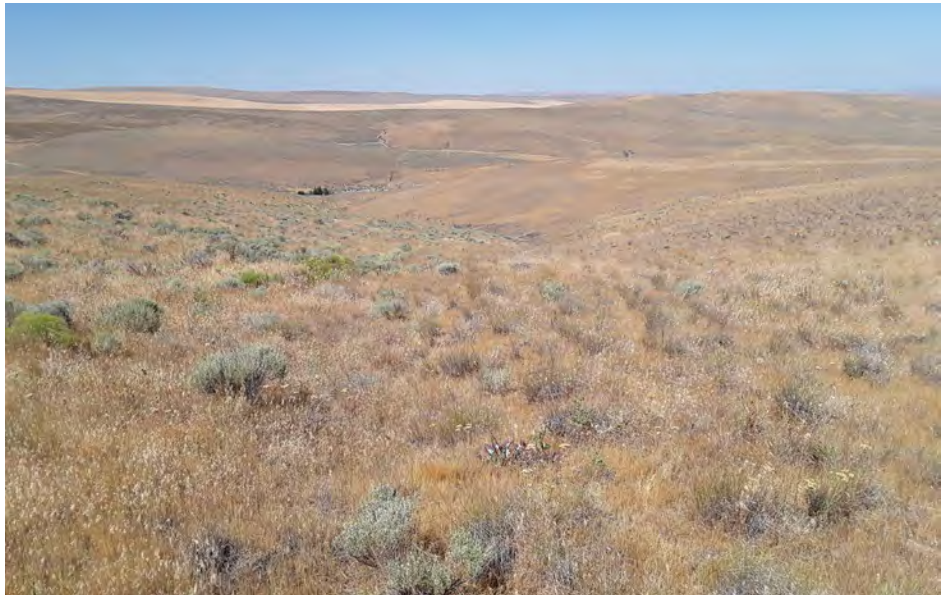

Photo 71. Feature XBB-123. Mapped NHD line. No stream present. Looking W. 7/21/2018. Lat/Long: 45.633461, -119.011673.

Photo 72. Feature XBB-048. Mapped NHD line. Upland swale. No stream present SE of EPH-028. Looking NW. 4/23/2018. Lat/Long: 45.62706, -119.132774.

Photo 73. Feature EPH-028. Mapped NHD line at toe of hillslope and edge of wheat field. Looking NW. 4/23/2018. Lat/Long: 45.627464, -119.133453.

Photo 74. Feature EPH-033. Mapped NHD line. View of channel between County Road 1363 and Speare Canyon Road. Looking S. 4/25/2018. Lat/Long: 45.629444, -119.09053.

Photo 75. Feature EPH-033. Mapped NHD line. View of short segment of EPH-033 confluence with EPH-010, north of Speare Canyon Road. Looking N. 4/25/2018. Lat/Long: 45.629604, -119.090546.

Photo 76. Feature EPH-033. Mapped NHD line. View of EPH-033 south of County Road 1363. Looking S. 4/25/2018. Lat/Long: 45.629192, -119.090492.

Photo 77. Feature XBB-066. Mapped NHD line. No stream present north or south of County Road 1363. Looking SW. 4/26/2018. Lat/Long: 45.629814, -119.091431.

Photo 78. Feature EPH-049. Mapped NHD line. Feature is connected to EPH-010 via a culvert under Speare Canyon Road. Looking NE. 7/17/2018. Lat/Long: 45.626663, -119.076607.

Photo 79. Feature EPH-010. Mapped NHD line. Representative example of this stream. EPH-010 runs parallel to Speare Canyon Road for several miles. Looking NW. 7/17/2018. Lat/Long: 45.626892, -119.076202.

Photo 80. Feature EPH-050. Mapped NHD line. Infrequent runoff from EPH-050 flows north to EPH-010, via a culvert under Speare Canyon Road. Looking SW. 7/17/2018. Lat/Long: 45.625599, -119.071068.

Photo 81. Feature EPH-010. Mapped NHD line. Typical conditions in, and adjacent to dry stream channel. Looking W. 7/17/2018. Lat/Long: 45.62579, -119.070786.

Photo 82. Feature XBB-051. Mapped NHD line. Upland swale. No stream present up and down slope of road crossing. Looking N. 4/23/2018. Lat/Long: 45.624203, -119.131668.

Photo 83. Feature EPH-011. Mapped NHD line. Dry channel south of Speare Canyon Road. Looking SW. 7/17/2018. Lat/Long: 45.623528, -119.064255.

Photo 84. Feature XBB-090. Mapped NHD line. No stream present in this location. Looking NW. 7/17/2018. Lat/Long: 45.623474, -119.064743.

Photo 85. Feature XBB-091. Mapped NHD line north of Speare Canyon Road. No stream present in this location. Looking N. 7/17/2018. Lat/Long: 45.624084, -119.06517.

Photo 86. Feature EPH-011. Mapped NHD line. Incised channel connects to EPH-010 in the background. Looking N. 7/21/2017. Lat/Long: 45.623585, -119.064194.

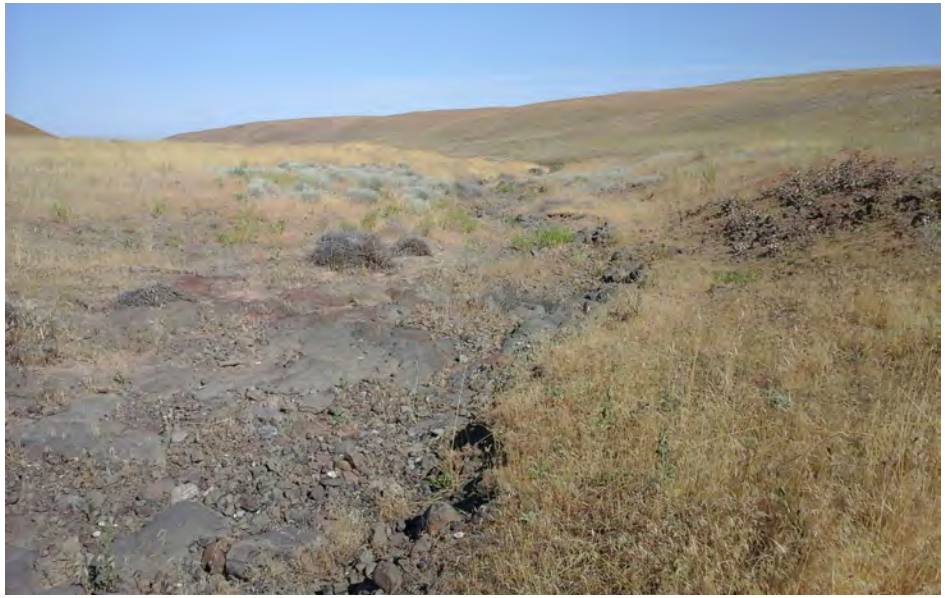

Photo 87. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical vegetation community along all segments of EPH-010. Looking NW. 7/21/2017. Lat/Long: 45.624016, -119.064674.

Photo 88. Feature XBB-063. Mapped NHD line. View downslope of upland swale. No stream present. Looking SE. 4/25/2018. Lat/Long: 45.621597, -119.096687.

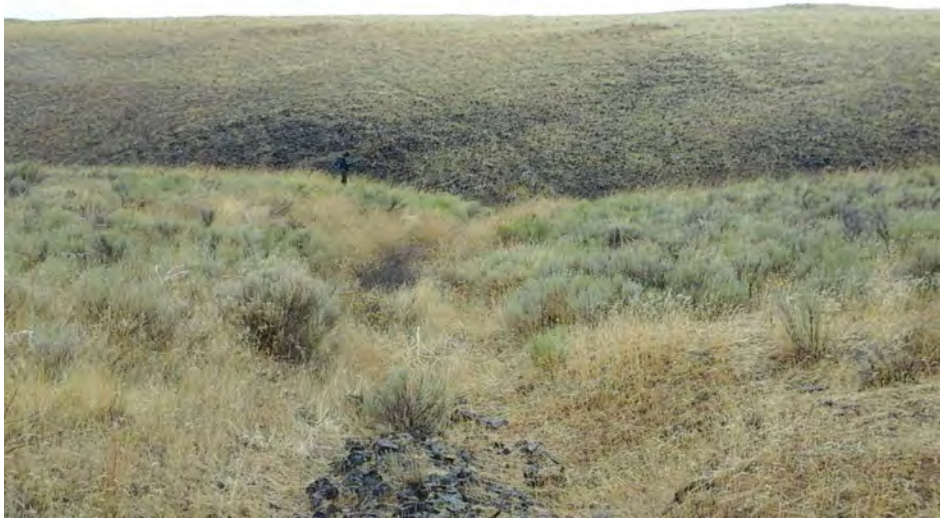

Photo 89. Feature EPH-019. Mapped NHD line on steep upland slope. EPH-019 flows to EPH-018. Looking N. 9/19/2017. Lat/Long: 45.620827, -119.055679.

