

# Exhibit Q

## Threatened and Endangered Species

---

**Wagon Trail Solar Project  
December 2023**

**Prepared for**



**Prepared by**



This page intentionally left blank

**Table of Contents**

**1.0 Introduction ..... 1**

**2.0 Analysis Area ..... 1**

**3.0 Agency Consultation..... 1**

**4.0 Identification of Species..... 1**

    4.1 Desktop Review ..... 2

        4.1.1 Wildlife ..... 4

        4.1.2 Plants..... 4

    4.2 Field Surveys..... 5

        4.2.1 Wildlife ..... 5

        4.2.2 Plants..... 6

**5.0 Occurrence and Potential Adverse Effects ..... 7**

    5.1 Wildlife ..... 7

    5.2 Plants..... 8

**6.0 Avoidance and Mitigation ..... 8**

    6.1 General Measures ..... 8

        6.1.1 During Design and Micrositing..... 8

        6.1.2 During Construction..... 9

        6.1.3 Post-Construction ..... 9

    6.2 Wildlife ..... 9

**7.0 Protection and Conservation Program Compliance ..... 10**

**8.0 Potential Impacts to Plants, Including Mitigation Measures..... 10**

**9.0 Potential Impacts to Animals, Including Mitigation Measures..... 11**

**10.0 Monitoring..... 11**

**11.0 Submittal Requirements and Approval Standards ..... 12**

    11.1 Submittal Requirements ..... 12

    11.2 Approval Standards ..... 13

**12.0 References ..... 13**

**List of Tables**

Table Q-1. State-Listed and Candidate Species with the Potential to Occur in the Analysis Area..... 3  
Table Q-2. Submittal Requirements Matrix ..... 12  
Table Q-3. Approval Standard ..... 13

**List of Figures**

- Figure Q-1. Threatened and Endangered Species Analysis Area
- Figure Q-2. Washington Ground Squirrel (WAGS) Survey Areas
- Figure Q-3. Active Washington Ground Squirrel Colony (**CONFIDENTIAL**)
- Figure Q-4. Rare Plants Survey Areas

**List of Attachments**

- Attachment Q-1. 2020 Washington Ground Squirrel Survey Report
- Attachment Q-2. 2021 Washington Ground Squirrel Survey Report (**CONFIDENTIAL**)
- Attachment Q-3. 2020-2021 Rare Plant Survey Report

## Acronyms and Abbreviations

ASC	Application for Site Certificate
Applicant	Wagon Trail Energy Center, LLC c/o NextEra Energy Resources, LLC
ESA	federal Endangered Species Act
Facility	Wagon Trail Solar Project
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
WAGS	Washington ground squirrel
WREFI	Wheatridge Renewable Energy Facility I
WREFII	Wheatridge Renewable Energy Facility II
WREFIII	Wheatridge Renewable Energy Facility III
USFWS	U.S. Fish and Wildlife Service

This page intentionally left blank

## 1.0 Introduction

Wagon Trail Energy Center, LLC c/o NextEra Energy Resources, LLC (Applicant) proposes to construct and operate the Wagon Trail Solar Project (Facility), a solar energy generation facility and related or supporting facilities in Morrow County, Oregon. This Exhibit Q was prepared to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-021-0010(1)(q).

## 2.0 Analysis Area

The analysis area for threatened and endangered species is defined in the Project Order as “the area within and extending 5 miles from the site boundary” (ODOE 2021), as defined by OAR 345-001-0010(59)(a). The site boundary is defined in detail in Exhibits B and C. The threatened and endangered species analysis area is shown on Figure Q-1.

## 3.0 Agency Consultation

The Applicant filed a Notice of Intent to apply for Site Certificate with the Oregon Energy Facility Siting Council (EFSC) on June 11, 2021. The Oregon Department of Fish and Wildlife (ODFW) provided the following comment on the Notice of Intent:

*ODFW recommends Washington ground squirrel surveys are completed in suitable habitat within 1,000 feet of all ground disturbing activities. These surveys will assist ODOE, ODFW and the Applicant identify occupied Washington ground squirrel habitats and work together to avoid any impacts to Washington ground squirrels in the site boundary. (ODFW 2021a)*

## 4.0 Identification of Species

*OAR 345-021-0010(1)(q) Information about threatened and endangered plant and animal species that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0070. The applicant shall include:*

*(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2) and ORS 564.105(2) that may be affected by the proposed facility.*

The Applicant identified threatened and endangered plant and animal species that might be affected by the Facility through a literature review, data queries, and familiarity with the region. Information and data gathered during the desktop review were then used to inform field surveys. The Applicant conducted the desktop review within the analysis area and performed field surveys within the survey areas defined in Section 4.2.

## 4.1 Desktop Review

Prior to conducting surveys, the Applicant conducted a desktop review to identify special-status wildlife and special status plant species with the potential to occur in the analysis area. Special-status wildlife include species listed as endangered, threatened, or proposed for listing under the federal Endangered Species Act (ESA); species identified as candidates for listing under the ESA by the U.S. Fish and Wildlife Service (USFWS); USFWS species of concern; and species listed as threatened or endangered by the State Fish and Wildlife Commission (OCS 2016; ODFW 2021b, 2021c; ORBIC 2019; USFWS 2021a, 2021b, 2021c, 2021d; WDNR 2020). In addition to reviewing publicly available sources, the Applicant submitted a request to the Oregon Biodiversity Information Center (ORBIC) to obtain site-specific records of special-status species occurrences and sensitive habitats within the analysis area (ORBIC 2020).

The Applicant reviewed habitat and range information for special-status wildlife species known to occur in Morrow County and the Columbia Plateau to develop the list of species that had the potential to occur within the analysis area. Species were eliminated from consideration if their habitat was absent from the site boundary, or their range did not overlap with the site boundary. The Applicant also reviewed special-status wildlife information presented in the Application for Site Certificate (ASC), subsequent ASC amendments, and during pre-construction compliance surveys for the adjacent Wheatridge Renewable Energy Facilities I, II, and III (WREFI, WREFII, and WREFIII, respectively; Wheatridge 2015, 2019; Tetra Tech 2019a, 2019b).

Special-status plant species include all vascular plants listed as endangered, threatened, or proposed for listing under the federal ESA; species identified as candidates for listing under the ESA by the USFWS; and species listed as endangered or threatened, or species considered candidates for listing, by the Oregon Department of Agriculture (ODA). The Applicant identified special-status plant species with the potential to occur within the analysis area based on known occurrences recorded by herbaria and other sources (Burke Museum 2020; ODA 2020a; OFP 2011, 2019; ORBIC 2019; Tetra Tech 2019a; USFWS 2021b; Wheatridge 2015, 2019).

This desktop review identified six state threatened, endangered, and candidate species (one mammal and five plants) with the potential for occurrence within the analysis area (Table Q-1). Of these six species, one state endangered mammal—the Washington ground squirrel (*Urocitellus washingtoni*; WAGS)—and one state threatened plant—Laurent’s milkvetch (*Astragalus collinus* var. *laurentii*)—are known to occur within the analysis area. Aquatic species were not considered due to the lack of habitat within the site boundary. State-sensitive species are addressed in Exhibit P.



**Table Q-1. State-Listed and Candidate Species with the Potential to Occur in the Analysis Area**

Scientific Name (synonym)	Common Name	Federal Status <sup>1</sup>	State Status <sup>2</sup>	Known Occurrence within Analysis Area	Potential Habitat within the Site Boundary
<b>Mammals</b>					
<i>Urocitellus washingtoni</i>	Washington ground squirrel	-	E	Yes	Yes
<b>Plants</b>					
<i>Achnatherum hendersonii</i>	Henderson's ricegrass	SOC	C	No	Yes
<i>Astragalus collinus</i> var. <i>laurentii</i>	Laurence's milkvetch	SOC	T	Yes	Yes
<i>Eremothera (Camissonia) pygmaea</i>	Dwarf evening-primrose	-	C	No	No
<i>Erythranthe (Mimulus) inflatula (evanescens)</i>	Disappearing monkeyflower	-	C	No	No
<i>Myosurus sessilis</i>	Sessile mouse-tail	SOC	C	No	No
Sources: Burke Museum 2020; OCS 2016; ODA 2020a; ODFW 2021b, 2021c; OFP 2011, 2019; ORBIC 2019, 2020; OregonFlora 2021; USFWS 2021a, 2021b, 2021c; WDNR 2020; Wheatridge 2015, 2019; Tetra Tech 2019a, 2019b.					
1. SOC = Species of Concern.					
2. T = Threatened, E = Endangered, C = Candidate for Listing.					

Based on range maps, and although ORBIC had no record of them within the analysis area, four ODA candidate plant species were included in lists of species that had the potential for occurrence at the Facility. These are dwarf evening-primrose (*Cammissonia pygmaea*), disappearing monkeyflower (*Mimulus evanescens*), Henderson's ricegrass (*Achnatherum hendersonii*), and sessile mousetail (*Myosurus sessilis*).

Of the six state-threatened, endangered, and candidate species identified as having potential to occur within the analysis area, ORBIC records indicate the occurrence of WAGS within the site boundary and Laurence's milkvetch less than 1 mile from the analysis area.

#### **4.1.1 Wildlife**

Table Q-1 identifies one state listed wildlife species with the potential to occur within the analysis area: WAGS. The ORBIC database included numerous historical records within the analysis area and site boundary, and surveys at adjacent facilities have documented occurrence of the species (Wheatridge 2015, 2019; Tetra Tech 2019b).

