APPENDIX I: WETLANDS AND OTHER WATERS DELINEATION REPORT

Wetlands and Other Waters Delineation Report for the Horse Heaven Wind Farm Project

Submitted to
Benton County

Submitted by
Horse Heaven Wind Farm, LLC

Prepared by

TETRA TECH

December 2020

CONTENTS

LIST OF TABLES

ATTACHMENTS

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
LRR	Land Resource Region
NHD	National Hydrography Dataset
NI	No Indicator
NRCS	Natural Resources Conservation Service
NWI	National Wetlands Inventory
OBL	Obligate
Project	Horse Heaven Wind Farm Project
SDAM	Streamflow Duration Assessment Method for the Pacific Northwest
Tetra Tech	Tetra Tech, Inc.
the Manual	Wetlands Delineation Manual, Technical Report Y-87-1
UPL	Upland
USACE	U.S. Army Corps of Engineers
USDA	U.S. Department of Agriculture
WETS	Climate Analysis for Wetlands Tables

1 INTRODUCTION

An approximately 21,680-acre area was surveyed for wetlands and other waters as part of the reporting for the proposed Horse Heaven Wind Farm Project (Project) in Benton County. The Project is a commercial wind and solar project with a nominal nameplate energy generating capacity of up to 1,150 megawatts proposed by Scout Clean Energy and located in Benton County, Washington. Tetra Tech, Inc. employed two staff experienced in conducting wetland delineations in the Arid West region of the United States. The surveys were completed in pairs with senior staff supervising junior staff. The staff included:

- Jessica Taylor, Wetland Scientist, who has over 15 years of experience conducting wetland and other waters of the U.S. assessments in the Pacific Northwest; and
- Katie Pyne, Biologist, who has 2 years of experience conducting wetland and other waters of the U.S. assessments in the Pacific Northwest.

2 LANDSCAPE SETTING AND LAND USE

2.1 Project Study Area

The Project study area encompasses 21,680 acres of mostly dryland agricultural crops and private homes (Figure A-1). This area receives between 6 and 8 inches of precipitation annually and includes no irrigated crops. Agricultural crops are winter wheat followed by a chemical fallow rotation. Grazing does occur on the stubble left behind after wheat harvest and on the lands where cropping is not feasible.

2.2 Landscape Setting

The Project is located within the Level III Columbia Plateau Ecoregion, and within the further subdivided Level IV, Yakima Folds Ecoregion (Thorson et al. 2003). In addition, the Project is within U.S. Department of Agriculture (USDA) Land Resource Region (LRR) B, Northwestern Wheat and Range Region (NRCS 2006). LRR B, Northwestern Wheat and Range Region, overlaps within the Project study area with 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; U.S. Army Corps of Engineers [USACE] 2008) (AW Supplement).

Plant species names and associated wetland indicator status ratings are from the State of Washington 2016 Wetland Plant List (Lichvar et al. 2016). The following wetland indicator ratings are ordered according to the percent likelihood, from most likely to least likely, of the plant occurring in wetlands: Obligate (OBL), Facultative Wetland (FACW), Facultative (FAC), Facultative Upland (FACU), and Upland (UPL). Species with an indicator of NI (No Indicator) refers to plants that are not listed in the wetland plant list and are thereby considered to be upland plants.

Woody vegetation commonly observed in the Project study area included big sagebrush (*Artemisia tridentata,* UPL), yellow rabbitbrush (*Chrysothamnus viscidiflorus,* UPL), and rubber rabbitbrush (*Ericameria nauseosa,* UPL).

Herbaceous species documented in upland areas included intermediate wheatgrass (*Agropyron intermedium,* UPL), bluebunch wheatgrass (*Pseudoroegneria spicata,* UPL), medusahead grass (*Taeniatherum caput-medusae,* UPL), bulbous bluegrass (*Poa bulbosa,* UPL), Idaho fescue (*Festuca idahoensis,* FACU), common yarrow (*Achillea millefolium,* FACU), tall fescue (*Schedonorus*

arundinaceus, FAC), lupine (*Lupinus* sp., UPL), nineleaf biscuit-root (*Lomatium triternatum,* UPL), and yellow salsify (*Tragapogon dubius,* UPL).

The Washington State Department of Ecology requests information of priority habitats and species from the Washington Department of Fish and Wildlife. Surveys for specialized habitats and species are being assessed as part of separate reports in support of this Project and can be made available as requested.

2.3 National Wetlands Inventory and Natural Resources Conservation Service Soils

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

2.3.1 National Wetlands Inventory Data

Desktop review of NWI data identified no wetlands within the Project study area. Figure A-2 of Attachment A shows the National Hydrography Dataset (NHD) map layered over the Project study area.

2.3.2 NRCS Hydric Soils Data

Nineteen soil map units are mapped in the Project study area (Table 1, and Figure A-3 [NRCS 2020]). The dominant soil in the Project study area is Ritzville silt loam, with 0 to 5 percent slopes covering 85.6 percent of the Project study area. There are no soils in the Project study area that are considered hydric soils.

Table 1. Soils Mapped in the Project Study Area[1]

Map Symbol	Unit Name	Hydric Soil Y/N	Acres	Percent of Project Study Area
BmAB	Burke silt loam, 0 to 5 percent slopes	No	59.1	0.3%
EfB	Ellisforde silt loam, 0 to 5 percent slopes	No	105.5	0.5%
EfE3	Ellisforde silt loam, 15 to 30 percent slopes, severely eroded	No	18	0.1%
EsB	Esquatzel fine sandy loam, 0 to 5 percent slopes	No	10.7	0.0%
EuAB	Esquatzel silt loam, 0 to 5 percent slopes	No	4	0.0%
FeC	Finley fine sandy loam, 0 to 15 percent slopes	No	10	0.0%
KnE	Kiona very stony silt loam, 0 to 30 percent slopes	No	47.3	0.2%
KnF	Kiona very stony silt loam, 30 to 65 percent slopes	No	41.3	0.2%
ReB	Ritzville silt loam, 0 to 5 percent slopes	No	18,547.5	85.6%
ReE3	Ritzville silt loam, 15 to 30 percent slopes, severely eroded	No	1,347.5	6.2%
ReF	Ritzville silt loam, 30 to 65 percent slopes	No	621	2.9%
RfD2	Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded	No	502.4	2.3%
ShAB	Shano silt loam, 0 to 5 percent slopes	No	112.5	0.5%
ShE3	Shano silt loam, 15 to 30 percent slopes, severely eroded	No	66.5	0.3%
ShF	Shano silt loam, 30 to 65 percent slopes	No	31.6	0.1%
SnD2	Shano very fine sandy loam, 0 to 15 percent slopes, eroded	No	20.9	0.1%
WdF	Warden silt loam, 30 to 65 percent slopes	No	26.7	0.1%

Map Symbol	Unit Name	Hydric Soil Y/N	Acres	Percent of Project Study Area
WsB	Willis silt loam, 0 to 5 percent slopes	No	55.8	0.3%
WsE3	Willis silt loam, 15 to 30 percent slopes, severely eroded	No	50.9	0.2%

[1] NRCS 2020a

3 SITE ALTERATIONS

Site alterations are those activities that directly or indirectly impact wetlands and other waters such that the function or area of the feature changes significantly. A significant alteration would be one that renders the feature non-functioning, or one that changes the boundaries. Land use in the Project study area is generally dominated by agricultural activities including wheat farming and open range grazing. Tillage practices are changing across the region, and the conversion to reduced till and no-till methods of farming has decreased the amount of overland flow and increased the infiltration rates on site. The alterations associated with these practices may have affected the geographic size and/or the hydroperiod of wetlands and other waters. Some waters that were delineated in the study area are likely to have had historically higher flows due to runoff from the farmed fields that would not be present with the new farming practices.

4 PRECIPITATION DATA AND ANALYSIS

Average historical monthly precipitation data and daily precipitation data for the periods preceding and during field work were obtained from the National Oceanic and Atmospheric Administration's National Weather Service (NOAA 2020; Table 2). The closest geographical location with an NRCS WETS table is for Kennewick, Washington (NRCS 2020b).

The annual precipitation to date is 90 percent of normal. Based on the precipitation data for the 3-months prior to the site visits, it was estimated that groundwater was about average for what is usually encountered at this time of year (Table 2).

The little lower than normal precipitation levels did not affect the delineation of waters as determinations of intermittent versus ephemeral stream were made using indicators described in the Streamflow Duration Assessment Method for the Pacific Northwest (SDAM) (Nadeau 2015). The SDAM relies on multiple indicators independent of the presence/absence of hydrology, in particular, vegetation and the slope of the channel.

4.1 February 2020 Site Visits

Field surveys for wetlands and other waters were conducted from February 19 to 23. There was no measurable precipitation in the 10 days preceding field work, and on the final day of field data collection the month to date precipitation for February was 42 percent of normal. Monthly precipitation totals for November and December were well below average while January was just under average.

4.2 August 2020 Site Visits

Field surveys for wetlands and other waters were conducted on August 26 and 27. There was 0.01 inch of measurable precipitation within the 10 days preceding field work, and the total amount precipitation for

August was 65 percent of normal. Precipitation was lower than normal in July and August; however, May and June were well above normal precipitation rates.

4.3 October 2020 Site Visits

Field surveys for wetlands and other waters were conducted on October 19 and 20. There was 0.19 inches of measurable precipitation within the 10 days preceding field work, and the total amount precipitation for October was only 43 percent of normal. Precipitation was lower than normal in August and September as well.