Photo 90. Feature EPH-018. Mapped NHD line. on steep upland slope. EPH-019 flows to EPH-018. Narrow channel located at the toe of converging CRP hillslopes. Looking N. 9/19/2017. Lat/Long: 45.620605, -119.05761.

Photo 91. Feature XBB-028. Mapped NHD line. Upland valley. No stream is present. Looking SE. 9/19/2017. Lat/Long: 45.620621, -119.048752.

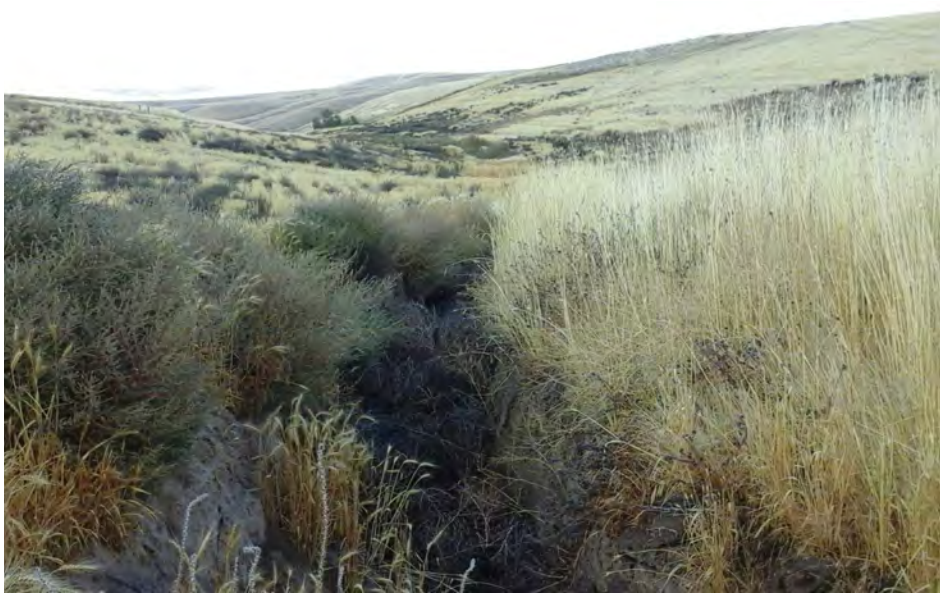

Photo 92. Feature XBB-029. Erosional feature in wheat field. No stream is present. No NHD or NWI lines. Looking N. 9/19/2017. Lat/Long: 45.62278, -119.03138.

Photo 93. Feature EPH-020. Mapped NWI R4 and NHD lines. Rocky ephemeral channel located at the toe of converging upland hillslopes. Looking SE. 9/19/2017. Lat/Long: 45.624748, -119.026817.

Photo 94. Feature EPH-020. Mapped NWI R4 and NHD lines. Incised ephemeral channel located adjacent to wheat field and CRP hillslope. Channel is choked with tumbleweed. Looking NW. 9/20/2017. Lat/Long: 45.622017, -119.022789.

Photo 95. Feature EPH-042. Not mapped by NWI or NHD. Erosional feature at edge of wheat field. Terminates at edge of of Mud Springs Road. Looking N. 4/27/2018. Lat/Long: 45.625301, -119.009453.

Photo 96. Feature EPH-043. Mapped NHD line. Narrow channel with upland vegetation. Looking N. 4/27/2018. Lat/Long: 45.622936, -119.005798.

Photo 97. Feature EPH-041. Mapped NHD line. Small culvert outfall from EPH-043 to EPH-041. Looking W. 4/27/2018. Lat/Long: 45.623253, -119.005775.

Photo 98. Feature EPH-041. Mapped NHD line. View of narrow channel along east side of Mud Springs Road. Looking NW. 4/27/2018. Lat/Long: 45.621716, -119.003403.

Photo 99. Feature EPH-041. Mapped NHD line. Channel starts about 60 feet SE of Mud Springs Road, at edge of tumbleweed in photo. Looking N. 4/27/2018. Lat/Long: 45.621586, -119.003403.

Photo 100. Feature EPH-036. Mapped NHD line. View across the channel. Flood debris and tumbleweed in the channel. Looking W. 4/26/2018. Lat/Long: 45.612282, -119.078072.

Photo 101. Feature XBB-080. Mapped NHD line. Broad valley in a mowed wheatfield. No stream present. Looking N. 4/27/2018. Lat/Long: 45.614174, -119.019882.

Photo 102. Feature XBB-076. Mapped NHD line. No stream present in wheat field. Looking S. 4/27/2018. Lat/Long: 45.617184, -119.005386.

Photo 103. Feature XBB-077. Mapped NHD line at road crossing. Upland swale. No stream present on either side of Mud Springs Road. Looking E. 4/27/2018. Lat/Long: 45.614853, -118.997612.

Photo 104. Feature EPH-034. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking NE. 4/25/2018. Lat/Long: 45.610916, -119.094551.

Photo 105. Feature EPH-022. Mapped NHD line. Ephemeral channel in a fallow field dominated by cereal rye. Looking N. 9/20/2017. Lat/Long: 45.607906, -119.064529.

Photo 106. Feature EPH-010. Mapped NHD line. Ephemeral channel with exposed bedrock. Looking E. 7/18/2018. Lat/Long: 45.610863, -119.051552.

Photo 107. Feature EPH-051. Mapped NHD line. Incised ephemeral channel downstream of culvert outfall. Looking S. 7/18/2018. Lat/Long: 45.610676, -119.051682.

Photo 108. Feature EPH-051. Mapped NHD line. Incised ephemeral channel upstream of culvert outfall. Looking S. 7/18/2018. Lat/Long: 45.610291, -119.051811.

Photo 109. Feature XBB-092. Mapped NHD line. No stream present. Looking NW. 7/18/2018. Lat/Long: 45.610706, -119.05188.

Photo 110. Feature EPH-010. Mapped NHD line. Dry rocky channel east of Speare Canyon Road. Typical upland vegetation community observed along this stream. Looking N. 7/21/2017. Lat/Long: 45.611675, -119.052765.

Photo 111. Feature EPH-051. Mapped NHD line. Incised channel choked with tumbleweed. Looking S. 7/18/2018. Lat/Long: 45.606781, -119.053528.

Photo 112. Feature EPH-052. Mapped NHD line. Shallow channel is choked with tumbleweed. Looking NW. 7/18/2018. Lat/Long: 45.606022, -119.041122.

Photo 113. Feature EPH-010. Mapped NHD line. Outfall culvert for EPH-052 is shown to the right of EPH-010. Looking E. 7/18/2018. Lat/Long: 45.606407, -119.040955.

Photo 114. Feature EPH-044. Mapped NHD line. Narrow drainageway at toe of upland slope and wheatfield. Looking W. 4/27/2018. Lat/Long: 45.60743, -119.010704.

Photo 115. Feature EPH-053. Mapped NHD line. Overview of dry channel, bordered by steep upland slopes. Looking E. 7/18/2018. Lat/Long: 45.603432, -119.032402.

Photo 116. Feature EPH-023. Mapped NHD line. Ephemeral channel at toe of CRP land slope and edge of harvested wheat field. Looking NW. 9/20/2017. Lat/Long: 45.601055, -119.017204.

Photo 117. Feature XBB-078. Mapped NHD line. Broad swale in wheat field to the west of Mud Springs Road. No stream present. Looking NW. 4/27/2018. Lat/Long: 45.604794, -118.997116.

Photo 118. Feature XBB-079. Mapped NHD line. Broad swale in wheat field to the west of Mud Springs Road. No stream present. Looking NW. 4/27/2018. Lat/Long: 45.603832, -118.997131.

Photo 119. Feature EPH-035. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking NE. 4/25/2018. Lat/Long: 45.602264, -119.092552.

Photo 120. Feature EPH-022. Mapped NHD line. Ephemeral channel runs through an expansive upland field of predominantly tumble mustard. Looking NW. 9/20/2017. Lat/Long: 45.599487, -119.062798.

Photo 121. Feature XBB-100. Mapped NHD line. Upland valley located on weedy grazing land. No stream present. Looking NE. 7/19/2018. Lat/Long: 45.598679, -119.043747.