#### **4.1.2 Plants**

##### **4.1.2.1 Laurent's Milkvetch**

Laurent's milkvetch is listed by ODA as a threatened species. The ORBIC database included one historical record within 2 miles of the site boundary, and populations have been detected at an adjacent facility (Wheatridge 2015; Tetra Tech 2019a).

##### **4.1.2.2 Dwarf Evening-Primrose**

Dwarf evening-primrose is listed by ODA as a candidate species. Found on rocky slopes, sandy banks, and in dry, gravelly washes, this species' range may include the analysis area. However, no records were found within 10 miles of the site boundary in the ORBIC database, nor were any recorded during surveys at adjacent facilities (Wheatridge 2015, 2019).

##### **4.1.2.3 Disappearing Monkeyflower**

Disappearing monkeyflower is listed by ODA as a candidate species. Found in moist, heavy gravel that is inundated in early spring, this species' range may include the analysis area. However, no records were found within 10 miles of the site boundary in the ORBIC database, nor were any recorded during surveys at adjacent facilities (Wheatridge 2015, 2019).

##### **4.1.2.4 Henderson's Ricegrass**

Liverwort monkeyflower is listed by ODA as a candidate species. Found in shallow, rocky soil in scablands, sagebrush-steppe, or ponderosa pine forest, often in areas with frost heaving, this species' range may include the analysis area. However, no records were found within 10 miles of the site boundary in the ORBIC database, nor were any recorded during surveys at adjacent facilities (Wheatridge 2015, 2019).

#### 4.1.2.5 *Sessile Mousetail*

Sessile mousetail is listed by ODA as a candidate species. Found in moist areas associated with drying vernal pools and alkali flats, this species' range includes the analysis area. However, no records were found within 10 miles of the site boundary in the ORBIC database, nor were any recorded during surveys at adjacent facilities (Wheatridge 2015, 2019).

## 4.2 Field Surveys

The parent company of the Applicant has conducted biological and botanical surveys in the vicinity of the Facility since 2011. Exhibit P of the Request for Amendment #4 for the Wheatridge Wind Energy Facility (now WREFI, WREF II, and WREFIII) provides a summary of field surveys conducted from 2011-2018 (Wheatridge 2019). Only field surveys conducted during 2019 and 2020 within the analysis area for the Facility proposed in this ASC are detailed in this exhibit.

### 4.2.1 *Wildlife*

Surveys were conducted for WAGS at WREFI and WREFII in 2019 (Tetra Tech 2019b) for pre-construction compliance. Areas surveyed in 2019 were not included in the 2020 survey area. These survey areas are shown in Figure Q-2 in relation to the site boundary. Prior to conducting surveys in 2020, the Applicant conducted a desktop review of aerial photography to identify suitable, accessible habitat within 1,000 feet of a preliminary site boundary under consideration for the Facility at the time (Tetra Tech 2019b). Habitat that is unsuitable for WAGS was excluded from the 2020 survey area, including active agricultural fields, gravel and paved roads, industrial and residential areas, and areas that were under construction at WREFI and WREFII. Field-based habitat surveys were conducted later in the spring (Exhibit P). These surveys identified areas of potential WAGS habitat which had not been surveyed for WAGS in 2020. Additional areas were also added to the site boundary after 2020 field surveys were completed. Additional areas of potential habitat were surveyed in spring 2021; however, some areas were not surveyed due to access constraints (Figure Q-2). Prior to construction, if accessible, these areas will be surveyed to complete a full protocol survey of all suitable habitat within 1,000 feet of appropriate habitat of the project disturbance area or site boundary.

The surveys generally followed methodology developed in the *Status and Habitat Use of the WAGS on State of Oregon Lands* (Morgan and Nugent 1999). Potential habitat was surveyed twice during the survey period; surveys were conducted at least 2 weeks apart. In both years, the second phase of surveys included transects either offset from or perpendicular to the first phase transects to increase coverage by traveling in between the transect paths walked during the first phase of surveys. Survey methods and results are described in detail in the report submitted to the ODOE prior to construction at WREFI and WREFII (Tetra Tech 2019b) and in the 2020 survey report attached to this exhibit (Attachment Q-1).

One WAGS colony was delineated outside the site boundary, as shown in Figure Q-3 and in the 2021 survey report attached to this exhibit (Attachment Q-2, submitted separately under a confidential cover).

No other threatened or endangered wildlife species were observed within the site boundary during wildlife surveys conducted in 2019, 2020, and 2021.

#### **4.2.2 Plants**

Based on the background review described in Section 3.1, as well as review of previous surveys conducted within the vicinity, it was determined that Laurent's milkvetch is the only special-status plant species likely to occur within the site boundary (Wheatridge 2015, 2019). Therefore, surveys conducted in 2019, 2020, and 2021 were focused on Laurent's milkvetch only.

Surveys were conducted for this species in 2019 (Tetra Tech 2019a) for pre-construction compliance at WREFI and WREFII and to complete additional surveys at WREFIII. Areas surveyed in 2019 were not included in the 2020 survey area. These survey areas are shown in Figure Q-3 in relation to the site boundary. Prior to conducting surveys in 2020, the Applicant conducted a desktop review of available habitat data and aerial photography to identify suitable habitat within a preliminary site boundary under consideration for the Facility at the time (Tetra Tech 2019a). All areas of suitable or marginally suitable habitat within the preliminary site boundary were surveyed; only active agricultural lands were excluded from surveys. Field-based habitat surveys conducted in the same year identified areas of potential Laurent's milkvetch habitat and additional areas were added to the site boundary after 2020 field surveys were completed; therefore, some areas of potential rare plant habitat were not surveyed in 2020. The Applicant performed surveys for Laurent's milkvetch in these areas in 2021 following the same protocol described in Tetra Tech 2019a. A survey report will be included in a supplemental submittal.

For each area of land studied in 2019, 2020, and 2021, a single survey was conducted at a time deemed appropriate for detecting this species (late June/early July). Fruiting individuals are needed for positive identification of this species; therefore, the survey schedule was chosen to cover the period when Laurent's milkvetch was likely to be in fruit (ODA 2020b). Survey methods and results are described in detail in the report submitted to the ODOE prior to construction at WREFI and WREFII (Tetra Tech 2019a) and in the 2020-2021 survey report attached to this exhibit (Attachment Q-3).

No populations of Laurent's milkvetch or the four other candidate species were identified within the portions of the site boundary surveyed in 2019, 2020, or 2021.

## 5.0 Occurrence and Potential Adverse Effects

*OAR 345-021-0010(1)(q)(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the analysis area and how the facility might adversely affect it.*

### 5.1 Wildlife

WAGS occur only in the Columbia Basin of eastern Washington and north-central Oregon. WAGS are a small ground squirrel associated with shrub-steppe habitats of the Columbia Basin ecoregion (Verts and Carraway 1998). In Oregon, the WAGS range extends from Umatilla County, west through Gilliam and Morrow counties, to the John Day River. Concern for the long-term viability of WAGS populations led to their listing by the ODFW as endangered in January 2000. On September 21, 2016, the USFWS announced that listing the WAGS as threatened or endangered under the federal Endangered Species Act of 1973 was not warranted, nor was maintaining its designation as a candidate species (USFWS 2016). WAGS are associated with deep, loose soils in shrub-steppe habitats with a high percentage of grass and forb cover. A secretive species, it is generally active only between February and June, estivating and hibernating deep in burrows through the remainder of the year. The objective of surveys was to identify WAGS colonies within the areas surveyed, so that adverse effects on WAGS may be avoided and/or minimized.

This species has been detected during surveys at adjacent facilities and occurrences are recorded in ORBIC within the analysis area and within the site boundary (Wheatridge 2015, 2019; ORBIC 2020). During surveys conducted in 2019 and 2020, zero detections of WAGS were recorded within the survey areas shown in Figure Q-2; however, during 2021, one WAGS colony was delineated outside the site boundary (Figure Q-3).

The initial observation was an audio detection in Rabbitbrush/Snakeweed Shrub-steppe habitat. Approximately 20 burrows were identified. No scat was detected. No squirrels were observed directly. Habitat in the colony area is dominated by patches of native shrubs interspersed with native bunchgrasses and forbs. The dominant species include rubber rabbitbrush (*Ericameria nauseosa*), bluebunch wheatgrass (*Pseudoroegneria spicata*), bulbous wheatgrass (*poa bulbosa*), Sandberg bluegrass (*poa secunda*), and *Phlox* species. The soil type is a silty loam. Nearby habitat disturbances include agriculture, gravel roads, wind turbines, and an area of discarded household items, old transmission line poles, and insulators.

A potential adverse effect to WAGS is direct mortality caused by Facility construction activities near the colony; however, this colony is located outside the site boundary; therefore, no direct adverse effects to the colony is anticipated due to the construction or operation of the Facility. Category 1 habitat related to this colony (i.e., a 785-foot buffer of the colony in suitable habitat) extends into the site boundary (17.6 acres), but will be avoided by micro-siting facilities appropriately. While direct mortality to wildlife species is possible from Facility vehicles throughout the life of the Facility, this direct impact is unlikely to impact the WAGS colony identified during surveys, as a

barrier to dispersal (dryland wheat) is present between the Category 1 WAGS habitat and the nearest permanent facility infrastructure (fence line). Potential indirect adverse effects include the loss of potential future suitable habitat (currently not occupied). Most habitat impacts related to the construction of the Facility are to dryland wheat, which is not suitable WAGS habitat (see Exhibit P), and Facility infrastructure has been micro-sited away from the area of Category 1 WAGS habitat within the site boundary. Therefore, no displacement of WAGS colonies is anticipated as a result of the construction and operation of the solar arrays and associated infrastructure described in this ASC.