4.4 November 2020 Site Visit

Field surveys for wetlands and other waters were conducted on November 30. There was 0.06 inches of measurable precipitation within the 10 days preceding field work, and the total amount of precipitation for November was 143 percent of normal. Precipitation was lower than normal in September and October.

Table 2. Precipitation Data – Water Year: Current and Historical (Inches)

Precipitation Data Source	Oct 2019	Nov 2019	Dec 2019	Jan 2020	Feb 2020	Mar 2020	Apr 2020	May 2020	Jun 2020	Jul 2020	Aug 2020	Sept 2020	Oct 2020	Nov 2020	Annual Total to Date (November 2020)
Recorded Monthly Precipitation Totals (inches) (Pasco, WA)	0.48	0.18	0.47	1.00	0.32	0.49	0.19	1.08	0.55	0.04	0.17	0.05	0.27	1.32	7.13
WETS Accumulated Monthly Averages (inches) (Kennewick, WA)	0.60	0.92	1.15	1.07	0.76	0.71	0.53	0.74	0.50	0.18	0.26	0.33	0.60	0.92	7.89
Recorded Precipitation Relative to Average Monthly Precipitation (Kennewick, WA)	80%	20%	41%	93%	42%	69%	36%	146%	110%	22%	65%	15%	43%	143%	90%

5 METHODS

5.1 Pre-field Work

In preparation for the field work, Tetra Tech reviewed NWI, NHD (USGS 2020), 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 these maps onto a Samsung Android data collection tablet to assist field staff in identifying the locations of probable wetlands and non-wetland waters within or adjacent to the Project study area.

Wetlands and surface water data were obtained from NWI (NWI 2020). Soils data were obtained from the NRCS Web Soil Survey (NRCS 2020a). Tetra Tech used high-resolution Google Earth Pro historical imagery to identify potential wetland areas (Google Earth 2020). Tetra Tech also reviewed the Washington Natural Heritage Program for high-quality wetlands in or near the Project study area (Heritage Program 2018). No high-quality wetlands were present in the Project study area.

The following guidance documents and procedures were reviewed:

- *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West* (Version 2.0) (USACE 2008);
- *Wetlands Delineation Manual,* Technical Report Y-87-1 (the Manual) (USACE 1987);
- Streamflow Duration Assessment Method for the Pacific Northwest (Nadeau 2015); and
- Classification of Wetlands and Deepwater Habitats of the United States (Cowardin et al. 1979).

5.2 Field Work

Field investigations for the delineation of wetlands and other waters included pedestrian surveys within the Project study area. Tetra Tech conducted the field delineation on February 19 through February 23, 2020 with follow-ups on August 26 and 27, October 19 and 20, and November 30. 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.

5.2.1 Wetland Delineations

Wetland presence was determined as per methods in the Manual and the AW Supplement. Two sample sites were investigated at representative low elevations within the Project study area (see Attachment B for USACE data sheets for each site). Wetland indicator status for plants was determined using the State of Washington 2016 Wetland Plant List (Lichvar et al. 2016). No wetland indicators were found at any of the low elevation sites on the landscape nor were they found within the ephemeral streambeds.

5.2.2 Non-wetland Waters Evaluations

Non-wetland waters evaluated using the following criteria.

- Flow duration for non-wetland waters was determined using SDAM (Nadeau 2015). 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.
- Photographs were taken to document streams, ditches, and upland conditions at locations that NHD mapped as streams (Attachment C, Photolog).

- As water flows downstream, sites with upland conditions and lack of bed and banks, were used to determine that the same conditions exist for sites uphill within the same drainage.
- Ephemeral drainages EPH900, EPH901, EPH902, and EPH904 were digitized using orthoimagery due to lack of access to those parcels. The ephemeral designation was given based on downstream conditions at each site.

6 DESCRIPTION OF WETLANDS AND OTHER WATERS

All wetlands, non-wetland waters, and roadside drainage ditches evaluated in the Project study area are depicted in the Figure A-4 mapbook.

6.1 Wetlands

There are no wetlands within the Project study area.

6.2 Non-Wetland Waters

Thirty-one ephemeral streams and two intermittent streams were delineated within the Project study area. Table 3 below contains the acres of streams delineated within the larger Project area and is not limited to the stream segments that are present within the micrositing corridor. Stream acreage was determined by multiplying the average stream width by the length of the segment within the Project study area.

Table 3. Non-wetland Waters

Feature Name	Feature Type	Acres
EPH100	Ephemeral Stream	0.07
EPH101	Ephemeral Stream	0.00
EPH102	Ephemeral Stream	0.06
EPH104	Ephemeral Stream	0.15
EPH105	Ephemeral Stream	0.03
EPH200	Ephemeral Stream	0.02
EPH202	Ephemeral Stream	0.02
EPH203	Ephemeral Stream	0.03
EPH205	Ephemeral Stream	0.04
EPH206	Ephemeral Stream	0.02
EPH300	Ephemeral Stream	0.05
EPH301	Ephemeral Stream	0.02
EPH302	Ephemeral Stream	0.03
EPH303	Ephemeral Stream	0.04
EPH305	Ephemeral Stream	0.02
EPH306	Ephemeral Stream	0.09
EPH307	Ephemeral Stream	0.11
EPH308	Ephemeral Stream	0.03
EPH400	Ephemeral Stream	0.08
EPH401	Ephemeral Stream	0.46
EPH411	Ephemeral Stream	0.11
EPH413	Ephemeral Stream	0.07
EPH500	Ephemeral Stream	0.03
EPH501	Ephemeral Stream	0.04
EPH600	Ephemeral Stream	0.04
EPH602	Ephemeral Stream	0.07
EPH700	Ephemeral Stream	0.43
EPH800	Ephemeral Stream	0.15
EPH900	Ephemeral Stream	0.17
EPH901	Ephemeral Stream	0.01
EPH902	Ephemeral Stream	0.01
EPH904	Ephemeral Stream	0.01
INT01	Intermittent Stream	0.02
INT02	Intermittent Stream	0.02
Grand Total		**2.58**

7 DEVIATION FROM NWI

The NWI showed no wetlands in the Project study area. Field surveys confirmed this finding.

8 MAPPING METHODS

Photograph and sample plot locations were recorded using a Samsung tablet equipped with ArcGIS Field Collector software and the Juniper Geode series GPS unit. This unit streams raw satellite data 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. Photopoints are shown in Figures A-2, A-3, and A-4, and photos are provided in Attachment C.

9 RESULTS AND CONCLUSIONS

Using methods recommended in the USACE Manual and Arid West Supplement, no wetlands were found in the Project study area. Two intermittent streams and 31 ephemeral streams were documented within the Project study area.

10 REFERENCES

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ATTACHMENT A
FIGURES

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-1
Project Study Area

BENTON COUNTY, WA

Project Study Area

TETRA TECH

Reference Map

1:130,000 WGS 1984 UTM Zone 11N

0 0.5 1 2 3 4 Miles

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 1 of 11

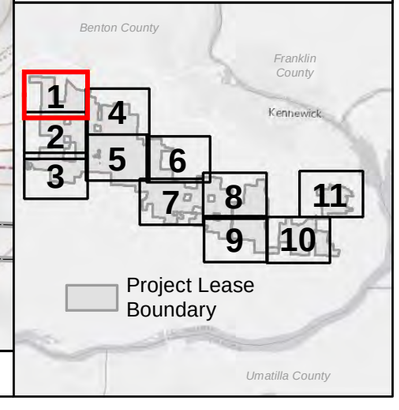
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 2 of 11

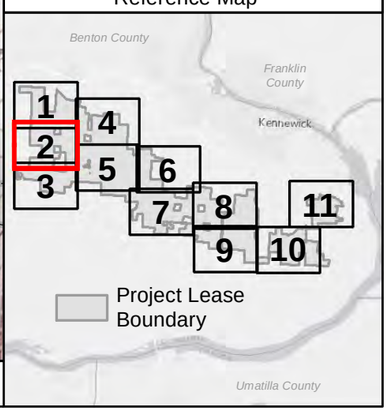
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 3 of 11

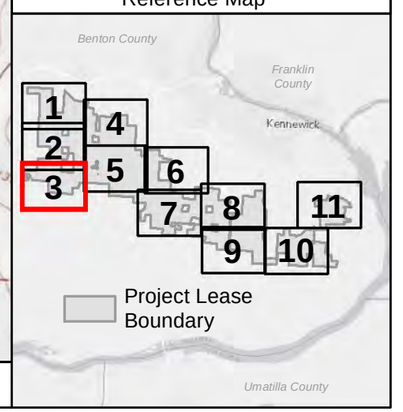
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 4 of 11

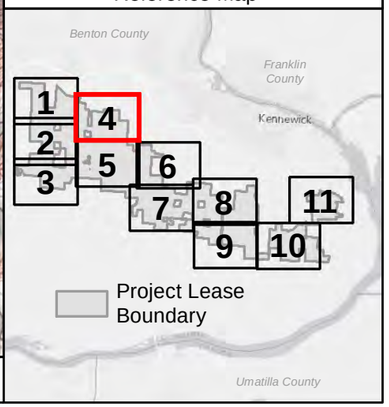
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 5 of 11