Photo 122. Feature XBB-101. Mapped NHD line. Headcut and erosional swale feature located on weedy grazing land. No stream present. Looking S. 7/19/2018. Lat/Long: 45.596447, -119.044739.

Photo 123. Feature EPH-056. Mapped NHD line. Short channel feature located at the bottom of converging dry hillslopes. Looking S. 7/19/2018. Lat/Long: 45.597149, -119.044685.

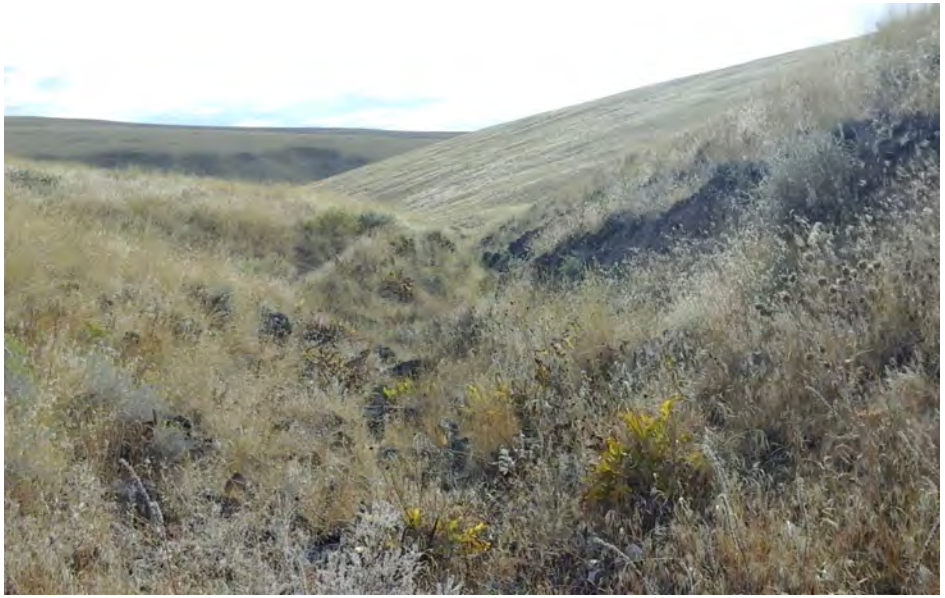

Photo 124. Feature XBB-032-2. Mapped NHD line. Upland ravine. No stream is present. Looking SW. 9/20/2017. Lat/Long: 45.599369, -119.113075.

Photo 125. Feature XBB-064. Upland ravine crosses the study area. No stream. Looking NE. 4/25/2018. Lat/Long: 45.592529, -119.093834.

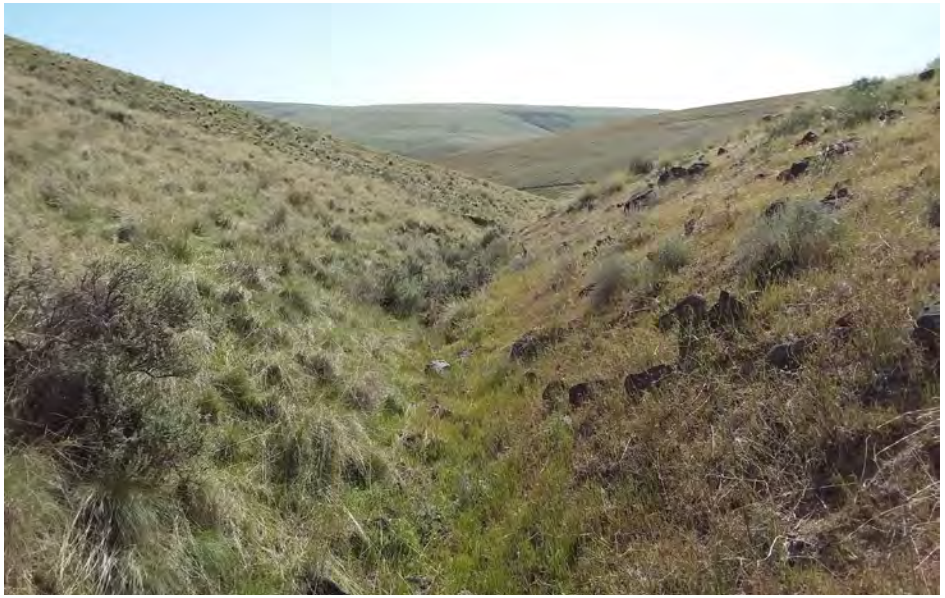

Photo 126. Feature XBB-065. Upland ravine crosses the study area. No stream. Looking NE. 4/25/2018. Lat/Long: 45.590591, -119.093018.

Photo 127. Feature EPH-017B. Mapped NHD line. Channel flows south through a, steep-sided ravine. Looking S. 7/22/2017. Lat/Long: 45.59269, -119.096161.

Photo 128. Feature EPH-017A. Mapped NHD line. View shows confluence of stream fork with the main channel. Looking N. 7/22/2017. Lat/Long: 45.593002, -119.096115.

Photo 129. Feature XBB-098. Mapped NHD line. Expansive upland grazing land. No stream present. Looking NE. 7/18/2018. Lat/Long: 45.595516, -119.081192.

Photo 130. Feature XBB-121. Mapped NHD line. All upland vegetation community and no channel. No stream present. Looking N. 7/21/2018. Lat/Long: 45.594826, -119.067337.

Photo 131. Feature XBB-122. Mapped NHD line. Broad upland swale. Upland vegetation community and no channel. No stream present. Looking N. 7/21/2018. Lat/Long: 45.593498, -119.054138.

Photo 132. Feature EPH-054. Mapped NHD line. Dry shallow channel bordered by upland vegetation. Looking E. 7/18/2018. Lat/Long: 45.593822, -119.034103.

Photo 133. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical upland vegetation community. Looking N. 7/21/2017. Lat/Long: 45.596165, -119.033501.

Photo 134. Feature XBB-099. Mapped NHD line. Upland swale located on weedy grazing land. No stream present. Looking NW. 7/19/2018. Lat/Long: 45.589607, -119.034264.

Photo 135. Feature SP-03-UP. Livestock water tank overflows onto area immediately surrounding the tank. Looking S. 7/19/2018. Lat/Long: 45.589874, -119.034142.

Photo 136. Feature SP-03-UP. Livestock water tank on the slope above farm access road. Looking SE. 7/19/2018. Lat/Long: 45.589939, -119.034325.

Photo 137. Feature EPH-012. Mapped NHD line. Channel follows dry valley bottom. Upland vegetation community. Looking E. 7/21/2017. Lat/Long: 45.588726, -119.038574.

Photo 138. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical upland vegetation community. Looking W. 7/21/2017. Lat/Long: 45.591736, -119.032661.

Photo 139. Feature EPH-012. Mapped NHD line. Dry, rocky, shallow channel. Weedy upland vegetation community. Looking NE. 7/21/2017. Lat/Long: 45.591427, -119.033363.

Photo 140. Feature XBB-038. Mapped NHD line. Upland conditions in the valley bottom. No stream is present. Looking NW. 9/22/2017. Lat/Long: 45.585892, -119.125092.

Photo 141. Feature WET-J. View of wetland/upland boundary along the south side of the wetland. Looking W. 4/26/2018. Lat/Long: 45.583668, -119.091629.

Photo 142. Feature WET-J. View of wetland/upland boundary along the north side of the wetland. Looking NW. 4/26/2018. Lat/Long: 45.584003, -119.091545.

Photo 143. Feature EPH-038. Mapped NHD line. Rocky swale descends from steep slopes north of WET-J. 15% slope. Looking SW. 9/6/2018. Lat/Long: 45.58469, -119.091682.

Photo 144. Feature EPH-037. Mapped NHD line starts about 160 feet downstream of photo point location. Looking N. 4/26/2018. Lat/Long: 45.585297, -119.065781.

Photo 145. Feature XBB-067. Mapped NHD line. No stream present across County Road 1363. Looking SW. 4/26/2018. Lat/Long: 45.585094, -119.066116.

Photo 146. Feature XBB-021. Mapped NHD line across CRP land. No stream is present within steep upland swale. Looking NW. 7/22/2017. Lat/Long: 45.582607, -119.065079.

Photo 147. Feature XBB-022. Mapped NHD line across CRP land located to the south of County Road 1363. No stream is present. Looking N. 7/22/2017. Lat/Long: 45.584743, -119.066406.