During pre-construction, construction, and operation, measures will be implemented to avoid both direct and indirect impacts to WAGS, as described in Section 5.

## 5.2 Plants

No rare or special-status plants were found within the areas surveyed in 2019, 2020, or 2021; therefore, no adverse effects are anticipated due to the construction or operation of the Facility.

## 6.0 Avoidance and Mitigation

*OAR 345-021-0010(1)(q)(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.*

### 6.1 General Measures

The Applicant will implement a variety of measures intended to ensure avoidance or minimization of adverse impacts to plants, wildlife, and habitat generally and to state listed and candidate species and their habitats. Many of these measures are described in greater detail in Exhibit P. This section identifies those avoidance and mitigation measures that apply to the only listed or candidate species found in the vicinity of the site boundary (i.e., WAGS).

#### 6.1.1 During Design and Micrositing

During the preliminary design and micrositing of the Facility, avoidance of listed and candidate species of plants and wildlife was ensured by surveying for these species and siting Facility infrastructure outside of locations where these species were found, and outside of habitat associated with these species. The Applicant will conduct pre-construction surveys to ensure the avoidance of permanent or temporary disturbance in all Category 1 WAGS habitat. While impacts to Category 2 habitat (suitable for WAGS) will be minimized in the final design and micrositing process, any unavoidable impacts will be mitigated for as described in the Draft Habitat Mitigation Plan (Exhibit P), and in accordance with the ODFW Fish and Wildlife Habitat Mitigation Policy.

Additional pre-construction activities by the Applicant will inform the finalization of the Draft Wildlife Monitoring and Mitigation Plan (see Exhibit P) based on the final Facility design, as approved by ODOE in consultation with ODFW.

### **6.1.2 During Construction**

Measures to avoid and minimize construction impacts to wildlife and plants (including listed species) are the avoidance of flagged areas, environmental sensitivity training, and the observation of speed limits will be implemented as described in Exhibit P. Prior to construction activities, sensitive areas will be marked with exclusion flagging so that they are avoided during construction.

### **6.1.3 Post-Construction**

The Draft Reclamation and Revegetation Plan, Draft Habitat Mitigation Plan, and Draft Wildlife Monitoring and Mitigation Plan provide guidance and provisions for rehabilitating or mitigating for temporary and permanent impacts to habitat (Exhibit P). After Facility construction, areas where habitat was temporarily disturbed as a result of construction activities will be restored to their original conditions according to provisions in the Draft Reclamation and Revegetation Plan. Both temporary habitat disturbance and permanent habitat loss will be mitigated for according to provisions of the Draft Habitat Mitigation Plan. Ongoing environmental training for Facility personnel and reporting requirements governing incidental wildlife injuries and deaths on Facility roads will be implemented according to the Draft Wildlife Monitoring and Mitigation Plan.

Speed limits that will minimize the likelihood of death or injury of wildlife generally, and of WAGS in particular, are expected to be implemented throughout the life of the Facility. An approved Emergency Response Plan will be implemented throughout the life of the Facility; this is expected to minimize undesired impacts to existing vegetation and wildlife habitats, including habitat for WAGS.

## **6.2 Wildlife**

Initial design and siting of the solar arrays was completed only after the results of surveys for WAGS within the survey areas shown on Figure Q-2 were completed. An area of Category 1 habitat was designated around the delineated colony, extending 785 feet in suitable habitat starting from the area of documented ground squirrel use (Exhibit P, Figure P-6). An area of Category 2 habitat was designated around the colony, extending 4,921 feet from the delineated colony within suitable WAGS habitat. Suitable WAGS habitat is limited by barriers to dispersal including dryland wheat or other developed habitat such as roads. The western extent of the Category 1 and Category 2 habitat is limited by such a barrier: dryland wheat. Facility infrastructure was not sited in Category 1 habitat, a standard practice not only meant to avoid existing squirrels and their burrows, but also potential suitable habitat into which squirrels may later disperse. The closest impact to Category 1 habitat is located approximately 316 meters to the west of this habitat. The intervening area is primarily dryland wheat. Activity at the facility will occur within the fence line during operations; therefore, no disturbance to the colony or to the associated Category 1 habitat is anticipated. No operational monitoring is proposed.

Additional surveys for WAGS will be conducted in the spring prior to each phase of construction of the Facility to ensure that identified areas of use have not expanded to areas where facilities are to

be constructed, and to ensure no WAGS colonies are located in areas where surveys were limited by land access. Surveys will ensure that WAGS colonies potentially located in or near the Facility are delineated and avoided in final Facility micrositing (Figure Q-3).

## 7.0 Protection and Conservation Program Compliance

*OAR 345-021-0010(1)(q)(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).*

There are no species with the potential to occur within the analysis area for which ODA has adopted a protection and conservation program. As a result, the Facility would have no effect on any ODA protection or conservation program under Oregon Revised Statutes (ORS) 564.105(3).

## 8.0 Potential Impacts to Plants, Including Mitigation Measures

*OAR 345-021-0010(1)(q)(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

No state listed or candidate plant species were observed within the site boundary during targeted surveys for these species. Because these species are not present within site boundary, construction, operation, and maintenance of the Facility is not likely to cause a significant reduction in the likelihood of survival or recovery of the state threatened Laurent's milkvetch, or the state candidates dwarf evening-primrose, disappearing monkeyflower, Henderson ricegrass, and sessile mousetail.



## 9.0 Potential Impacts to Animals, Including Mitigation Measures

*OAR 345-021-0010(1)(q)(F) For each animal species identified under (A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.*

WAGS are the only state threatened, endangered, or candidate wildlife species found or expected to be found in the site boundary. Construction and operation of the solar arrays will have no significant impact on the survival or recovery of the species. Avoidance of impacts to WAGS and their colonies was accomplished through identifying and buffering areas of use and micro-siting Facility infrastructure outside of those buffers. No Facility infrastructure will be placed within Category 1 WAGS habitat. Impacts to areas which would potentially be colonized by WAGS (Categories 2, 3, and 4) have been minimized during the micro-siting process (see Exhibit P). Mitigation for loss of potentially suitable, but currently unoccupied WAGS habitat will be accomplished through provisions in the Draft Habitat Mitigation Plan (Exhibit P). Minimization of possible death or injury from interaction with Facility vehicles will be accomplished through speed limits and environmental training of all Facility personnel.

The Applicant will avoid permanent or temporary disturbance in all Category 1 WAGS habitat. All sensitive areas will be marked with exclusion flagging and avoided during construction. The construction and operation of the Facility are not expected to result in impacts to the continued existence of the species, or on the critical habitat of this species, and will therefore not result in a significant reduction in the likelihood of survival or recovery of WAGS.

## 10.0 Monitoring

*OAR 345-021-0010(1)(q)(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.*

Construction, operation, and maintenance of the Facility are not expected to result in adverse impacts on state listed species. Post-construction monitoring for WAGS colonies is described in the Draft Wildlife Monitoring and Mitigation Plan (Exhibit P).

# 11.0 Submittal Requirements and Approval Standards

## 11.1 Submittal Requirements

**Table Q-2. Submittal Requirements Matrix**

Requirement	Location
OAR 345-021-0010(1)(q) Information about threatened and endangered plant and animal species that may be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0070. The applicant shall include:	-
(A) Based on appropriate literature and field study, identification of all threatened or endangered species listed under ORS 496.172(2), 564.105(2) or 16 USC 1533 that may be affected by the proposed facility.	Section 3.0
(B) For each species identified under (A), a description of the nature, extent, locations and timing of its occurrence in the Analysis Area and how the facility might adversely affect it.	Section 4.0
(C) For each species identified under (A), a description of measures proposed by the applicant, if any, to avoid or reduce adverse impact.	Section 5.0
(D) For each plant species identified under (A), a description of how the proposed facility, including any mitigation measures, complies with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3).	Section 6.0
(E) For each plant species identified under paragraph (A), if the Oregon Department of Agriculture has not adopted a protection and conservation program under ORS 564.105(3), a description of significant potential impacts of the proposed facility on the continued existence of the species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.	Section 7.0
(F) For each animal species identified under (A), a description of significant potential impacts of the proposed facility on the continued existence of such species and on the critical habitat of such species and evidence that the proposed facility, including any mitigation measures, is not likely to cause a significant reduction in the likelihood of survival or recovery of the species.	Section 8.0
(G) The applicant's proposed monitoring program, if any, for impacts to threatened and endangered species.	Section 9.0

## 11.2 Approval Standards

**Table Q-3. Approval Standard**

Requirement	Location
<b>OAR 345-022-0070 Threatened and Endangered Species</b>	-
To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:	-
(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:	-
(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or	Section 6.0
(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and	Section 7.0
(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.	Section 8.0

## 12.0 References

- Burke Museum (Burke Museum Herbarium). 2020. Burke Herbarium Image Collection. University of Washington. Seattle, WA. Available online at:  
<http://biology.burke.washington.edu/herbarium/imagecollection.php>.
- Morgan, R. L., and M. Nugent. 1999. Status and Habitat Use of the Washington Ground Squirrel (*Spermophilus washingtoni*) on State of Oregon Lands, South Boeving, Oregon in 1999. Report to the Oregon Department of Fish and Wildlife.
- OCS (Oregon Conservation Strategy). 2016. Oregon Department of Fish and Wildlife, Salem, Oregon. Available at: <http://oregonconservationstrategy.org>. Accessed December 2020.
- ODA (Oregon Department of Agriculture). 2020a. Oregon Listed and Candidate Plants. Available online at:  
<https://www.oregon.gov/ODA/programs/PlantConservation/Pages/AboutPlants.aspx>. Accessed December 2020.
- ODA. 2020b. Lawrence’s milkvetch (*Astragalus collinus* var. *laurentii*) Fact Sheet. Available online at:  
<https://www.oregon.gov/oda/shared/Documents/Publications/PlantConservation/AstragalusCollinusLaurentiiProfile.pdf>