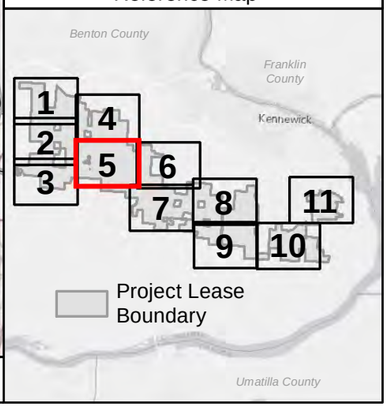
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 6 of 11

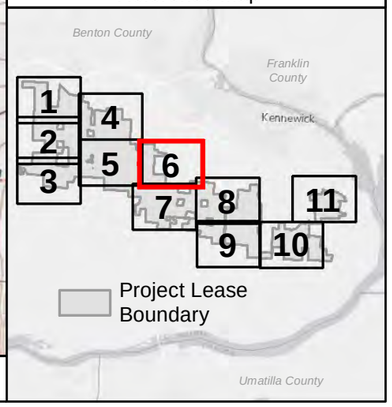
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 7 of 11

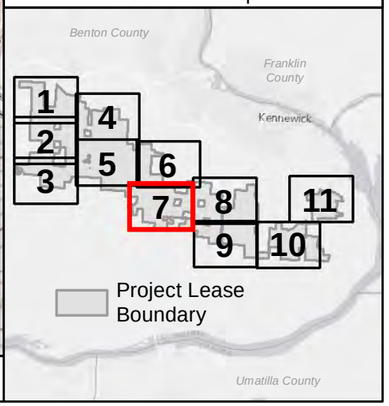
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 8 of 11

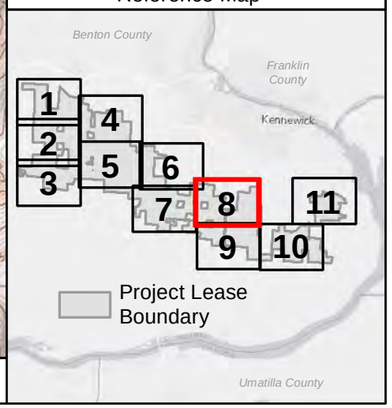
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 9 of 11

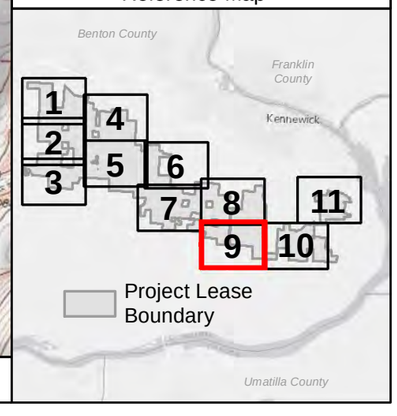
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map10 of 11

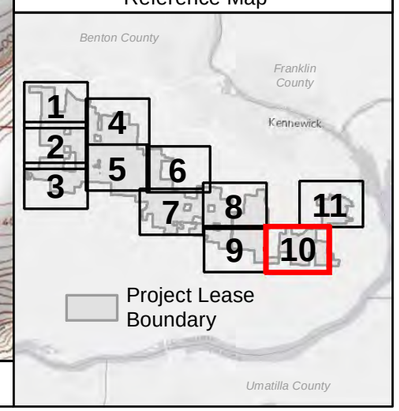
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-2
Project Study Area NHD
Map 11 of 11

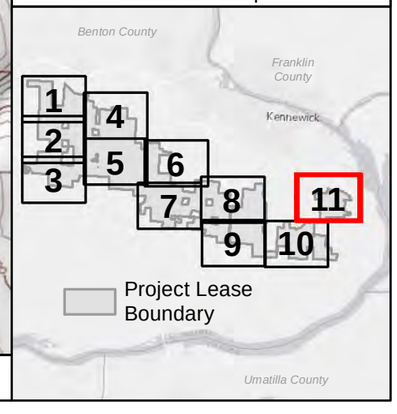
BENTON COUNTY, WA

Project Study Area Boundary

NHD Intermittent Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 1 of 11

BENTON COUNTY, WA

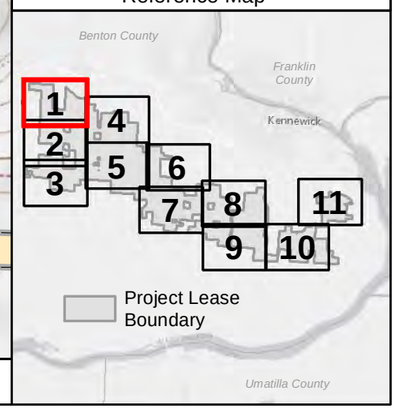
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- FeC: Finley fine sandy loam, 0 to 15 percent slopes
- KnE: Kiona very stony silt loam, 0 to 30 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded
- WsB: Willis silt loam, 0 to 5 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 2 of 11

BENTON COUNTY, WA

Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- FeC: Finley fine sandy loam, 0 to 15 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded

TETRA TECH

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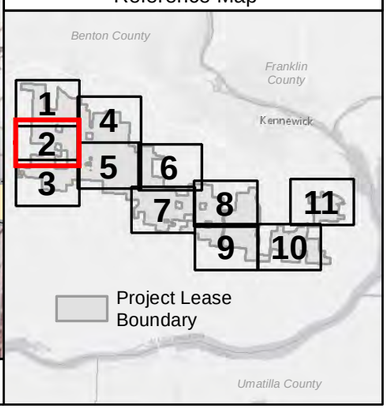

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 3 of 11

BENTON COUNTY, WA

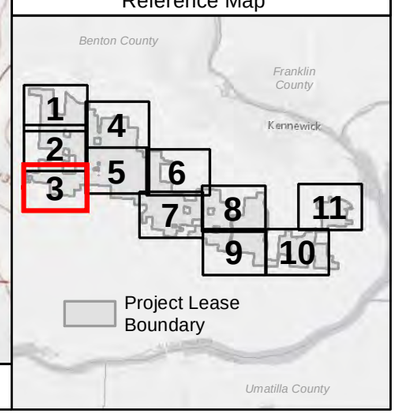
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- FeC: Finley fine sandy loam, 0 to 15 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ShAB: Shano silt loam, 0 to 5 percent slopes
- ShE3: Shano silt loam, 15 to 30 percent slopes, severely eroded
- WsB: Willis silt loam, 0 to 5 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 4 of 11

BENTON COUNTY, WA

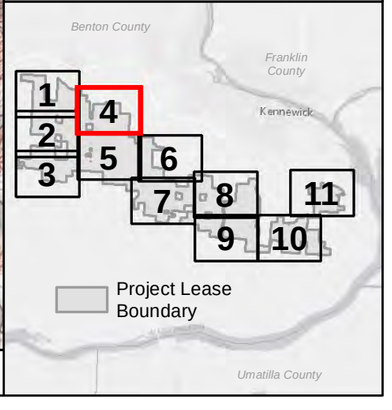
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- EfB: Ellisforde silt loam, 0 to 5 percent slopes
- EfE3: Ellisforde silt loam, 15 to 30 percent slopes, severely eroded
- KnE: Kiona very stony silt loam, 0 to 30 percent slopes
- KnF: Kiona very stony silt loam, 30 to 65 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded
- WsB: Willis silt loam, 0 to 5 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 5 of 11

BENTON COUNTY, WA

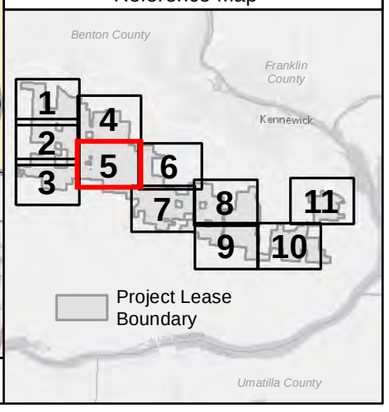
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- EfB: Ellisforde silt loam, 0 to 5 percent slopes
- FeC: Finley fine sandy loam, 0 to 15 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded
- WsB: Willis silt loam, 0 to 5 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 6 of 11

BENTON COUNTY, WA

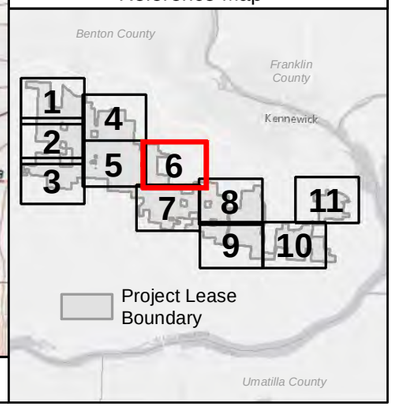
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- KnF: Kiona very stony silt loam, 30 to 65 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 7 of 11

BENTON COUNTY, WA

Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded

TETRA TECH

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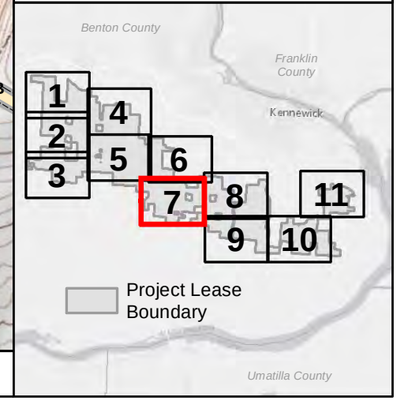