Photo 148. Feature XBB-095. Mapped NHD line. Upland swale in a small valley between a harvested wheat field and CRP land. No stream present. Looking S. 7/18/2018. Lat/Long: 45.582241, -119.041695.

Photo 149. Feature XBB-096. Mapped NHD line. Upland swale runs across a harvested wheat field. No stream present. Looking N. 7/18/2018. Lat/Long: 45.583374, -119.041687.

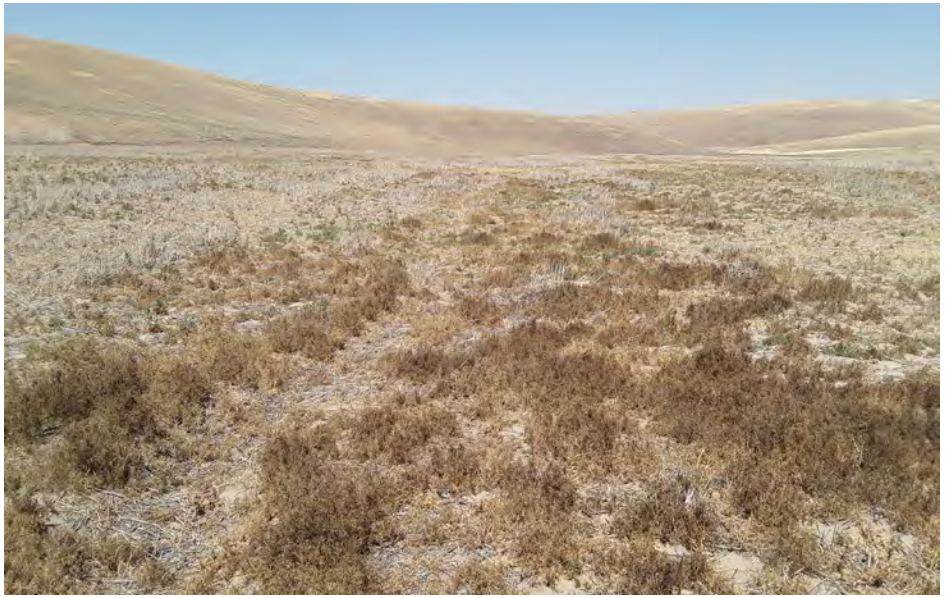

Photo 150. Feature XBB-097. Mapped NHD line. Harvested wheat field with no stream present. Looking N. 7/18/2018. Lat/Long: 45.58503, -119.04097.

Photo 151. Feature EPH-055. Mapped NHD line. Channel is located at the toe of converging slopes between wheat fields. Looking N. 7/18/2018. Lat/Long: 45.584629, -119.047203.

Photo 152. Feature EPH-055. Mapped NHD line. Channel is located along the edge of a farm road and wheat field. Looking N. 7/18/2018. Lat/Long: 45.586414, -119.042931.

Photo 153. Feature EPH-047. Mapped NHD line. Eroded channel on north side of Speare Canyon Road connects to EPH-046 a short distance north of the photo point. Looking NW. 4/27/2018. Lat/Long: 45.58617, -119.027237.

Photo 154. Feature EPH-046. Mapped NHD line. Confluence of EPH-047 and EPH-046. Looking N. 4/27/2018. Lat/Long: 45.586277, -119.027115.

Photo 155. Feature XBB-085. Mapped NHD line. No stream channel south of EPH-047. Looking S. 4/27/2018. Lat/Long: 45.585945, -119.027306.

Photo 156. Feature XBB-037-2. Mapped NHD line. Upland swale. No stream is present. Looking N. 9/22/2017. Lat/Long: 45.580063, -119.137146.

Photo 157. Feature XBB-023. Mapped NHD line. Upland swale and cattle trail. No stream present across County Road 1363. Looking W. 4/26/2018. Lat/Long: 45.58218, -119.079269.

Photo 158. Feature XBB-068. Mapped NHD line. Upland swale. No stream present. Looking NE. 4/26/2018. Lat/Long: 45.581913, -119.081535.

Photo 159. Feature XBB-102. Mapped NHD line crosses County Road 1363. Upland swale. No stream present west of the road. Looking SW. 7/19/2018. Lat/Long: 45.581284, -119.082542.

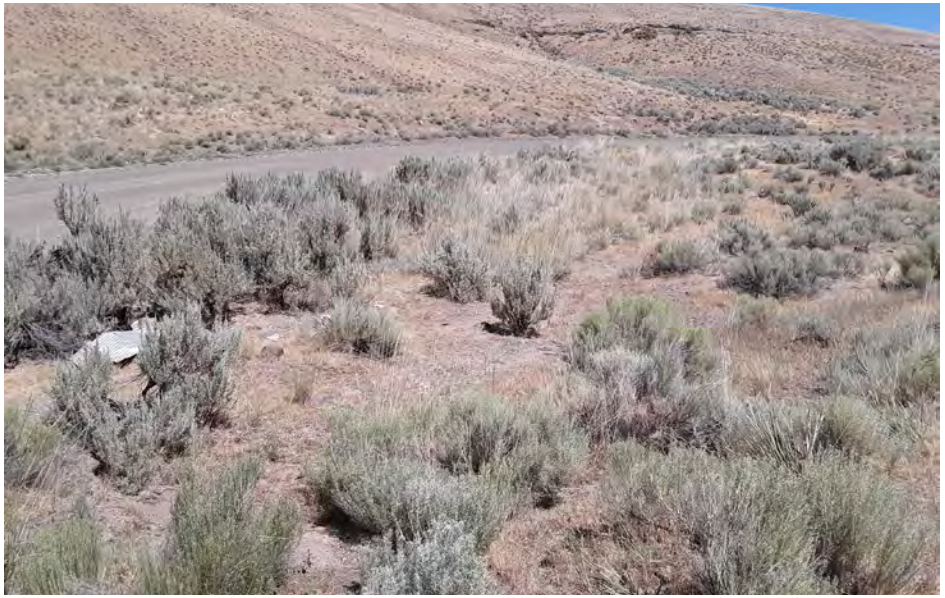

Photo 160. Feature XBB-103. Mapped NHD line crosses County Road 1363. Upland swale. No stream present on the east side of the road. Looking E. 7/19/2018. Lat/Long: 45.581387, -119.082283.

Photo 163. Feature WET-O. Wetland O in 2017. Looking NW. 7/19/2017. Lat/Long: 45.579845, -119.083405.

Photo 164. Feature XBB-024. Mapped NHD line. Upland swale runs along the edge of County Road 1363. No stream is present within steep swale. Looking NE. 7/22/2017. Lat/Long: 45.582287, -119.078835.

Photo 165. Feature XBB-093. Mapped NHD line. Upland swale. No stream present. Looking N. 7/18/2018. Lat/Long: 45.58007, -119.029839.

Photo 166. Feature EPH-047. Mapped NHD line. Channel is located in a small dry valley between wheat fields. Looking S. 7/18/2018. Lat/Long: 45.582161, -119.028633.

Photo 167. Feature XBB-094. Mapped NHD line. Small erosional feature running through harvested wheat field. Looking N. 7/18/2018. Lat/Long: 45.581169, -119.032684.

Photo 168. Feature XBB-081. Mapped NHD line. No stream present west of EPH-045. Looking NW. 4/27/2018. Lat/Long: 45.582726, -119.016937.

Photo 169. Feature EPH-045. Mapped NHD line. Stream flows in roadside ditch along the south side of Speare Canyon Road. Flow is diverted via culvert under the road to the north side where it runs only a short distance. Looking W. 4/27/2018. Lat/Long: 45.582405, -119.015839.

Photo 170. Feature XBB-082. Mapped NHD line. No stream present in wheat field south of Speare Canyon Road. Looking SE. 4/27/2018. Lat/Long: 45.583256, -119.019447.

Photo 171. Feature XBB-083. Mapped NHD line. No stream present in wheat field. Looking NW. 4/27/2018. Lat/Long: 45.579075, -119.016434.

Photo 172. Feature EPH-046. Mapped NHD line. Eroded channel starts at culvert outflow and continues about 240 feet to its end point. Looking NW. 4/27/2018. Lat/Long: 45.583374, -119.019485.

Photo 173. Feature EPH-046. Mapped NHD line. Shallow channel terminates about 200 feet from photo point. Looking W. 4/27/2018. Lat/Long: 45.583481, -119.019615.

Photo 174. Feature XBB-036-2. Mapped NHD line. Upland swale. No stream is present. Looking N. 9/21/2017. Lat/Long: 45.57761, -119.122559.