- ODOE (Oregon Department of Energy). 2021. Wagon Trail Solar Project. First Amended Project Order. Issued August 17, 2021. Salem, OR. Available online at: <https://www.oregon.gov/energy/facilities-safety/facilities/Facilities%20library/2021-08-17-WTS-APP-NOI-Amended-Project-Order.pdf>
- ODFW (Oregon Department of Fish and Wildlife). 2021a. Comments on the Notice of Intent submitted by Wagon Trail Solar, LLC for the Wagon Trail Solar Project in Morrow County. Letter from Steve Cherry, Heppner District Wildlife Biologist and Sarah Reif, Energy Coordinator, to Chase McVeigh-Walker, Oregon Department of Energy, dated January 8, 2021.
- ODFW. 2021b. Oregon Department of Fish and Wildlife Sensitive Species List. Available online at: [http://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive\\_Species\\_List.pdf](http://www.dfw.state.or.us/wildlife/diversity/species/docs/Sensitive_Species_List.pdf). Accessed July, 2021.
- ODFW. 2021c. Threatened, Endangered and Candidate Fish and Wildlife Species. [https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened\\_and\\_Endangered\\_Species.pdf](https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf). Accessed September 24, 2020.
- OFP (Oregon Flora Project). 2011. Rare Plant Guide. Oregon Flora Project Plant Atlas. Department of Botany and Plant Pathology, Oregon State University. Corvallis, OR. Available online at: <http://oregonflora.org/rareplants.php>. Accessed: April 2020.
- OFP. 2019. Oregon Flora Project Plant Atlas. Department of Botany and Plant Pathology, Oregon State University. Corvallis, OR. Available online at: <http://www.oregonflora.org/atlas.php>. Accessed: April 2020.
- ORBIC (Oregon Biodiversity Information Center). 2019. Rare, Threatened and Endangered Species of Oregon. Institute for Natural Resources, Portland State University, Portland, Oregon. 133 pp.
- ORBIC. 2020. Element Occurrence Record Digital Data Set for rare, threatened or endangered species for Project Area. ORBIC, Institute for Natural Resources, Portland State University. Portland, OR. Received December 4, 2020.
- OregonFlora. 2021. OregonFlora Website. Oregon State University, Department of Botany and Plant Pathology. Corvallis, OR. Available online at: <https://oregonflora.org/>. Accessed July 2021.
- Tetra Tech (Tetra Tech, Inc.). 2019a. 2019 Rare Plant Survey Report – Wheatridge Wind Energy Facility. Prepared for NextEra Energy Resources. September 2019.
- Tetra Tech, Inc. (Tetra Tech). 2019b. 2019 Washington Ground Squirrel Survey Report – Wheatridge Wind Energy Facility. Prepared for NextEra Energy Resources. September 2019.
- USFWS (United States Fish and Wildlife Service). 2016. Endangered and Threatened Wildlife and Plants; 12-Month Findings on Petitions To List Nine Species as Endangered or Threatened Species. *Federal Register* 81(183): 64843- 64857.

- USFWS. 2021a. Federally Listed, Proposed, Candidate, Delisted Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service which May Occur in Oregon. Available online at: <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf>. Accessed July 2021.
- USFWS. 2021b. Oregon's Endangered Species – Plants. Oregon Fish and Wildlife Office. Accessed at: <https://www.fws.gov/oregonfwo/promo.cfm?id=177175701>. Accessed July 2021.
- USFWS. 2021c. IPaC (Information for Planning and Consultation). Endangered Species in Morrow County. Available online at: <https://ecos.fws.gov/ipac/>. Accessed July 2021.
- USFWS. 2021d. Birds of Conservation Concern 2021. United States Department of Interior, Fish and Wildlife Service, Migratory Birds Program, Washington, D.C. 48 pp. Available online at: <https://www.fws.gov/birds/management/managed-species/birds-of-conservation-concern.php>. Accessed July 2021.
- Verts, B.J., and L.N. Carraway. 1998. *Land Mammals of Oregon*. University of California Press, Berkeley, California. 668 pp.
- WDNR (Washington Department of Natural Resources). 2020. Rare Plant Online Field Guide. Washington Natural Heritage Program. Available online at: <https://www.dnr.wa.gov/NHPfieldguide>
- Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.
- Wheatridge. 2019. Final Request for Amendment #4 for the Wheatridge Wind Energy Facility. Prepared by Tetra Tech, Inc. June 2019.

This page intentionally left blank

# Figures

**(Confidential Figure Q-3 is provided under separate cover)**

This page intentionally left blank

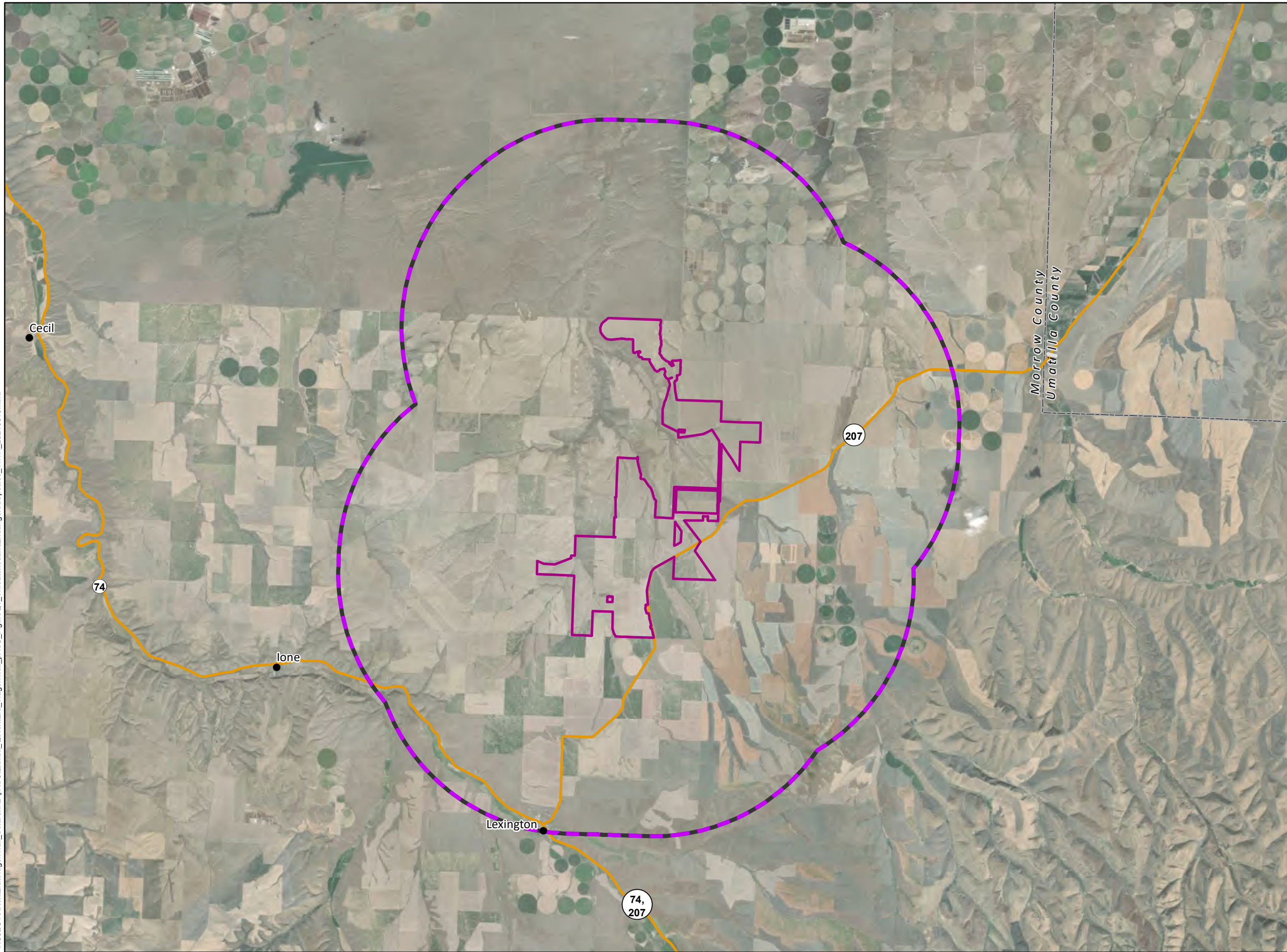


# Wagon Trail Solar Project

## Figure Q-1 Analysis Area for Threatened and Endangered Species

MORROW COUNTY, OREGON

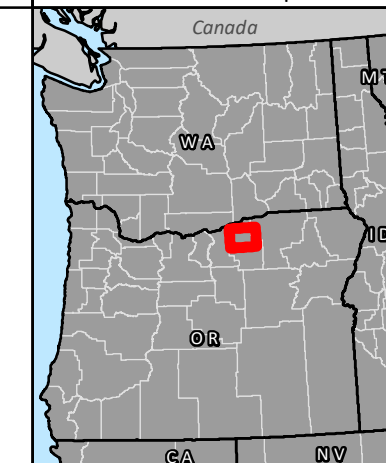
- Site Boundary
- Analysis Area (5-mile Buffer)
- City/Town
- State Highway
- County Boundary