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 8 of 11

BENTON COUNTY, WA

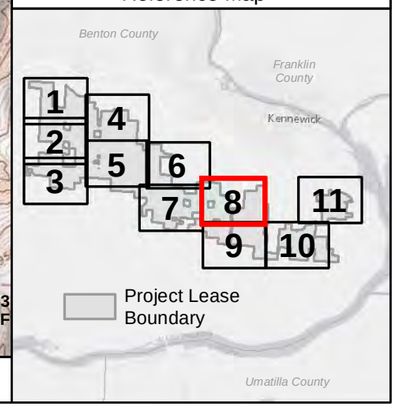
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 9 of 11

BENTON COUNTY, WA

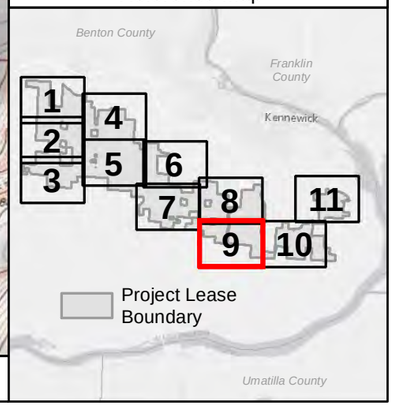
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- RfD2: Ritzville very fine sandy loam, 0 to 15 percent slopes, eroded
- ShAB: Shano silt loam, 0 to 5 percent slopes
- ShE3: Shano silt loam, 15 to 30 percent slopes, severely eroded
- ShF: Shano silt loam, 30 to 65 percent slopes
- SnD2: Shano very fine sandy loam, 0 to 15 percent slopes, eroded

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 10 of 11

BENTON COUNTY, WA

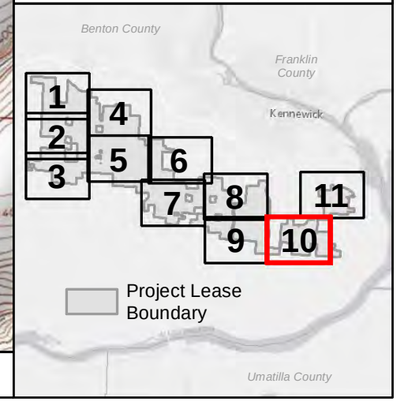
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- EuAB: Esquatzel silt loam, 0 to 5 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- ShAB: Shano silt loam, 0 to 5 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-3
Project Study Area Soils
Map 11 of 11

BENTON COUNTY, WA

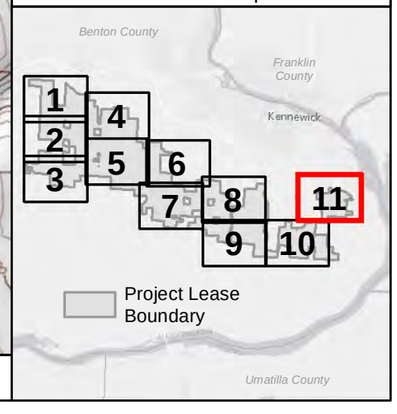
Project Study Area Boundary

Mapunit Symbol: Mapunit Name

- BmAB: Burke silt loam, 0 to 5 percent slopes
- EfB: Ellisforde silt loam, 0 to 5 percent slopes
- KnE: Kiona very stony silt loam, 0 to 30 percent slopes
- KnF: Kiona very stony silt loam, 30 to 65 percent slopes
- ReB: Ritzville silt loam, 0 to 5 percent slopes
- ReE3: Ritzville silt loam, 15 to 30 percent slopes, severely eroded
- ReF: Ritzville silt loam, 30 to 65 percent slopes
- ShAB: Shano silt loam, 0 to 5 percent slopes
- ShE3: Shano silt loam, 15 to 30 percent slopes, severely eroded
- ShF: Shano silt loam, 30 to 65 percent slopes
- WdF: Warden silt loam, 30 to 65 percent slopes

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 1 of 23

BENTON COUNTY, WA

609
718
714
715
716
717
WELLER
ROAD
MC BEE
1525
1500
1475
1480
1458
1467
1471
1451
1433
1431
1450
1400
1350
33
34
35
4
3
2

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map

1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 2 of 23

BENTON COUNTY, WA

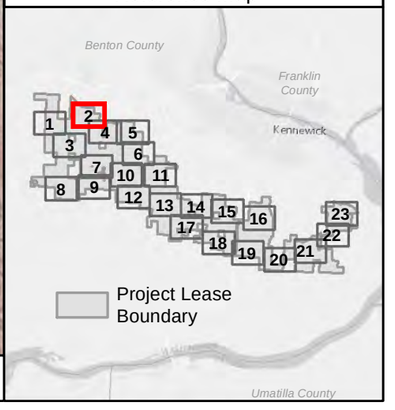
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

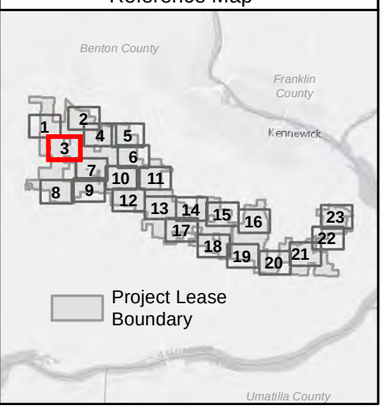
Figure A-4
Field Delineated WOUS/WOS
Map 3 of 23

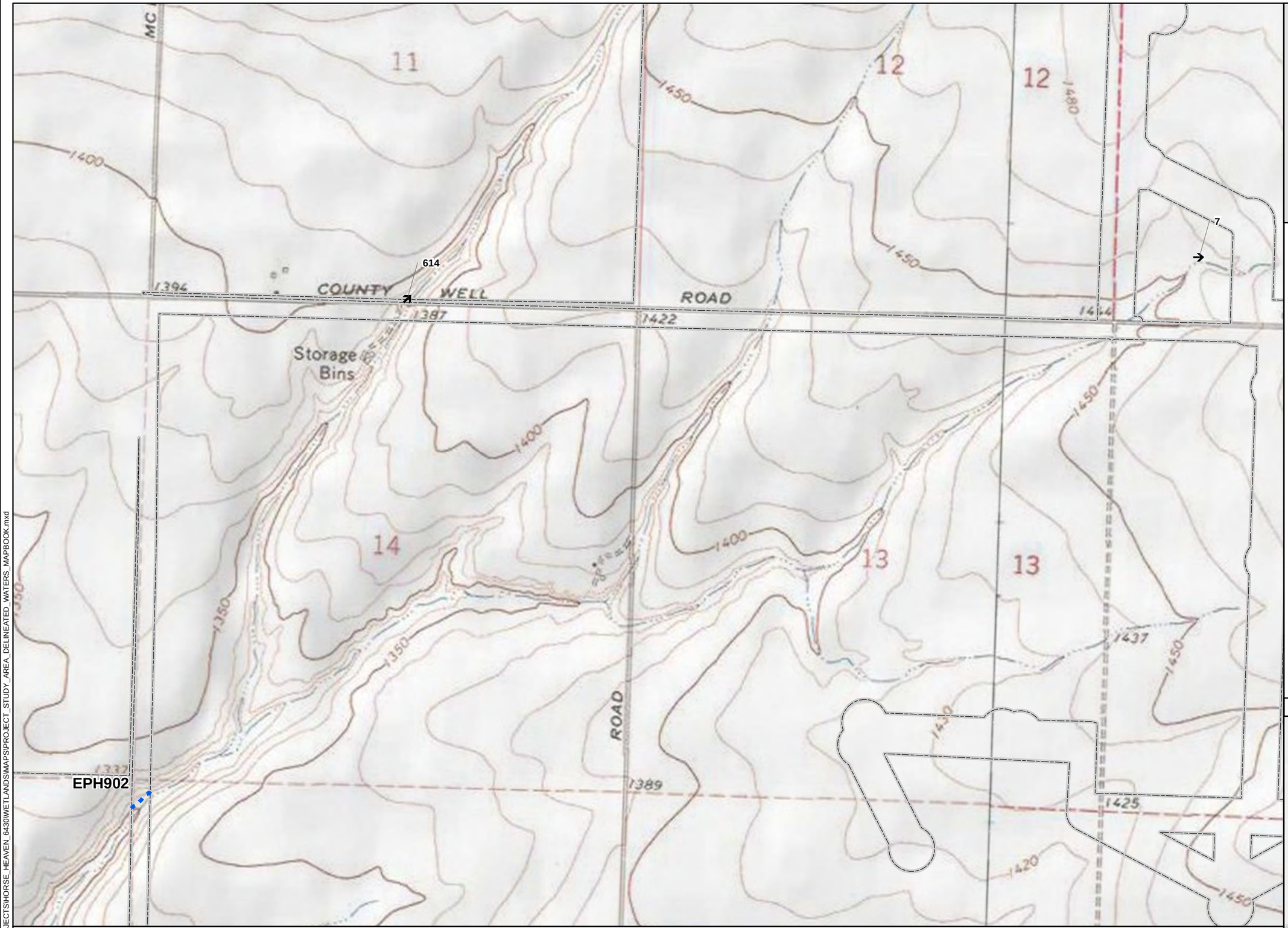
BENTON COUNTY, WA

- Project Study Area Boundary
- Photo Point Location w/Direction
- Ephemeral Stream

TETRA TECH

Reference Map





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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 4 of 23