Photo 175. Feature XBB-026-1. Mapped NHD line. Upland gully. No stream is present. Looking NE. 7/22/2017. Lat/Long: 45.57489, -119.102943.

Photo 176. Feature EPH-016. Mapped NWI R4 stream and NHD line. Narrow ephemeral channel in bottom of dry valley. Looking SW. 7/22/2017. Lat/Long: 45.576889, -119.11161.

Photo 177. Feature XBB-026-2. Mapped NHD line. Upland valley at base of CRP hillslopes. No stream is present. Looking N. 7/22/2017. Lat/Long: 45.574802, -119.103035.

Photo 178. Feature EPH-016. Mapped NWI R4 stream amd NHD line. Ephemeral channel located at the bottom of a dry valley. Looking NE. 7/22/2017. Lat/Long: 45.576866, -119.111694.

Photo 179. Feature XBB-070. Mapped NWI and NHD lines. Upland swale. No stream or culvert crossing. Looking N. 4/26/2018. Lat/Long: 45.574455, -119.085861.

Photo 180. Feature XBB-071. Mapped NWI and NHD lines. Upland swale. No stream or culvert crossing. Looking NE. 4/26/2018. Lat/Long: 45.575481, -119.085327.

Photo 181. Feature WET-M. Mapped NWI wetland. PEM runs along the toe of a steep upland hillside to the east. Looking E. 4/27/2018. Lat/Long: 45.573921, -119.077934.

Photo 182. Feature WET-A. Mapped NWI. Wetland is contained within drainage swale. Looking W. 4/27/2018. Lat/Long: 45.572968, -119.07692.

Photo 183. Feature WET-A. Mapped NWI wetland. Continuation of WET-A within drainage swale. Looking E. 4/27/2018. Lat/Long: 45.572849, -119.07666.

Photo 184. Feature WET-M. Linear wetland receives overflow from two ponds located to the SE. The wetland is located along the toe of the hillside to the east. Looking SE. 7/20/2018. Lat/Long: 45.574318, -119.078461.

Photo 185. Feature WET-M. A small grove of peachleaf willow trees are located at the east end of WET-M. Looking S. 7/20/2018. Lat/Long: 45.573833, -119.07785.

Photo 186. Feature POND-1. Constructed pond is located immediately upstream of WET-M. Water from the pond overflows to WET-M. Looking SW. 7/20/2018. Lat/Long: 45.573669, -119.077644.

Photo 187. Feature POND-1. In the foreground is the outflow area from Pond-1 to WET-M. Looking NW. 7/20/2018. Lat/Long: 45.573612, -119.077621.

Photo 188. Feature POND-2. Pond-2 is in the background. POND-1 outflow provides hydrology for WET-N, and continues to POND-1. Looking SE. 7/20/2018. Lat/Long: 45.573498, -119.077553.

Photo 189. Feature WET-N. Small PEM-PSS wetland is located between WET-1 and WET-2. Looking N. 7/20/2018. Lat/Long: 45.573387, -119.077576.

Photo 190. Feature POND-2. Artificially created pond is located between WET-A and WET-N. Looking S. 7/20/2018. Lat/Long: 45.573444, -119.077438.

Photo 191. Feature WET-A. Wetland lies within linear swale that drains to POND-1. A few peachleaf willow trees are contained within the swale. Looking NW. 7/20/2018. Lat/Long: 45.572788, -119.076469.

Photo 192. Feature XBB-156. Area is heavily used by cattle. Green vegetation which also is distinct on aerial photos is Chenopodium album and Bassia scoparia. Looking SW. 7/20/2018. Lat/Long: 45.572628, -119.076439.

Photo 193. Feature WET-A. Northwest end of WET-A. Image shows wetland swale and willow trees. Looking NW. 7/20/2018. Lat/Long: 45.573093, -119.077072.

Photo 195. Feature WET-M. Linear wetland narrows at this point. Looking SE. 7/20/2018. Lat/Long: 45.575241, -119.079636.

Photo 196. Feature XBB-008-2. Mapped NHD line. Upland pasture. No stream present. Looking E. 7/19/2017. Lat/Long: 45.572075, -119.073563.

Photo 197. Feature WET-B. PEM slope wetland. Not mapped by NWI. Looking SW. 7/19/2017. Lat/Long: 45.572361, -119.073608.

Photo 198. Feature XBB-039-2. Mapped NHD line. Upland conditions in the bottom of the ravine. No stream is present. Looking N. 9/22/2017. Lat/Long: 45.57547, -119.07518.

Photo 199. Feature XBB-040. Mapped NHD line. Upland conditions in the bottom of the ravine. No stream is present. Looking SW. 9/22/2017. Lat/Long: 45.575432, -119.067307.

Photo 200. Feature EPH-007. Mapped NHD line. Channel connects to WET-B. Barely discernable evidence of infrequent hydrology. 10% slope. Looking N. 9/6/2018. Lat/Long: 45.573021, -119.073524.

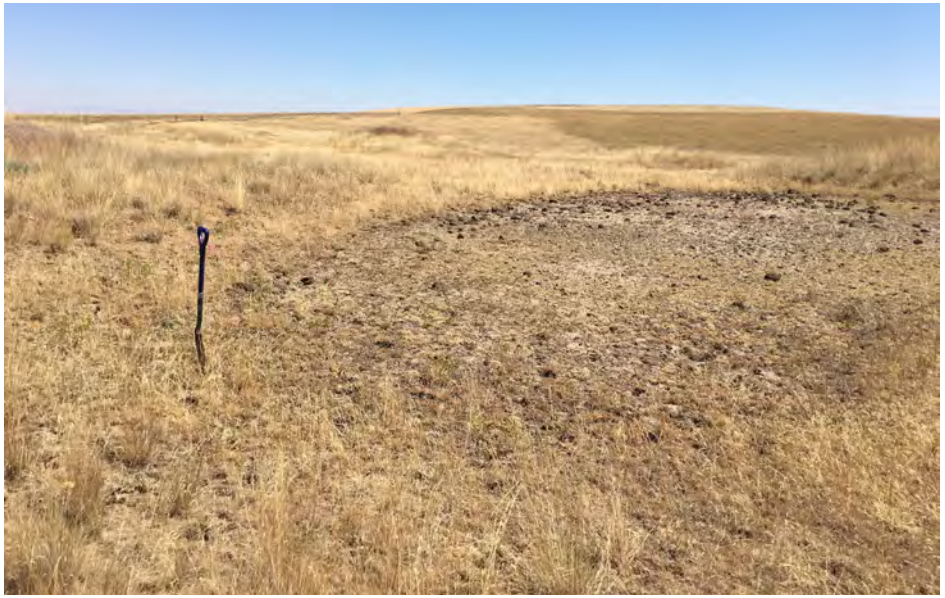

Photo 201. Feature WET-G. Vernal pool located in area heavily grazed by cattle. Shovel marks the wetland edge. Looking SE. 7/22/2017. Lat/Long: 45.572048, -119.133293.

Photo 202. Feature WET-H. Vernal pool located in area heavily grazed by cattle. Farm access road runs along the north side of the wetland. Looking W. 7/22/2017. Lat/Long: 45.572002, -119.133347.

Photo 203. Feature EPH-016. Mapped NWI R4 stream and NHD line. Narrow ephemeral channel in bottom of dry valley. Stream fork is in the background of the photo. Looking S. 7/22/2017. Lat/Long: 45.571968, -119.11367.

Photo 204. Feature EPH-016. Mapped NWI R4 stream amd NHD line. Photo shows the channel fork at the upper end of the stream. Looking S. 7/22/2017. Lat/Long: 45.571983, -119.11377.

Photo 205. Feature EPH-039. Mapped NWI and NHD lines. Ephemeral drainage with predominantly upland vegetation in and adjacent to the channel. Looking NE. 4/26/2018. Lat/Long: 45.569016, -119.094421.

Photo 206. Feature INT-003. Mapped NWI and NHD lines. Ephemeral drainage with mixed upland and riparian vegetation in and adjacent to the channel. See sample point SP-02-UP. Looking S. 4/27/2018. Lat/Long: 45.568859, -119.094383.

Photo 207. Feature WET-C. Wetland lies within the linear swale that runs along the west side of County Road 1363. Looking NE. 7/22/2017. Lat/Long: 45.571465, -119.091881.

Photo 208. Feature WET-C. Upland area immediately outside of the NE end of WET-C. Looking NE. 7/22/2017. Lat/Long: 45.572578, -119.090088.

Photo 209. Feature WET-C. Mapped NWI PEM wetland. PSS wetland is located in the swale immediately west of County Road 1363. Looking SW. 7/22/2017. Lat/Long: 45.57143, -119.092003.