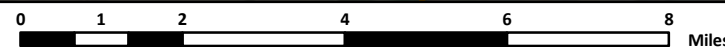
Data Sources

Reference Map

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries



1:150,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

## Figure Q-2 Washington Ground Squirrel (WAGS) Survey Areas

MORROW COUNTY, OREGON

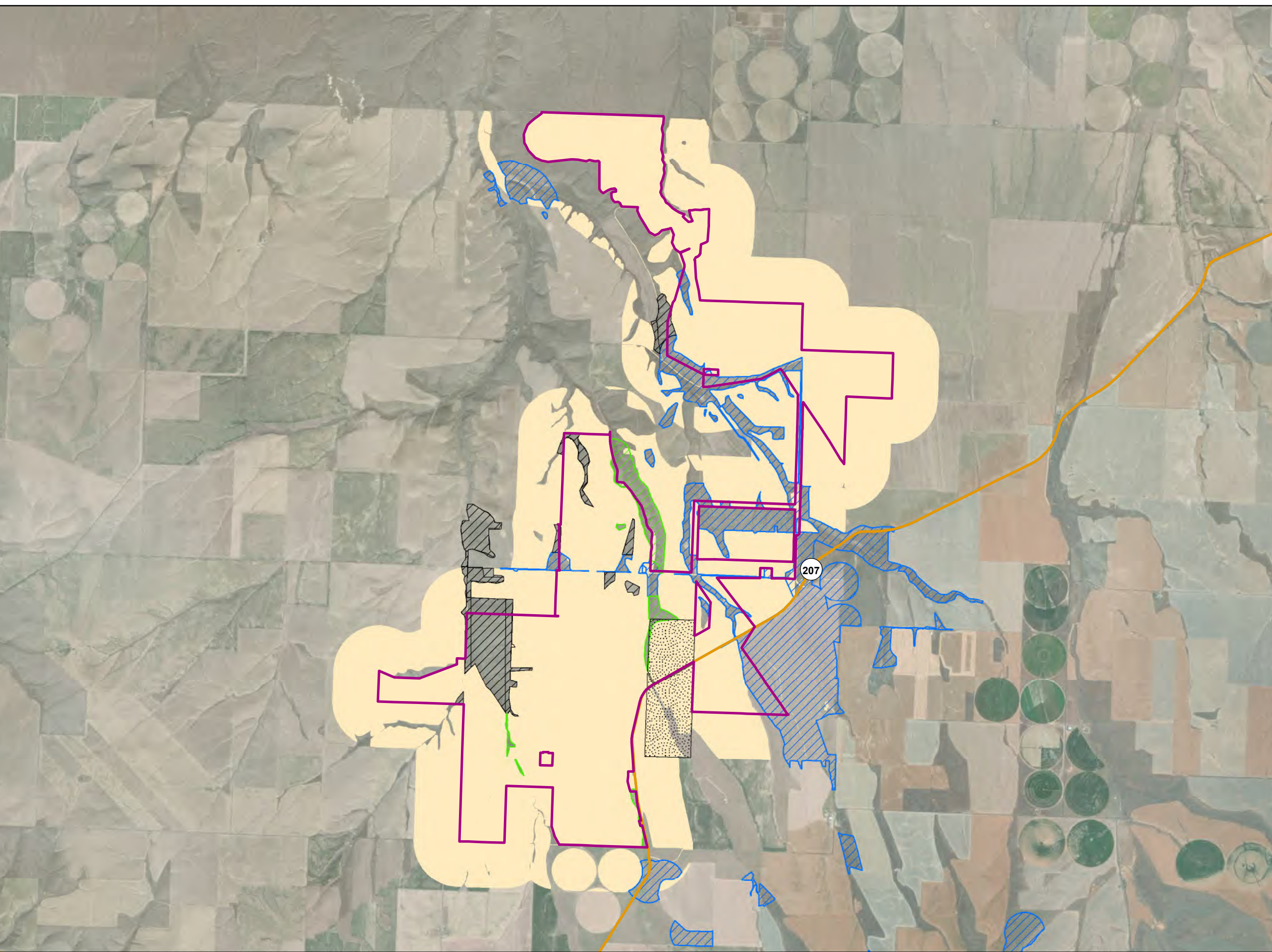
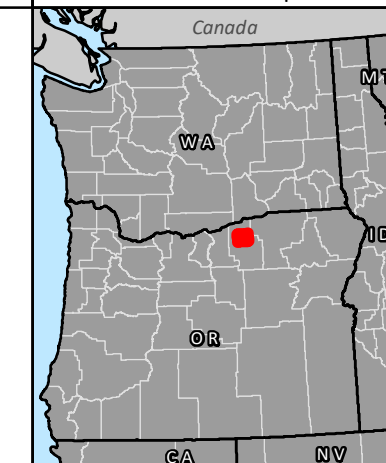
- Site Boundary
- WAGS 2021 Survey Area
- WAGS 2020 Survey Area
- WAGS 2019 Survey Area
- No Survey Access
- Category 6 Habitat
- State Highway



Data Sources

Reference Map

NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries










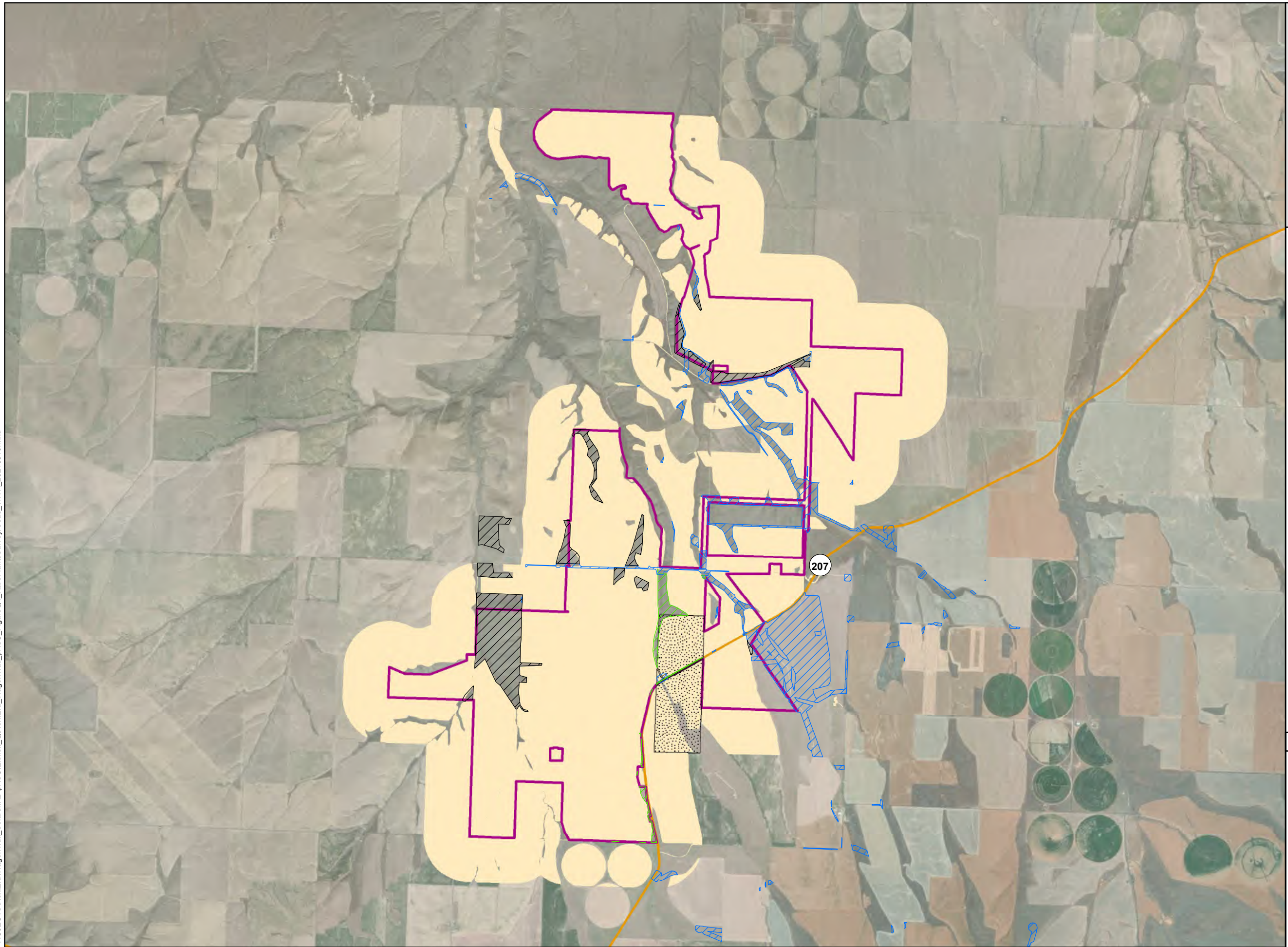
P:\GIS\PROJECTS\NextEra\Wagon Trail\_Solar\MXD\pASC\Exhibit\_Q\NextEra\_WagonTrail\_pASC\_FigureQ2\_WAGSSurveyAreas\_111171\_20210810.mxd

# Wagon Trail Solar Project

## Figure Q-4 Rare Plants Survey Areas

MORROW COUNTY, OREGON

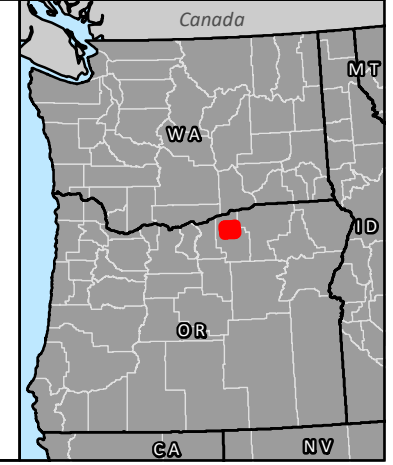
-  Site Boundary
-  Rare Plants 2021 Survey Area
-  Rare Plants 2020 Survey Area
-  Rare Plants 2019 Survey Area
-  No Survey Access
-  Category 6 Habitat
-  State Highway