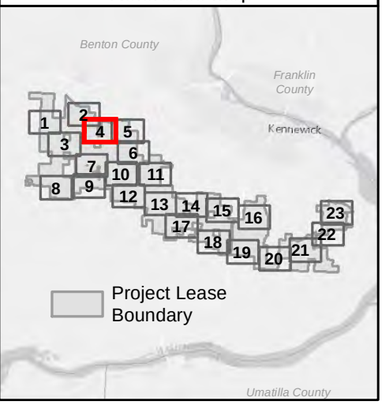
BENTON COUNTY, WA

- Project Study Area Boundary
- Photo Point Location w/Direction
- Ephemeral Stream
- Intermittent Stream

EPH100
EPH101
EPH102
EPH500
INT01
Canyon
Webber
Grain Elevator
WELL ROAD
DENNIS ROAD
BM 952
BM 1222
BM 1319
BM 1509

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 5 of 23

BENTON COUNTY, WA

EPH105
EPH104
EPH-104
EPH205
EPH202
EPH203
16
19
15
14
18
311
312
313
20
21
22
23

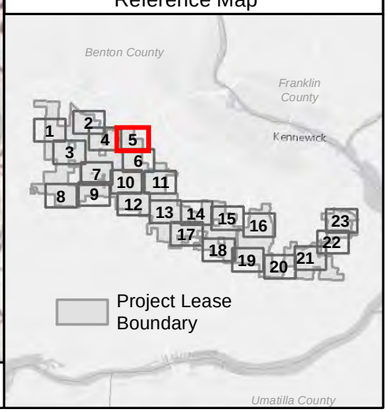
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 6 of 23

BENTON COUNTY, WA

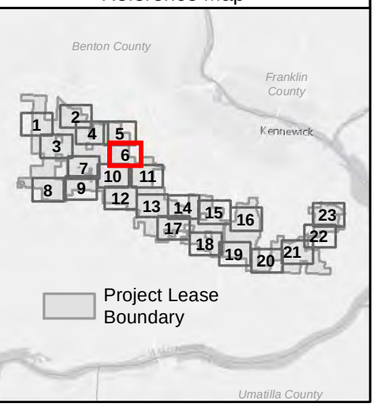
Project Study Area Boundary

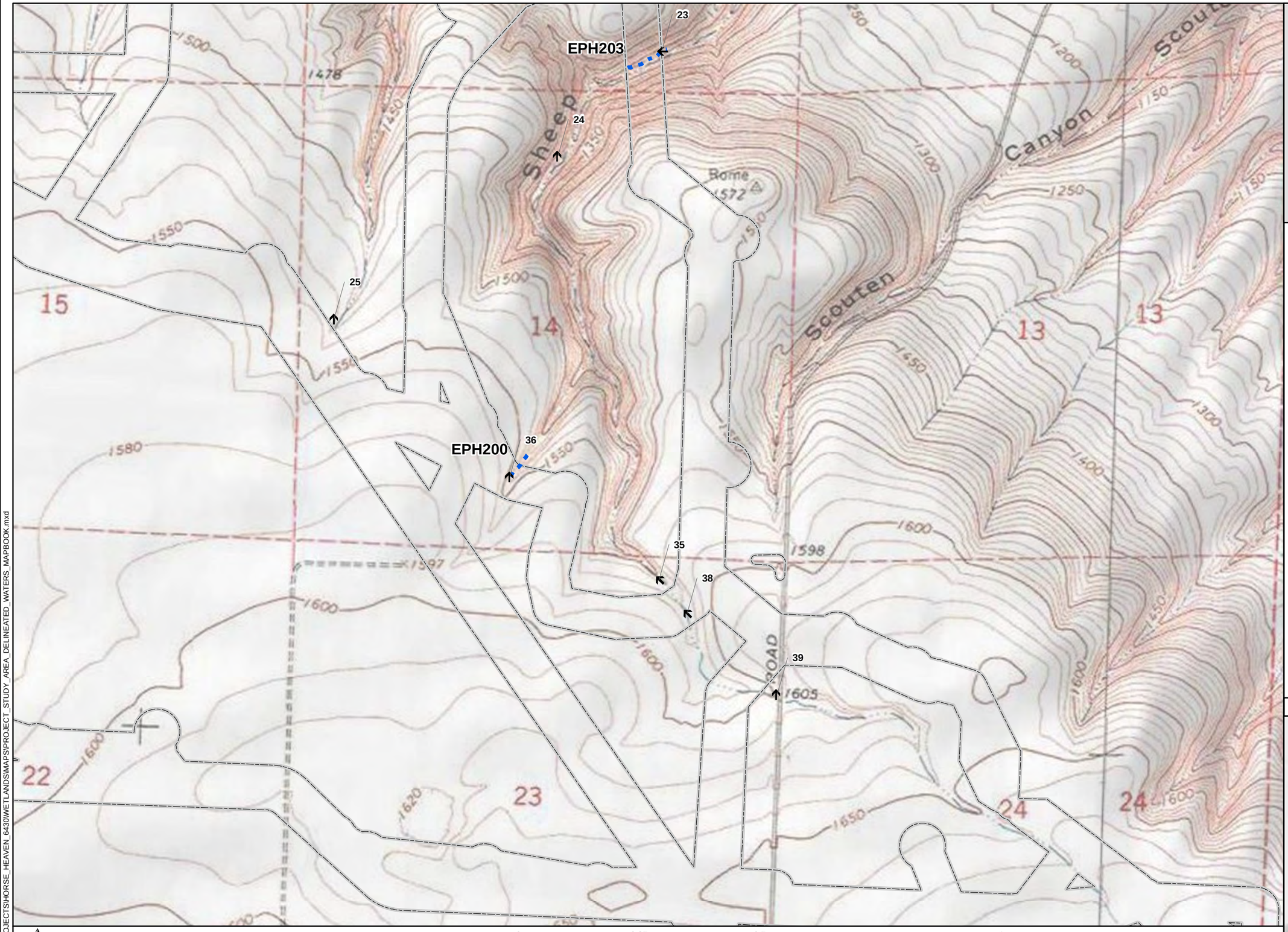
Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map





1:12,000 WGS 1984 UTM Zone 11N

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 7 of 23

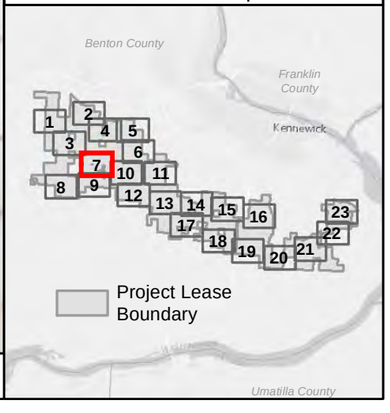
BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map



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0 0.25 0.5 1 Miles

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

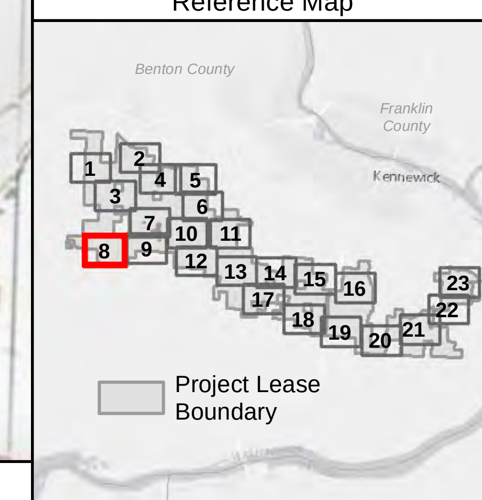
Figure A-4
Field Delineated WOUS/WOS
Map 8 of 23

BENTON COUNTY, WA

Project Study Area Boundary
Photo Point Location w/Direction
Ephemeral Stream

TETRA TECH

Reference Map



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0 0.25 0.5 1 Miles

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 9 of 23

BENTON COUNTY, WA

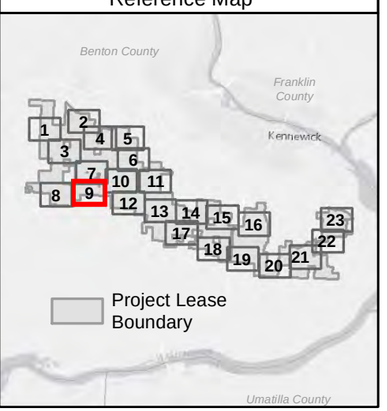
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



724
725
722
723
614
eph700
EPH900
Grain Elevator
BM 1496
Carter
Fire Station
SELLARDS ROAD
BM 1357
BM 1408
BM 1442
31
32
5
6
R 26 E
R 27 E
1:12,000 WGS 1984 UTM Zone 11N
0 0.25 0.5 1 Miles
NOT FOR CONSTRUCTION

R:\PROJECTS\HORSE_HEAVEN_6430\WETLANDS\MAPS\PROJECT_STUDY_AREA_DELINEATED_WATERS_MAPBOOK.mxd

Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 10 of 23

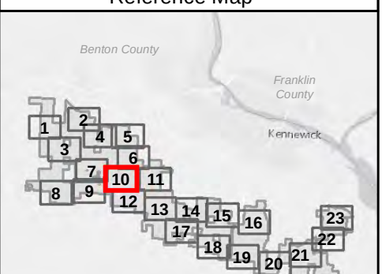
BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 11 of 23