Photo 211. Feature EPH-025. Mapped NWI R4 and NHD lines. Ephemeral channel located adjacent to wheat field and CRP hillslope. Looking N. 9/21/2017. Lat/Long: 45.564106, -119.140465.

Photo 212. Feature XBB-104. Mapped NHD line RUNS across wheat fields and farm road. No stream present. Looking W. 7/19/2018. Lat/Long: 45.564636, -119.119957.

Photo 213. Feature XBB-014-1. Mapped NHD line along the edge of a wheat field. Upland vegetation community. No stream is present. Looking W. 7/20/2017. Lat/Long: 45.564766, -119.120483.

Photo 214. Feature XBB-014-2. Mapped NHD line runs along the toe of the slope of CRP land and the edge of a wheat field. No stream is present. Looking W. 7/22/2017. Lat/Long: 45.564751, -119.122437.

Photo 215. Feature XBB-057. Mapped NHD line at road crossing. Upland swale on downhill side of road. No stream present. Looking N. 4/24/2018. Lat/Long: 45.560863, -119.097885.

Photo 216. Feature XBB-058. Mapped NHD line at road crossing. Upland swale on uphill side of road. No stream present. Looking NE. 4/24/2018. Lat/Long: 45.560829, -119.098328.

Photo 217. Feature EPH-031. Mapped NHD line at road crossing. Ephemeral stream on uphill side of road. No stream present on downslope side of road. Looking W. 4/24/2018. Lat/Long: 45.565205, -119.097313.

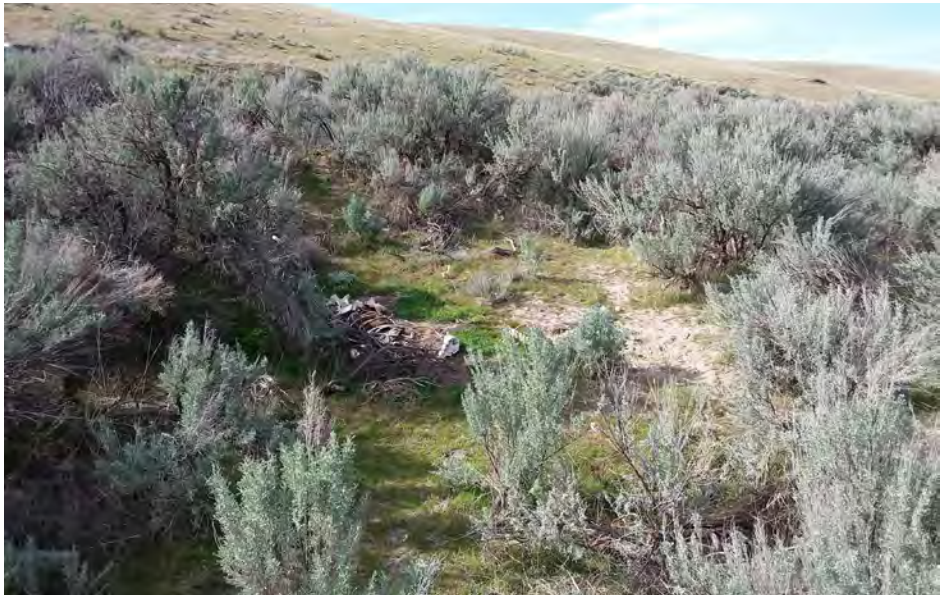

Photo 218. Feature XBB-059-1. Mapped NHD line. Upland swale. No stream present below culvert outfall. Looking NW. 4/24/2018. Lat/Long: 45.565197, -119.096962.

Photo 219. Feature XBB-106. Mapped NHD line. Upland valley bordered by wheat fields. No stream present. Looking SW. 7/19/2018. Lat/Long: 45.564514, -119.104492.

Photo 220. Feature EPH-031. Mapped NHD line. This is the upper extent of the same stream mapped 0.27 miles to the east. Looking E. 7/19/2018. Lat/Long: 45.564819, -119.103943.

Photo 221. Feature XBB-009-1. Mapped NHD line. Upland ravive. No stream present. Looking SW. 7/19/2017. Lat/Long: 45.567879, -119.049568.

Photo 222. Feature XBB-105. Mapped NHD line. Upland swale only. No stream. Looking W. 7/19/2018. Lat/Long: 45.560394, -119.10791.

Photo 223. Feature WET-E. Vernal pool, not mapped by NWI. Cattle grazing in the area have degraded the wetland. Looking E. 7/20/2017. Lat/Long: 45.55941, -119.116203.

Photo 224. Feature WET-F. Vernal pool located in area heavily grazed by cattle. An earthen berm was constructed in the past surrounding the west, north and south sides of the wetland. Looking SW. 7/22/2017. Lat/Long: 45.556606, -119.11441.

Photo 225. Feature EPH-024. Mapped NHD line. Ephemeral channel at toe of CRP land slope and edge of harvested wheat field. Looking W. 9/21/2017. Lat/Long: 45.556778, -119.129211.

Photo 226. Feature WET-L. Feature is located at mapped NWI and NHD stream lines. PEM wetland is contained within this section of the stream channel. Looking N. 7/20/2018. Lat/Long: 45.557041, -119.074165.

Photo 227. Feature EPH-026. Mapped NWI R4 and NHD lines. Ephemeral channel located along a valley floor. Vegetation in channel is mainly Thinopyrum ponticum. Looking NW. 9/21/2017. Lat/Long: 45.550434, -119.141663.

Photo 228. Feature EPH-057. Mapped NHD line. Short drainage ditch runs along edge of whaet field. Looking W. 7/19/2018. Lat/Long: 45.552322, -119.115585.

Photo 229. Feature EPH-030. Mapped NHD line. Channel begins near the edge of the existing county road and continues downslope to outside of the study area. Looking NE. 4/24/2018. Lat/Long: 45.548935, -119.105682.

Photo 230. Feature XBB-035. Mapped NHD line. Upland swale runs down a steep slope. Upland vegetation community. Looking S. 9/21/2017. Lat/Long: 45.544319, -119.155716.

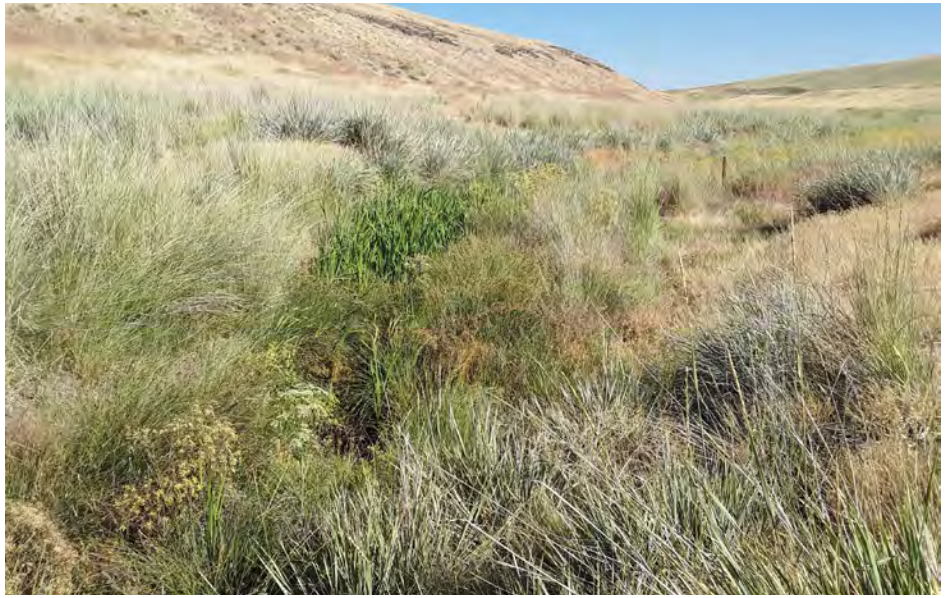

Photo 231. Feature WET-K. Feature is located in the vicinity of mapped NWI and NHD stream lines. Wetland is located in a swale feature, on the floor of a dry valley. Looking S. 7/19/2018. Lat/Long: 45.539925, -119.127594.

Photo 232. Feature XBB-054. Mapped NHD line. No stream present. Looking S. 4/24/2018. Lat/Long: 45.530754, -119.11544.

Photo 233. Feature EPH-008. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Channel is overgrown with weeds. Looking S. 7/20/2017. Lat/Long: 45.531059, -119.115372.