Data Sources

Reference Map

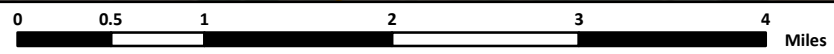
NextEra-Project Infrastructure;  
USDA-Aerial Imagery; ESRI-  
County Boundaries



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\pASC\Exhibit\_Q\NextEra\_WagonTrail\_pASC\_FigureQ4\_RarePlantsSurveyAreas\_111171\_20210810.mxd



1:65,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

This page intentionally left blank

# **Attachment Q-1. 2020 Washington Ground Squirrel Survey Report**

This page intentionally left blank

# 2020 Washington Ground Squirrel Survey Report

---

**Wagon Trail Solar Project  
February 2021**

**Prepared for**



**Prepared by**



**Tetra Tech, Inc.**

This page intentionally left blank



## Table of Contents

1.0	Introduction .....	1
2.0	Methods.....	1
2.1	Identification of Protocol .....	1
2.2	Survey Area.....	1
2.3	Habitat Assessment and Delineation .....	2
2.4	Survey Schedule.....	2
2.5	Field Survey Methods .....	3
3.0	Results .....	4
4.0	References.....	4

## List of Figures

Figure 1. Washington Ground Squirrel Survey Areas (2019-2020)

## List of Attachments

Attachment 1. Washington Ground Squirrel Colony Data Sheet

This page intentionally left blank

## 1.0 Introduction

This survey report presents the methods and results for the 2020 Washington ground squirrel (WAGS; *Urocitellus washingtoni*) surveys conducted by Tetra Tech, Inc. (Tetra Tech) for the Wagon Trail Solar Project (Facility). This survey is in support of Wheatridge East Wind, LLC's (Applicant) anticipated Application for Site Certificate through the Oregon Energy Facility Siting Council. The objective of these surveys was to identify WAGS colonies in or near the Facility, so that impacts to WAGS may be avoided or minimized.

WAGS are a small ground squirrel associated with shrub-steppe habitats of the Columbia Basin ecoregion (Verts and Carraway 1998), and only occur in eastern Washington and north-central Oregon. In Oregon, the WAGS range extends from Umatilla County west, through Gilliam and Morrow counties to the John Day River. Concern for the long-term viability of WAGS populations led to their listing by the Oregon Department of Fish and Wildlife (ODFW) as endangered in January 2000. On September 21, 2016, the U.S. Fish and Wildlife Service (USFWS) announced that listing the WAGS as endangered under the federal Endangered Species Act of 1973 was not warranted (USFWS 2016). WAGS are no longer a USFWS species of concern; WAGS remain an Oregon state endangered species (ODFW 2020, USFWS 2020).

## 2.0 Methods

### 2.1 Identification of Protocol

The surveys generally followed methodology developed in the *Status and Habitat Use of the Washington Ground Squirrel on State of Oregon Lands, South Boeving, Oregon* (Morgan and Nugent 1999). Prior to commencing surveys in 2020, the protocol for the survey was approved by the ODFW (pers. com., Steve Cherry, ODFW, March 19, 2020). Tetra Tech conducted surveys between March 25 to May 28, during the survey window described in the protocol approved by ODFW. Tetra Tech's protocol included transects spaced approximately 165 – 230 feet apart during both surveys but during the second round of surveys, transects were walked at 90 degrees to the original transects which increased the total area covered and reduced the chance of missed detections (Morgan and Nugent 1999).

### 2.2 Survey Area

Figure 1 shows the Survey Area associated with the 2020 WAGS survey. These include suitable habitat within 1,000 feet of the Proposed Site Boundary that was under consideration for the Facility prior to 2020 surveys. The Study Area was developed by the Applicant to represent the extent to which they were considering development of an energy facility. The Study Area does not necessarily correspond to a site boundary that would be included in the Application for Site Certificate. The 2019 Survey Area shows areas surveyed during preconstruction compliance

surveys for a wind energy facility (Tetra Tech 2019). Areas surveyed in 2019 were not surveyed again in 2020. Habitat that is unsuitable for WAGS was excluded from the Survey Area, including active agricultural fields, gravel and paved roads, industrial and residential areas, and areas that were under construction for a wind energy facility.

### **2.3 Habitat Assessment and Delineation**

WAGS are most common in shrub-steppe habitats with sandy or silt-loam soils that are deep and support the creation of burrows (Betts 1990, Yensen and Sherman 2003). Sagebrush habitats and bunchgrass grasslands have been found to contain the highest densities of WAGS, with lower densities in more degraded habitats, such as low shrub habitats with annual grasses, rabbitbrush (*Ericameria* sp. and *Chrysothamnus* sp.), and invasive species (Betts 1990). WAGS eat a broad range of seeds, forbs, leaves, flowers, and roots (Greene 1999) that provide adequate fat stores to survive their long aestivation/hibernation and reproduction periods. Native plants, such as Sandberg bluegrass (*Poa secunda*), may play a key role in their diet and survival (Tarifa and Yensen 2004).

Prior to commencing surveys, suitable habitat was identified for WAGS within 1,000 feet of the based on existing habitat survey data as well as aerial imagery to determine potential changes to land use since previous surveys associated with other energy facilities (Wheatridge 2015, Wheatridge 2019). Although WAGS are found in the highest densities in sagebrush habitats and bunchgrass grasslands that have few invasive species (Betts 1990), ODFW advises that WAGS colonies can be found in all habitats, regardless of quality, except for active agricultural fields and developed land. As a result, suitable habitat included all non-agricultural habitats and non-developed land within the Survey Area.

### **2.4 Survey Schedule**

WAGS are diurnally active and spend the majority of the year underground. This species aestivates throughout the summer and is thought to transition directly into hibernation (ODFW 1999, Sherman and Shellman 2005). Adults emerge from burrows between January and March, depending on elevation and weather patterns, and return underground in late May to early June. Juveniles emerge from burrows between March and April and return underground a few weeks after the adults (Carlson et al. 1980).

The WAGS protocol requires two phases of surveys to increase the likelihood of detecting their presence. Phase 1 of surveys begins around April 1, with Phase 2 spaced at least 2 weeks later, and needs to be completed by the end of May or early June, prior to WAGS going into aestivation. This survey period corresponds to the time when juvenile squirrels emerge from the burrows and are most active, and when alarm calls are most frequent (Morgan and Nugent 1999).

The 2020 Survey Area was surveyed once March 25-27, March 30-April 1, and again May 7-9 and May 25, 2020.

## 2.5 Field Survey Methods

Prior to fieldwork, field personnel visited an active WAGS colony and received training on burrow, scat, alarm call, and squirrel identification, as well as guidance on the natural history, habitat, and survey protocol for WAGS. All field crew members also passed a hearing test to verify they can hear a frequency of 8 kilohertz, the typical frequency of alarm call vocalizations of ground-dwelling squirrels. The WAGS are the only species of ground squirrel known to occur near the Survey Area; therefore, confusing this species for similar species such as Belding's ground squirrel (*Urocitellus beldingi*) is highly unlikely. Additionally, WAGS have scat that can be differentiated from other burrowing animals by its characteristic size and shape.

Surveys commenced in the morning, beginning at least 1 hour after sunrise to allow for temperatures to increase sufficiently to support ground squirrel activity, and typically ended in the early afternoon. Anemometers were used to measure the wind speeds throughout the day. If the average wind speed exceeded 15 miles per hour, surveys were halted, unless the field personnel could find another portion of the Survey Area sheltered from the wind. Surveys were also halted if there was more than a light rain, as it would hinder hearing WAGS and likely limit WAGS activity. General survey documentation was recorded each day; this included the names of field personnel, start and ending survey time, start and ending Global Positioning System (GPS) location, precipitation, average and maximum wind speed, wind direction, cloud cover, and temperature at the start, middle, and end of surveys. Survey documentation and data were recorded either electronically via the ArcGIS Collector application on Samsung tablets or on paper data forms. The data were checked by field personnel for quality control and accuracy daily.

Surveyors conducted pedestrian surveys by walking transects spaced approximately 165 to 230 feet apart. Field personnel walked transects at a similar pace to ensure there were no gaps in coverage. Each field crew member was able to communicate findings to the group via hand-held radios, thereby avoiding double-recording data. A colony is generally confirmed active if at least two of the following are identified: positive auditory observation, fresh WAGS burrows, positive visual observation, or fresh WAGS scat. A potential WAGS burrow is defined as an appropriately sized hole that was freshly dug (no vegetation or cobwebs), with no WAGS sign (scat, visual, audio), that is structurally sound. If surveyors observe potential WAGS burrows or hear a WAGS alarm call, they alert the group and then search that area for any squirrels or their sign by walking spirally around the confirmed detection, outwards for 35 meters to the next outermost transect line, in order to provide sufficient coverage to determine the extent of any active colony. If a colony is identified, the following information is recorded: habitat type, the locations of activity centers and colony boundaries using a GPS unit, the approximate number of burrows, how the colony was first discovered (e.g., sighting, vocalization, sign such as scat at a fresh burrow), and a couple of representative photographs of burrows, scat, and habitat at active colonies. During Phase 1 of surveys, the surveyors collect the location of these potential WAGS burrows, and they are revisited during Phase 2 of surveys to determine if an active colony was present.