BENTON COUNTY, WA

EPH904

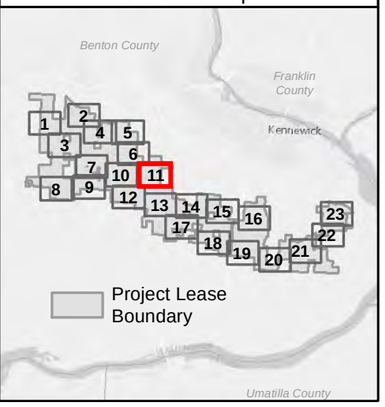
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

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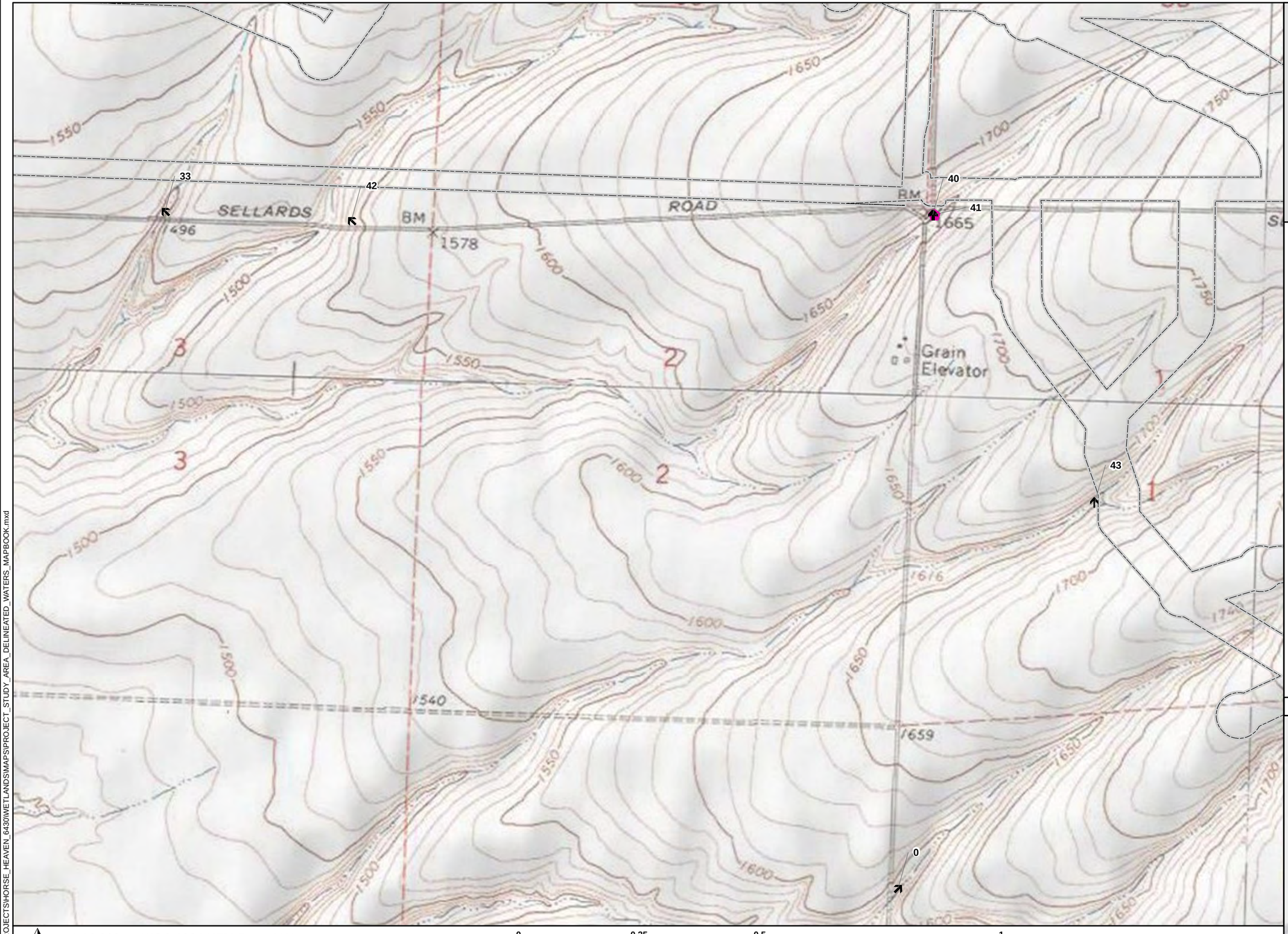
Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 12 of 23

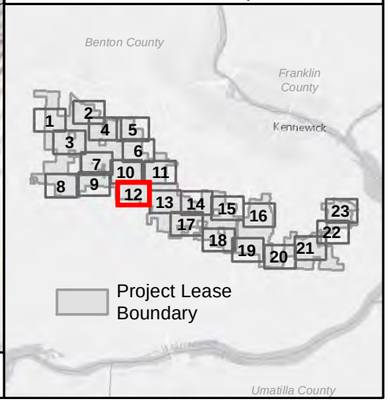
BENTON COUNTY, WA



- Project Study Area Boundary
- Photo Point Location w/Direction
- Sample Site

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 13 of 23

BENTON COUNTY, WA

EPH206

44
45
46
209
808
47

CLODFELTER ROAD
SMITH ROAD
EDEN VALLEY ROAD
RICHMOND CANYON ROAD
REESE ROAD
BM 1840
BM 1777
BM 1676

Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map

1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 14 of 23

BENTON COUNTY, WA

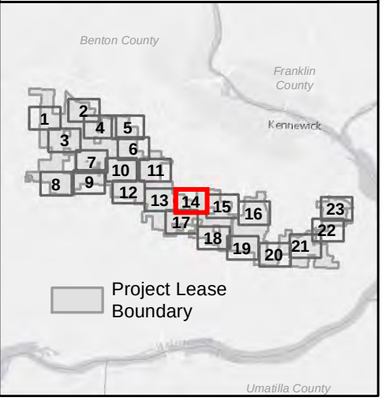
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



EPH305

50

51

XBB-301 Swale between crop fields

XBB-302

XBB-303

Well 1569

Williams Wells

Well

Storage Bin

Storage Bins

Canyon

WILLIAMS

ROAD

1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 15 of 23

BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

XBB-304

XBB-305

XBB-306

53

54

55

PIPELINE

JEEP TRAIL

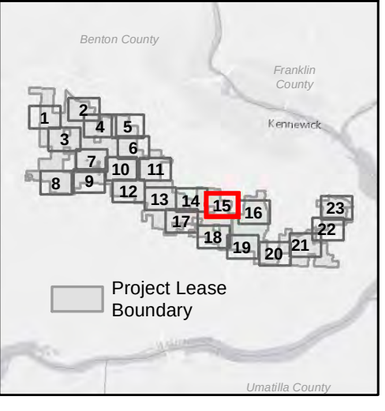
1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

TETRA TECH

Reference Map



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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 16 of 23

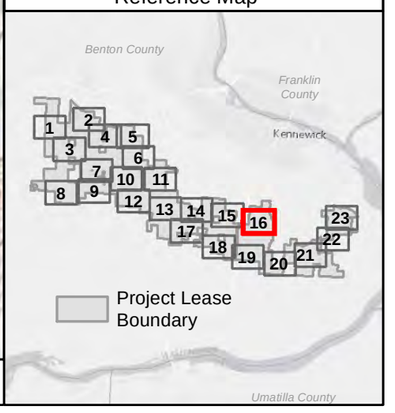
BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 17 of 23

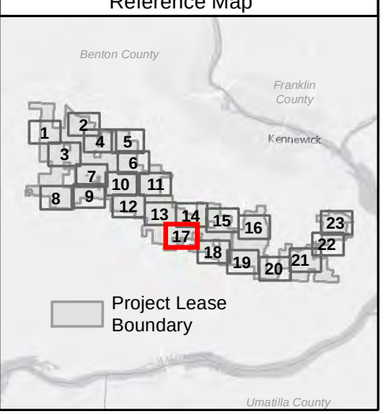
BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map



48

49

52

BENTLY

16

15

21

22

1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 18 of 23

BENTON COUNTY, WA

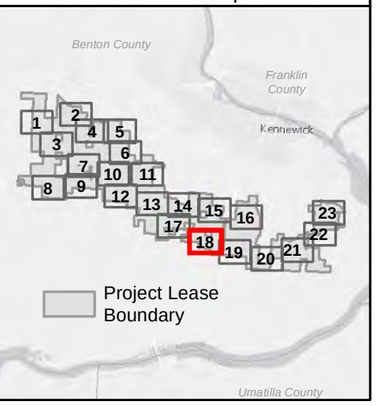
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 19 of 23

BENTON COUNTY, WA

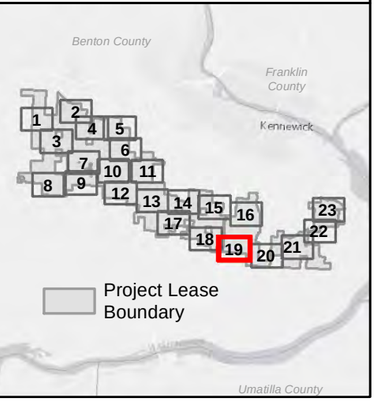
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 20 of 23