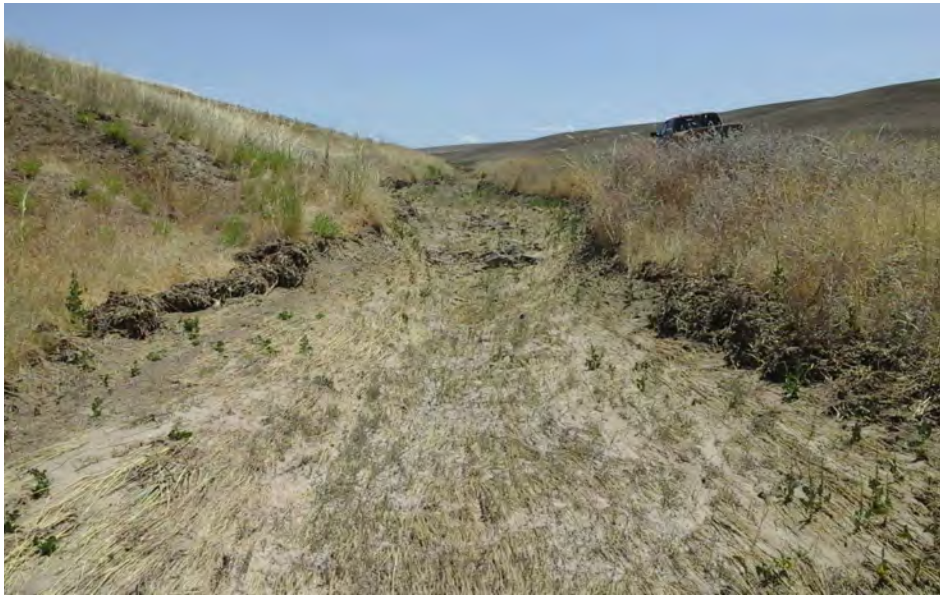

Photo 234. Feature EPH-009. Mapped NWI R4 stream and NHD lines. Determined to be ephemeral after using SDAM. Looking E. 7/20/2017. Lat/Long: 45.531128, -119.115311.

Photo 235. Feature EPH-009. Mapped NWI R4 stream and NHD lines. Determined to be ephemeral after using SDAM. Looking SE. 7/20/2017. Lat/Long: 45.532452, -119.118095.

Photo 236. Feature WET-D. Vernal pool located in area heavily grazed by cattle. Looking E. 7/20/2017. Lat/Long: 45.530437, -119.086288.

Photo 237. Feature XBB-055-1. Mapped NHD line. Upland swale. No stream present. Looking SW. 4/24/2018. Lat/Long: 45.528187, -119.102104.

Photo 238. Feature XBB-055-2. Mapped NHD line. Upland swale. No stream present. Looking NE. 4/24/2018. Lat/Long: 45.528191, -119.102112.

Photo 239. Feature XBB-056. Mapped NHD line. Upland swale. No stream present in area east of EPH-009. All upland veg in swale. Looking NE. 4/24/2018. Lat/Long: 45.527668, -119.103363.

Photo 240. Feature EPH-009. Mapped NWI R4 stream and NHD lines. Determined to be ephemeral after using SDAM. Looking W. 7/20/2017. Lat/Long: 45.527565, -119.104744.

Photo 241. Feature XBB-010. Mapped NHD line in plowed field. No stream present. Looking S. 7/20/2017. Lat/Long: 45.527824, -119.105911.

Photo 242. Feature EPH-009. Mapped NWI R4 stream and NHD lines. View of the upstream end of EPH-009. Looking W. 7/20/2017. Lat/Long: 45.527496, -119.103943.

Photo 243. Feature EPH-009. View east from the east end of stream EPH-009. Channel ended before dirt access road. Upland swale continues to the NE. Looking NE. 7/20/2017. Lat/Long: 45.527515, -119.103874.

Photo 244. Feature XBB-011. Mapped NHD line. Upland swale. No indicators of hydrology. Upland vegetation community. Looking NW. 7/20/2017. Lat/Long: 45.527348, -119.098404.

Photo 245. Feature EPH-029. Mapped NHD line at toe of hillslope and edge of wheat field. Looking N. 4/24/2018. Lat/Long: 45.523083, -119.116524.

Photo 246. Feature EPH-029. Mapped NHD line. Uniformly configured along toe of hillslope and edge of wheat field. Looking S. 4/24/2018. Lat/Long: 45.525112, -119.116142.

Photo 247. Feature XBB-012. Mapped NHD line. Upland swale. No indicators of hydrology. Upland vegetation community. Looking NW. 7/20/2017. Lat/Long: 45.525948, -119.09623.

Photo 248. Feature XBB-013. Mapped NHD line. Upland swale. No indicators of hydrology. Upland vegetation community. Looking SE. 7/20/2017. Lat/Long: 45.5243, -119.09227.

Photo 249. Feature XBB-033. Mapped NHD line. Upland swale runs along toe of slope of CRP land at edge of a wheat field. No stream is present. Looking W. 9/21/2017. Lat/Long: 45.52058, -119.082527.

Photo 250. Feature XBB-053. Mapped NHD line in wheat field. No stream present. Looking W. 4/24/2018. Lat/Long: 45.516201, -119.10128.

Photo 251. Feature XBB-155. Upland swale used by cattle as a trail. No defined bed or bank. Looking S. 7/8/2019. Lat/Long: 45.702438, -119.248566.

Photo 252. Feature EPH-058. Mapped NHD line. Ephemeral channel bordered by upland vegetation community. Crosses the road and continues on the other side. Looking SW. 7/9/2019. Lat/Long: 45.683437, -119.120384.

Photo 253. Feature EPH-058. Mapped NHD line. Ephemeral channel bordered by upland vegetation community. Looking NE. 7/9/2019. Lat/Long: 45.683517, -119.120132.

Photo 254. Feature EPH-058. Mapped NHD line. Ephemeral channel bordered by upland vegetation community. Looking S. 7/9/2019. Lat/Long: 45.66991, -119.134201.

Photo 255. Feature EPH-061. Mapped NHD line. Looking NE. 7/9/2019. Lat/Long: 45.668381, -119.145241.

Photo 256. Feature EPH-002. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking NW. 7/9/2019. Lat/Long: 45.670414, -119.161987.

Photo 257. Feature EPH-059. Mapped NHD line. Upland grazing area. Barely discernable evidence of infrequent hydrology. Looking NW. 7/10/2019. Lat/Long: 45.666115, -119.127304.

Photo 258. Feature EPH-062. Mapped NHD line. Upland grazing area. Barely discernable evidence of infrequent hydrology. Looking SE. 7/10/2019. Lat/Long: 45.6698, -119.132309.

Photo 259. Feature EPH-063. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking SE. 7/10/2019. Lat/Long: 45.66346, -119.096413.

Photo 260. Feature EPH-065. Mapped NHD line. Overview of dry channel, bordered by steep upland slopes. Looking E. 7/10/2019. Lat/Long: 45.641346, -119.099419.

Photo 261. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical upland vegetation community. Looking SE. 7/10/2019. Lat/Long: 45.637829, -119.099312.

Photo 262. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical upland vegetation community. Looking NE. 7/10/2019. Lat/Long: 45.637772, -119.099266.

Photo 263. Feature EPH-066. Mapped NHD line. Overview of dry channel, bordered by steep upland slopes. Looking W. 7/10/2019. Lat/Long: 45.605194, -119.128227.

Photo 264. Feature WET-Q. Linear PEM wetland contained within a narrow drainageway. Looking SW. 7/10/2019. Lat/Long: 45.607738, -119.098358.

Photo 265. Feature EPH-069. Mapped NHD line. Overview of dry channel, bordered by steep upland slopes. Looking N. 7/10/2019. Lat/Long: 45.607018, -119.098427.

Photo 266. Feature EPH-068. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking NE. 7/10/2019. Lat/Long: 45.607983, -119.097893.

Photo 267. Feature EPH-064. Mapped NHD line. Upland grazing area. Barely discernable evidence of infrequent hydrology. Looking SW. 7/10/2019. Lat/Long: 45.662449, -119.096123.

Photo 268. Feature EPH-010. Mapped NHD line. Dry rocky channel, and typical upland vegetation community. Looking SE. 7/10/2019. Lat/Long: 45.63784, -119.099197.

Photo 269. Feature EPH-032. Mapped NHD line. Drainage swale runs along the west side of the road. Looking NE. 7/10/2019. Lat/Long: 45.632416, -119.09906.

Photo 270. Feature EPH-067. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking NE. 7/10/2019. Lat/Long: 45.610203, -119.135147.

Photo 271. Feature EPH-070. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking SW. 7/11/2019. Lat/Long: 45.677349, -119.108452.

Photo 272. Feature EPH-071. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking E. 7/11/2019. Lat/Long: 45.677475, -119.108856.

Photo 273. Feature EPH-072. Mapped NHD line. Typical upland vegetation community in and along the channel of the stream. Looking NE. 7/11/2019. Lat/Long: 45.673695, -119.101791.

Photo 274. Feature EPH-074. Upland swale. Barely descernable evidence of infrequent hydrology. Looking NE. 7/11/2019. Lat/Long: 45.636887, -119.031967.

Photo 275. Feature WET-R. Linear PEM_PSS wetland within and adjacent to an intermittent drainageway. Looking E. 7/11/2019. Lat/Long: 45.585606, -119.097549.

Photo 276. Feature WET-S. Linear PEM wetland within a narrow ravine. Looking NE. 7/11/2019. Lat/Long: 45.583817, -119.097511.

Photo 277. Feature EPH-071. Mapped NHD line. Barely discernable evidence of infrequent hydrology. Looking S. 7/11/2019. Lat/Long: 45.677551, -119.109756.

Photo 278. Feature EPH-073. Mapped NHD line. Upland grazing area. Barely discernable evidence of infrequent hydrology. Looking NE. 7/11/2019. Lat/Long: 45.636715, -119.03109.

Photo 279. Feature EPH-073. Upland swale, some evidence of infrequent hydrology. Many animal burrows within banks have caused erosion. Looking NE. 7/11/2019. Lat/Long: 45.637028, -119.031006.

Photo 280. Feature INT-001. Feature is an irrigation ditch. Looking S. 7/12/2019. Lat/Long: 45.777313, -119.367401.

Photo 281. Feature WET-M. Recent cattle path in wetland. Looking S. 7/12/2019. Lat/Long: 45.578709, -119.081978.

Photo 282. Feature WET-O. Linear PEM wetland contained within the intermittent drainageway west of County Road 1363. Stream INT-002 flows through the wetland. Looking W. 7/12/2019. Lat/Long: 45.579563, -119.083031.

Photo 283. Feature INT-002. Large peachleaf willow in streambed near road crossing. Looking S. 7/12/2019. Lat/Long: 45.581879, -119.086357.

Photo 284. Feature INT-002. Stream crosses road and continues northwest. Looking N. 7/12/2019. Lat/Long: 45.581848, -119.086334.

Photo 285. Feature INT-002. Stream with cattle path left in dried mud. Looking SE. 7/12/2019. Lat/Long: 45.580563, -119.083946.

Photo 286. Feature SP-07-UP. Base of a swale adjacent to crop field and the Umatilla River. Looking W. 7/12/2019. Lat/Long: 45.689091, -119.122986.

Photo 287. Feature UM Riv. Umatilla River and leveed banks. Looking NW. 7/12/2019. Lat/Long: 45.690208, -119.123116.

Photo 288. Feature WET-P. Linear PSS_PFO wetland within and adjacent to the intermittent drainageway west of County Road 1363. Stream INT-002 flows through the wetland. Looking W. 7/12/2019. Lat/Long: 45.580849, -119.084358.

Photo 289. Feature INT-003. Mapped NWI and NHD lines. Ephemeral drainage with mixed upland and riparian vegetation in and adjacent to the channel. See sample point SP-02-UP. Looking S. 7/13/2019. Lat/Long: 45.568707, -119.094414.

Photo 290. Feature EPH-001. Mapped NHD line. Ephemeral channel is located in an incised channel at the base of a steep hillside growing wheat. Looking N. 7/9/2019. Lat/Long: 45.670143, -119.165878.

Photo 291. Feature XBB-125. Mapped NHD, no stream present. Looking N. 7/8/2019. Lat/Long: 45.709461, -119.24781.

Photo 292. Feature XBB-126. Mapped NHD crosses gravel road. No stream or channel is present. Looking NW. 7/8/2019. Lat/Long: 45.699615, -119.247925.

Photo 293. Feature XBB-127. Mapped NHD, no stream present. Upland swale. Looking NE. 7/8/2019. Lat/Long: 45.6744, -119.227234.

Photo 294. Feature XBB-128. Mapped NHD, no stream, no channel. Looking NE. 7/8/2019. Lat/Long: 45.674713, -119.2211.

Photo 296. Feature XBB-130. Upland swale, no stream present. Looking NE. 7/8/2019. Lat/Long: 45.673218, -119.215385.

Photo 297. Feature XBB-131. NHD line crosses gravel ranch road. No stream present. Looking SW. 7/8/2019. Lat/Long: 45.668518, -119.202965.

Photo 298. Feature XBB-132. NHD line feature is a cow path in upland swale. No defined bed and bank. Powdery, silty slope is shown in photo. Looking NW. 7/8/2019. Lat/Long: 45.667787, -119.202093.

Photo 299. Feature XBB-133. NHD line, no discernable swale on the landscape. No stream present. Looking S. 7/8/2019. Lat/Long: 45.669064, -119.201782.

Photo 300. Feature XBB-134. NHD line, no discernable swale on the landscape. No stream present. Looking SE. 7/9/2019. Lat/Long: 45.668804, -119.196442.

Photo 302. Feature XBB-136. Mapped NHD line. Feature is an upland swale. No stream is present. Looking W. 7/9/2019. Lat/Long: 45.670155, -119.156044.

Photo 303. Feature XBB-137. Mapped NHD line. Feature is an upland swale. No stream is present. Looking S. 7/9/2019. Lat/Long: 45.670116, -119.165886.

Photo 304. Feature XBB-138. Mapped NHD line. Feature is an upland swale. No stream is present. Looking N. 7/9/2019. Lat/Long: 45.667618, -119.166405.

Photo 305. Feature XBB-139. Mapped NHD line. Feature is an upland swale. No stream is present. Looking S. 7/9/2019. Lat/Long: 45.666351, -119.166779.

Photo 306. Feature XBB-140. Mapped NHD line. Feature is an upland swale. No stream is present. Looking S. 7/9/2019. Lat/Long: 45.660488, -119.165611.

Photo 307. Feature XBB-141. Mapped NHD line. Feature is an upland swale. No stream is present. Looking SE. 7/9/2019. Lat/Long: 45.660591, -119.165833.

Photo 308. Feature XBB-142. Mapped NHD line. Feature is an upland swale. No stream is present. Looking NW. 7/9/2019. Lat/Long: 45.66069, -119.165573.

Photo 309. Feature XBB-143. Mapped NHD line. Feature is an upland swale. No stream is present. Looking NW. 7/9/2019. Lat/Long: 45.665455, -119.126923.

Photo 310. Feature XBB-144. Mapped NHD line. Feature is an upland swale. No stream is present. Looking NW. 7/10/2019. Lat/Long: 45.669819, -119.132416.

Photo 311. Feature XBB-145. Mapped NHD line. Feature is an upland swale. No stream is present. Looking N. 7/10/2019. Lat/Long: 45.654572, -119.09819.

Photo 312. Feature XBB-146. Mapped NHD line at the base of a basalt outcropping. No stream is present. Looking NE. 7/10/2019. Lat/Long: 45.655052, -119.098389.

Photo 313. Feature XBB-147. Mapped NHD line. Feature is an upland swale. No stream is present. Looking S. 7/10/2019. Lat/Long: 45.655396, -119.101479.

Photo 314. Feature XBB-148. Mapped NHD line. No stream is present. Looking SW. 7/10/2019. Lat/Long: 45.655293, -119.105278.

Photo 315. Feature XBB-149. Feature is an upland swale. No stream is present. Looking NE. 7/10/2019. Lat/Long: 45.633026, -119.098412.

Photo 316. Feature XBB-150. Mapped NHD line. Feature is an upland swale. No stream is present. Looking SW. 7/11/2019. Lat/Long: 45.636826, -119.032013.

Photo 317. Feature XBB-151. Feature is an upland swale. No stream is present. Animal path present. Looking E. 7/10/2019. Lat/Long: 45.6092, -119.098557.

Photo 318. Feature XBB-152. Mapped NHD line. All upland vegetation community and no channel. No stream present. Looking SW. 7/11/2019. Lat/Long: 45.58614, -119.097054.

Photo 319. Feature XBB-153. Mapped NHD line. All upland vegetation community and no channel. No stream present. Looking N. 7/11/2019. Lat/Long: 45.613701, -119.031052.

Photo 320. Feature XBB-154. Feature is at base of basalt outcropping. No stream present. Looking E. 7/10/2019. Lat/Long: 45.609493, -119.134148.