BENTON COUNTY, WA

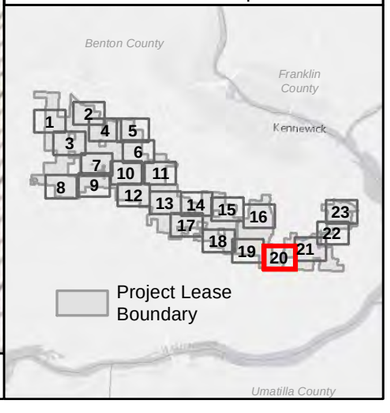
Project Study Area Boundary

Photo Point Location w/Direction

Ephemeral Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 21 of 23

BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

TETRA TECH

Reference Map

1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 22 of 23

BENTON COUNTY, WA

EPH302

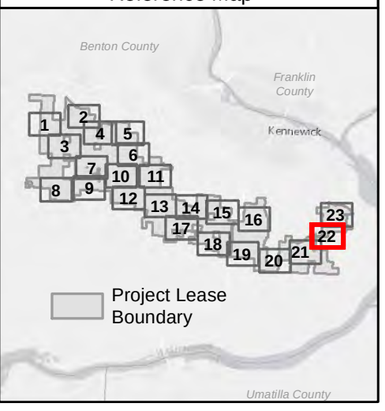
802

111

- Project Study Area Boundary
- Photo Point Location w/Direction
- Ephemeral Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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Horse Heaven Wind Farm

SCOUT CLEAN ENERGY

Figure A-4
Field Delineated WOUS/WOS
Map 23 of 23

BENTON COUNTY, WA

Project Study Area Boundary

Photo Point Location w/Direction

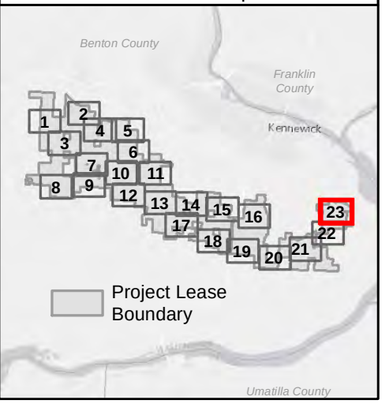
Sample Site

Ephemeral Stream

Intermittent Stream

TETRA TECH

Reference Map



1:12,000 WGS 1984 UTM Zone 11N

0 0.25 0.5 1 Miles

NOT FOR CONSTRUCTION

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ATTACHMENT B
USACE DATA SHEETS

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: Horse Heaven Hills | City/County: Benton County | Sampling Date: 2/19/2020
Applicant/Owner: Horse Heaven Hills, LLC | State: OR | Sampling Point: 01
Investigator(s): Jessica Taylor/Katie Pyne | Section, Township, Range: Section 01, T07N, R27E
Landform (hillside, terrace, etc.): swale | Local relief (concave, convex, none): concave | Slope (%): 20
Subregion (LRR): LRR B | Lat: 46.130370 | Long: -116.390489 | Datum: NAD83
Soil Map Unit Name: Ritzville Silt Loam | 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 x, 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 X	**Is the Sampled Area within a Wetland?** **Yes** ____ **No** X
Hydric Soil Present?	Yes ____	No X	
Wetland Hydrology Present?	Yes X	No ____	

Remarks:
Site is in a low spot adjacent to an intersection. Two culverts are present and the soil surface was cracked. The only vegetation was sparse winter wheat that was part of a larger crop.

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: 30 feet)			
1. *Triticum aestivum*	20	Yes	UPL
2.			
3.			
4.			
5.			
6.			
7.			
8.			
	20 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =Total Cover		

% Bare Ground in Herb Stratum 80 | % 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	20	x 5 =	100
Column Totals:	20 (A)		100 (B)

Prevalence Index = B/A = 5.00

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: 01

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

Depth	Matrix		Redox Features					
(inches)	Color (moist)	%	Color (moist)	%	Type[1]	Loc[2]	Texture	Remarks
0-15	10YR 3/4	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)**
- x 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)
- ___ 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: Horse Heaven Hills | City/County: Benton County | Sampling Date: 2/22/2020
Applicant/Owner: Horse Heaven Hills, LLC | State: OR | Sampling Point: 02
Investigator(s): Jessica Taylor/Katie Pyne | Section, Township, Range: Section 11, T07N, R30E
Landform (hillside, terrace, etc.): valley | Local relief (concave, convex, none): concave | Slope (%): 30-65
Subregion (LRR): LRR B | Lat: 46.114251 | Long: -119.052036 | Datum: NAD83
Soil Map Unit Name: Warden Silt Loam, 30-65 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:
Bottom of steep canyon in a thin channel with very obvious bed and banks but lined with sagebrush at the bank's edge. Lomatium was blooming but other potential herbaceous species were not up yet. There had been recent flooding in the area and it was a warmer than usual winter.

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: 30 feet)			
1. *Artemisia tridentata*	75	Yes	UPL
2.			
3.			
4.			
5.			
	75 =Total Cover		
Herb Stratum (Plot size: 15 feet)			
1. *Lomatium triternatum*	5	No	UPL
2. *Moss*	90	Yes	
3.			
4.			
5.			
6.			
7.			
8.			
	95 =Total Cover		
Woody Vine Stratum (Plot size: ____)			
1.			
2.			
	____ =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	0	x 4 =	0
UPL species	80	x 5 =	400
Column Totals:	80 (A)		400 (B)

Prevalence Index = B/A = 5.00

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:
Potential for more vegetation later in the season.

SOIL

Sampling Point: 02

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

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

Depth (inches): 4

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)**
- x 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:

ATTACHMENT C
PHOTOLOG

Photopoint 1. Overview of Slope

Photopoint 2. No beds, no banks, no stream present on NHD line.

Photopoint 3. Ephemeral drainage, upland vegetation with no sign of water. EPH100.

Photopoint 4. Ephemeral drainage, upland vegetation with no sign of water. EPH100.

Photopoint 5. Erosional feature. EPH101.

Photopoint 6. Erosional feature. EPH102.

Photopoint 7. No beds, no banks, no stream present on NHD line.

Photopoint 8. Streambed with watermarks on rocks, and water in pools due to recent rainfall. INT01.

Photopoint 9. Streambed with watermarks on rocks, and water in pools due to recent rainfall. INT01.

Photopoint 10. Streambed with watermarks on rocks, and water in pools due to recent rainfall. INT01.

Photopoint 11. Water in pools due to recent rainfall. INT01.

Photopoint 12. Waterline on rocks. INT01.

Photopoint 14. No beds, no banks, no stream present on NHD line.

Photopoint 15. Ephemeral drainage, upland vegetation with no sign of water. EPH105.

Photopoint 16. Ephemeral drainage, upland vegetation with no sign of water. Yarrow in channel. EPH105.

Photopoint 18. Ephemeral drainage, upland vegetation with no sign of water. EPH104.

Photopoint 19. Ephemeral drainage, upland vegetation with no sign of water. EPH105.

Photopoint 20. Ephemeral drainage, upland vegetation with no sign of water. EPH205.

Photopoint 21. No beds, no banks, no stream present on NHD line.

Photopoint 22. Ephemeral drainage, upland vegetation with no sign of water. EPH202.

Photopoint 23. Ephemeral drainage, upland vegetation with no sign of water. EPH203.

Photopoint 24. Well in bedrock in stream bottom.

Photopoint 25. No beds, no banks, no stream present on NHD line.

Photopoint 26. No beds, no banks, no stream present on NHD line.

Photopoint 27. No beds, no banks, no stream present on NHD line.

Photopoint 28. No beds, no banks, no stream present on NHD line.

Photopoint 29. No beds, no banks, no stream present on NHD line.

Photopoint 30. No beds, no banks, no stream present on NHD line.

Photopoint 31. No beds, no banks, no stream present on NHD line.

Photopoint 32. No beds, no banks, no stream present on NHD line.

Photopoint 33. No beds, no banks, no stream present on NHD line.

Photopoint 35. Garbage dump.

Photopoint 36. Ephemeral drainage, upland vegetation with no sign of water. EPH200.

Photopoint 38. No beds, no banks, no stream present on NHD line.

Photopoint 39. No beds, no banks, no stream present on NHD line.

Photopoint 41. Soil sample site. SS01.

Photopoint 42. No beds, no banks, no stream present on NHD line.

Photopoint 43. No beds, no banks, no stream present on NHD line.

Photopoint 44. No beds, no banks, no stream present on NHD line.

Photopoint 45. No beds, no banks, no stream present on NHD line.

Photopoint 46. No beds, no banks, no stream present on NHD line.

Photopoint 47. No beds, no banks, no stream present on NHD line.

Photopoint 48. No beds, no banks, no stream present on NHD line.

Photopoint 49. No beds, no banks, no stream present on NHD line.

Photopoint 50. Erosional Feature. EPH305.

Photopoint 51. No beds, no banks, no stream present on NHD line.

Photopoint 52. No beds, no banks, no stream present on NHD line.

Photopoint 53. No beds, no banks, no stream present on NHD line.

Photopoint 54. No beds, no banks, no stream present on NHD line.

Photopoint 55. No beds, no banks, no stream present on NHD line.

Photopoint 56. No beds, no banks, no stream present on NHD line.

Photopoint 57. No beds, no banks, no stream present on NHD line.

Photopoint 58. No beds, no banks, no stream present on NHD line.

Photopoint 59. Soil Sample Site. SS02.

Photopoint 60. Streambed with damp soils. INT02.

Photopoint 61. Streambed with damp soils. INT02.

Photopoint 62. Streambed with damp soils. INT02.

Photopoint 63. Streambed with damp soils. INT02.

Photopoint 64. Streambed with damp soils. INT02.

Photopoint 65. Ephemeral drainage, upland vegetation with no sign of water. EPH412.

Photopoint 67. No beds, no banks, no stream present on NHD line.

Photopoint 68. No beds, no banks, no stream present on NHD line.

Photopoint 69. No beds, no banks, no stream present on NHD line.

Photopoint 70. No beds, no banks, no stream present on NHD line.

Photopoint 71. No beds, no banks, no stream present on NHD line.

Photopoint 72. Ephemeral drainage, upland vegetation with no sign of water. EPH301.

Photopoint 73. No beds, no banks, no stream present on NHD line.

Photopoint 74. Ephemeral drainage, upland vegetation with no sign of water. EPH300.

Photopoint 75. No beds, no banks, no stream present on NHD line.

Photopoint 76. No beds, no banks, no stream present on NHD line.

Photopoint 77. No beds, no banks, no stream present on NHD line.

Photopoint 78. Ephemeral drainage, upland vegetation with no sign of water. EPH308.

Photopoint 79. Ephemeral drainage, upland vegetation with no sign of water. EPH308.

Photopoint 80. No beds, no banks, no stream present on NHD line.

Photopoint 81. Ephemeral drainage, upland vegetation with no sign of water. EPH308.

Photopoint 82. No beds, no banks, no stream present on NHD line.

Photopoint 83. Ephemeral drainage, upland vegetation with no sign of water. EPH307.

Photopoint 84. No beds, no banks, no stream present on NHD line.

Photopoint 85. Ephemeral drainage, upland vegetation with no sign of water. EPH307.

Photopoint 86. No beds, no banks, no stream present on NHD line.

Photopoint 87. Ephemeral drainage, upland vegetation with no sign of water. EPH307.

Photopoint 88. Ephemeral drainage, upland vegetation with no sign of water. EPH306.

Photopoint 89. No beds, no banks, no stream present on NHD line.

Photopoint 90. Ephemeral drainage, upland vegetation with no sign of water. EPH401.

Photopoint 91. No beds, no banks, no stream present on NHD line.

Photopoint 93. Streambed with watermarks on rocks, and water in pools due to recent rainfall. INT01.

Photopoint 94. Ephemeral drainage, upland vegetation with no sign of water. EPH400.

Photopoint 95. Ephemeral drainage, upland vegetation with no sign of water. EPH400.

Photopoint 96. Ephemeral drainage, upland vegetation with no sign of water. EPH303.

Photopoint 97. Ephemeral drainage, upland vegetation with no sign of water. EPH303.

Photopoint 98. No beds, no banks, no stream present on NHD line.

Photopoint 99. No beds, no banks, no stream present on NHD line. Road present in valley bottom.

Photopoint 100. No beds, no banks, no stream present on NHD line.

Photopoint 101. No beds, no banks, no stream present on NHD line.

Photopoint 102. Ephemeral drainage, upland vegetation with no sign of water. EPH405.

Photopoint 103. Ephemeral drainage, upland vegetation with no sign of water. EPH404.

Photopoint 104. Ephemeral drainage, upland vegetation with no sign of water. EPH405.

Photopoint 105. Ephemeral drainage, upland vegetation with no sign of water. EPH404.

Photopoint 107. No beds, no banks, no stream present on NHD line.

Photopoint 108. No beds, no banks, no stream present on NHD line.

Photopoint 109. No beds, no banks, no stream present on NHD line.

Photopoint 110. No beds, no banks, no stream present on NHD line.

Photopoint 111. No beds, no banks, no stream present on NHD line.

Photopoint 114. No beds, no banks, no stream present on NHD line.

Photopoint 115. No beds, no banks, no stream present on NHD line.

Photopoint 209. No beds, no banks, no stream present on NHD line.

Photopoint EPH104. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH104. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH500 levee 1. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH500 N. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH500 NE1. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH501 NW1. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH501 SE. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH501 SE1. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint EPH500 levee 2. Ephemeral drainage, upland vegetation with no sign of water.

Photopoint XBB 310. No beds, no banks, no stream present on NHD line.

Photopoint XBB 300. No beds, no banks, no stream present on NHD line.

Photopoint XBB 301. No beds, no banks, no stream present on NHD line.

Photopoint XBB 302. No beds, no banks, no stream present on NHD line.

Photopoint XBB 303. No beds, no banks, no stream present on NHD line.

Photopoint XBB 304. No beds, no banks, no stream present on NHD line.

Photopoint XBB 305. No beds, no banks, no stream present on NHD line.

Photopoint XBB 306. No beds, no banks, no stream present on NHD line.

Photopoint XBB 307. No beds, no banks, no stream present on NHD line.

Photopoint XBB 308. No beds, no banks, no stream present on NHD line.

Photopoint XBB 309. No beds, no banks, no stream present on NHD line.

Photopoint XBB 310. No beds, no banks, no stream present on NHD line.

Photopoint XBB 311. No beds, no banks, no stream present on NHD line.

Photopoint XBB 312. No beds, no banks, no stream present on NHD line.

Photopoint XBB 313. No beds, no banks, no stream present on NHD line.

Photopoint 600. Ephemeral drainage, upland vegetation with no sign of water . Overview of drainage, EPH401.

Photopoint 601. Ephemeral drainage, upland vegetation with no sign of water Ephemeral drainage, EPH401.

Photopoint 602. Ephemeral drainage, upland vegetation with no sign of water Ephemeral stream does not extend uphill. EPH306.

Photopoint 603. Ephemeral drainage, upland vegetation with no sign of water Ephemeral drainage, less than one foot wide. EPH306.

Photopoint 604. No beds, no banks, no stream present on NHD line. Cattle trail.

Photopoint 605. No beds, no banks, no stream present on NHD line. Ephemeral stream does not extend beyond this point.

Photopoint 606. No beds, no banks, no stream present on NHD line.

Photopoint 607. Ephemeral drainage, upland vegetation with no sign of water. Narrow ephemeral drainage, EPH600.

Photopoint 608. Ephemeral drainage, upland vegetation with no sign of water. Overview of EPH600.

Photopoint 609. No beds, no banks, no stream present on NHD line.

Photopoint 610. No beds, no banks, no stream present on NHD line. Culvert under road.

Photopoint 611. Ephemeral drainage, upland vegetation with no sign of water. Ephemeral drainage begins at this point, EPH602.

Photopoint 612. Ephemeral drainage, upland vegetation with no sign of water. EPH602.

Photopoint 613. End of EPH602.

Photopoint 614. No beds, no banks, no stream present on NHD line.

Photopoint 701. Ephemeral drainage, upland vegetation with no sign of water. EPH401.

Photopoint 702. No beds, no banks, no stream present on NHD line. Upstream end of EPH401.

Photopoint 703. Ephemeral drainage, upland vegetation with no sign of water. EPH401.

Photopoint 704. Ephemeral drainage, upland vegetation with no sign of water. EPH401.

Photopoint 705. No beds, no banks, no stream present on NHD line. Hillside between plowed fields.

Photopoint 706. No beds, no banks, no stream present on NHD line.

Photopoint 708. Ephemeral drainage, upland vegetation with no sign of water Ephemeral drainage, with trash pile. EPH306.

Photopoint 709. No beds, no banks, no stream present on NHD line.

Photopoint 710. No beds, no banks, no stream present on NHD line.

Photopoint 711. No beds, no banks, no stream present on NHD line.

Photopoint 712. No beds, no banks, no stream present on NHD line.

Photopoint 713. No beds, no banks, no stream present on NHD line. Bottom between two hills next to freeway.

Photopoint 714. No beds, no banks, no stream present on NHD line.

Photopoint 715. No beds, no banks, no stream present on NHD line.

Photopoint 716. No beds, no banks, no stream present on NHD line.

Photopoint 717. No beds, no banks, no stream present on NHD line.

Photopoint 718. No beds, no banks, no stream present on NHD line.

Photopoint 719. No beds, no banks, no stream present on NHD line.

Photopoint 720. Ephemeral drainage, upland vegetation with no sign of water. EPH700.

Photopoint 721. Ephemeral drainage, upland vegetation with no sign of water. EPH700, leading up to culvert under road.

Photopoint 722. No beds, no banks, no stream present on NHD line.

Photopoint 723. Ephemeral drainage, upland vegetation with no sign of water. EPH700.

Photopoint 724. Ephemeral drainage, upland vegetation with no sign of water. Upstream end of EPH700, begins to lose bed and banks.

Photopoint 725. No beds, no banks, no stream present on NHD line.

Photopoint 800. No beds, no banks, no stream present on NHD line. Water retention pond, with no culvert.

Photopoint 801. No beds, no banks, no stream present on NHD line.

Photopoint 802. No beds, no banks, no stream present on NHD line.

Photopoint 803. No beds, no banks, no stream present on NHD line.

Photopoint 804. No beds, no banks, no stream present on NHD line.

Photopoint 805. No beds, no banks, no stream present on NHD line.

Photopoint 806. No beds, no banks, no stream present on NHD line.

Photopoint 807. No beds, no banks, no stream present on NHD line.

Photopoint 808. No beds, no banks, no stream present on NHD line.

Photopoint 809. No beds, no banks, no stream present on NHD line.

Photopoint 810. No beds, no banks, no stream present on NHD line.

Photopoint 811. Ephemeral drainage, upland vegetation with no sign of water, EPH800.

Photopoint 812. Ephemeral drainage, upland vegetation with no sign of water, EPH800.

Photopoint 813. No beds, no banks, no stream present on NHD line. No culvert alongside road.

Photopoint 814. No beds, no banks, no stream present on NHD line.