Phase 2 surveys follow the same method as Phase 1, except for a provision for potential WAGS burrows identified in Phase 1. If burrows were detected in Phase 1, they are approached from a

roughly perpendicular direction during Phase 2. The approach direction changes to account for topography and prevailing winds, which may affect detectability of WAGS from a given direction. Phase 2 surveys also include transects offset from Phase 1 transects, to increase coverage by traveling in between the transect paths walked during the first phase of surveys. During these surveys, existing colonies are also revisited to determine if the activity level or boundaries have changed.

### 3.0 Results

Tetra Tech conducted protocol-level WAGS surveys in approximately 7,456 acres in 2020 (Figure 1). Phase 1 was conducted over March 25-27 and March 30-April 1. Phase 2 was conducted over May 7-9 and on May 25. Sixteen potential WAGS burrows were detected within the Survey Area during Phase 1, based on size, location, and angle of burrow hole, but no activity (visual, audio, or scat) was detected during either phase of surveys.

No WAGS activity or colonies were observed within the 2020 Survey Area.

### 4.0 References

- Betts, B.J. 1990. Geographical distribution and habitat preferences of Washington ground squirrels (*Spermophilus washingtoni*). *Northwestern Naturalist* 71:27-37.
- Carlson, L., G. Geupel, J. Kjølmyr, J. Maciver, M. Morton, and N. Shishido. 1980. Geographical Range, Habitat Requirements, and a Preliminary Population Study of *Spermophilus washingtoni*. Final Technical Report, National Science Foundation Student-originated Studies Program. 24 pp.
- Greene, E. 1999. Abundance and Habitat Associations of Washington Ground Squirrels in North-Central Oregon. M.S. Thesis, Oregon State University, Corvallis, OR. 59 pp.
- Morgan, R.L., and M. Nugent. 1999. Status and Habitat Use of the Washington Ground Squirrel (*Spermophilus washingtoni*) on State of Oregon Lands, South Boeing, Oregon in 1999. Report to the Oregon Department of Fish and Wildlife.
- ODFW (Oregon Department of Fish and Wildlife). 1999. Washington Ground Squirrel Biological Status Assessment. ODFW, Portland, OR. 62 pp.
- ODFW. 2020. Threatened, Endangered, and Candidate Wildlife Species in Oregon. Available online at: [https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened\\_and\\_Endangered\\_Species.pdf](https://www.dfw.state.or.us/wildlife/diversity/species/docs/Threatened_and_Endangered_Species.pdf). Accessed December 2020.

- Sherman, P.W., and J.S. Shellman. 2005. Distribution, Demography, and Behavioral Ecology of Washington Ground Squirrels (*Spermophilus washingtoni*) in Central Washington. Unpublished report, Cornell University, Ithaca, NY. September. 26 pp.
- Tarifa, T., and E. Yensen. 2004. Washington Ground Squirrel Diets in relation to Habitat Conditions and Population Status: Annual Report 2003. Unpublished report, Albertson College, Caldwell, ID. October. 98 pp.
- Tetra Tech (Tetra Tech, Inc.). 2019. 2019 Washington Ground Squirrel Survey Report – Wheatridge Wind Energy Facility. Prepared for NextEra Energy Resources. September 2019.
- USFWS (U.S. Fish and Wildlife Service). 2016. Species Profile for Washington Ground Squirrel. Environmental Conservation Online System. Federal Register Vol. 81, No. 183, September 21. Accessed June 26, 2017. Available online at <https://ecos.fws.gov/ecp0/profile/speciesProfile?spcode=A0HE>
- USFWS. 2020. Federally Listed, Proposed, Candidate, Delisted Species and Species of Concern Under the Jurisdiction of the Fish and Wildlife Service which May Occur in Oregon. Available online at: <https://www.fws.gov/oregonfwo/Documents/OregonSpeciesStateList.pdf>. Accessed December 2020.
- Verts, B.J., and L.N. Carraway. 1998. *Land Mammals of Oregon*. University of California Press, Berkeley, California. 668 pp.
- Wheatridge (Wheatridge Wind Energy, LLC). 2015. Wheatridge Wind Energy Facility Application for Site Certificate. Prepared by Tetra Tech, Inc. July 2015.
- Wheatridge. 2019. Final Request for Amendment #4 for the Wheatridge Wind Energy Facility. Prepared by Tetra Tech, Inc. June 2019.
- Yensen, E., and P.W. Sherman. 2003. Ground-dwelling Squirrels of the Pacific Northwest. U.S Fish and Wildlife Service and BLM, Boise, ID. 28 pp. + maps.

This page intentionally left blank



# Figures

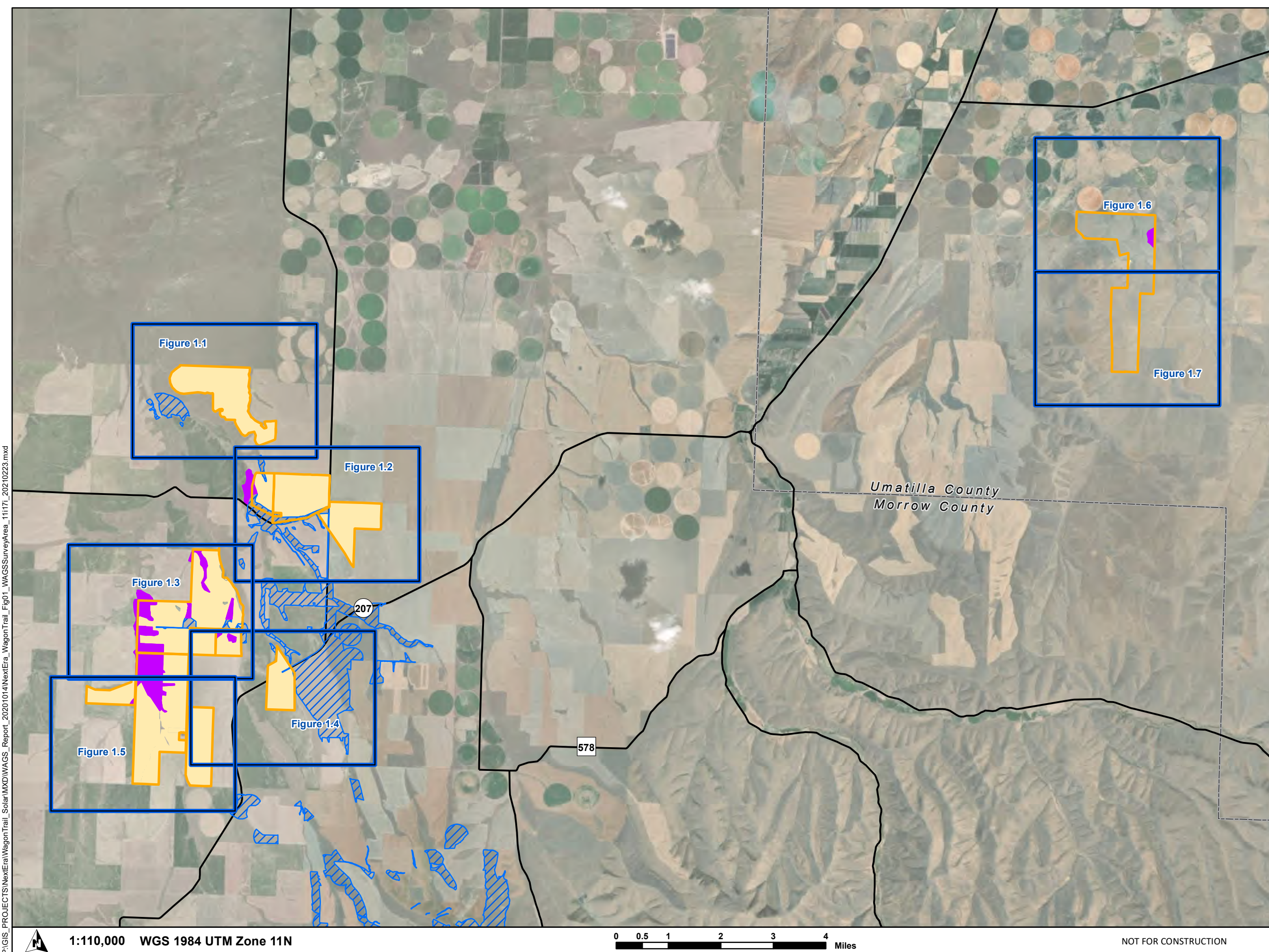
This page intentionally left blank

# Wagon Trail Solar Project

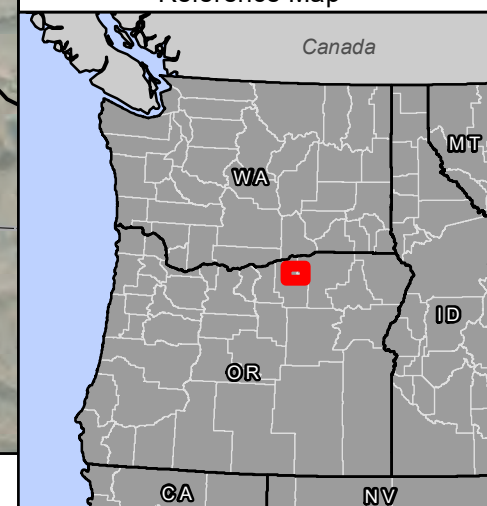
## Figure 1 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Map Grid
- Proposed Site Boundary (01/30/2020)
- 2020 Survey Area
- 2019 Survey Area
- Secondary Road
- Developed



Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_11171\_20210223.mxd

# Wagon Trail Solar Project

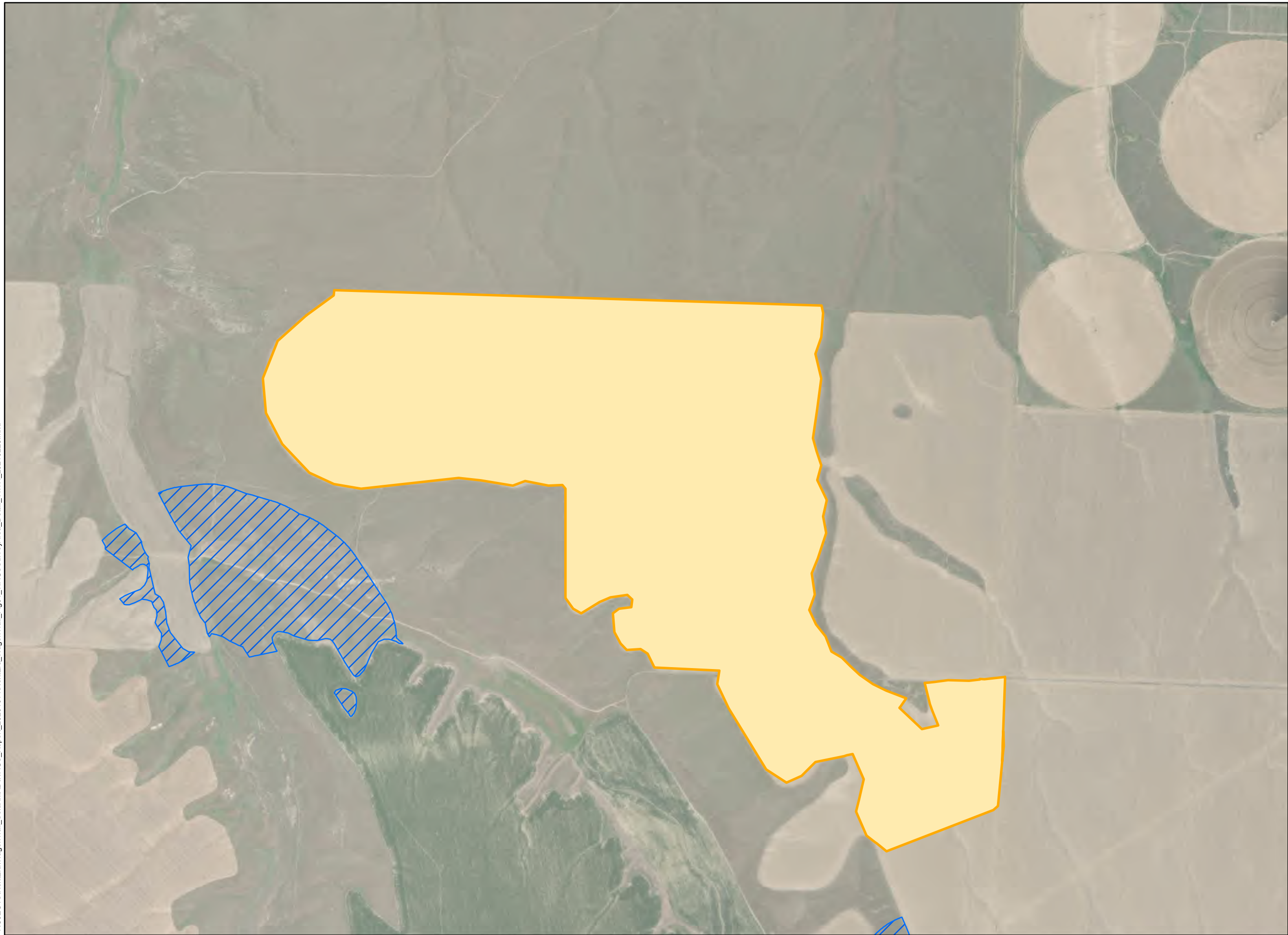
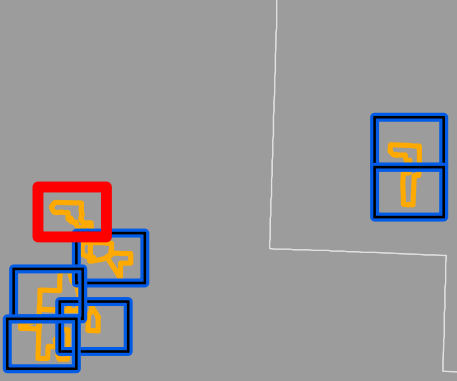
## Figure 1.1 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Proposed Site Boundary (01/30/2020)
- 2019 Survey Area
- Developed



Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_111171\_20210223.mxd

1:16,000 WGS 1984 UTM Zone 11N

0 0.125 0.25 0.5 0.75 1 Miles

NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

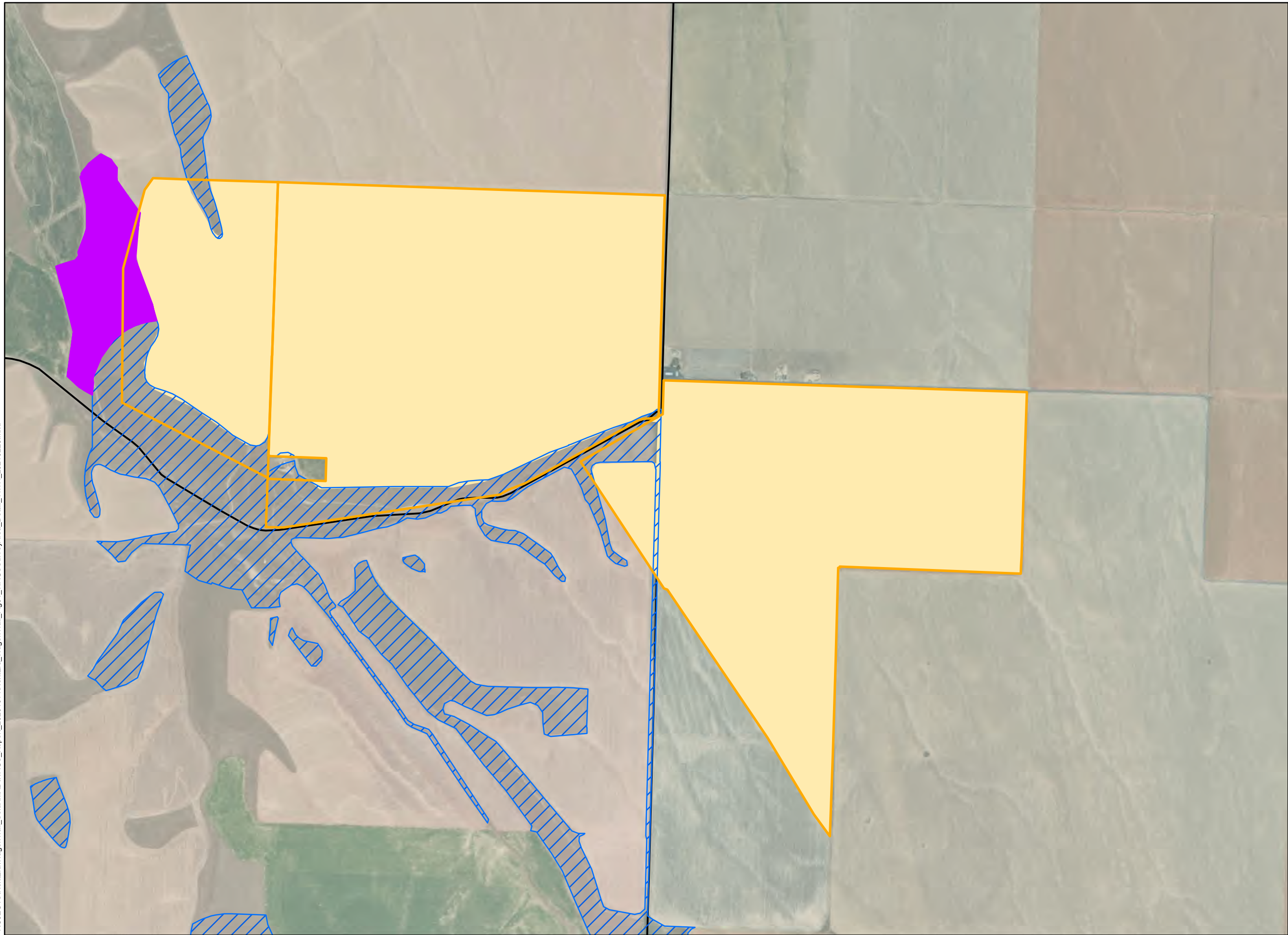
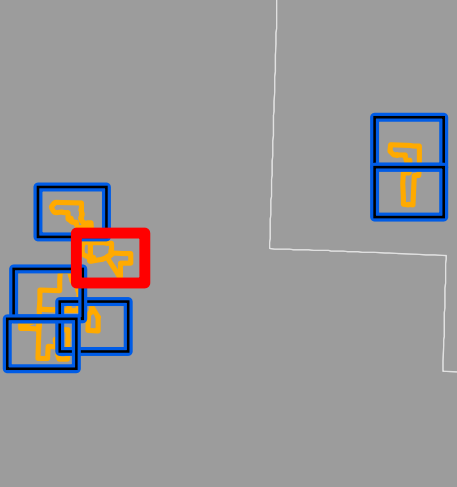
## Figure 1.2 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Proposed Site Boundary (01/30/2020)
- 2020 Survey Area
- 2019 Survey Area
- Secondary Road
- Developed



Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_111171\_20210223.mxd

# Wagon Trail Solar Project

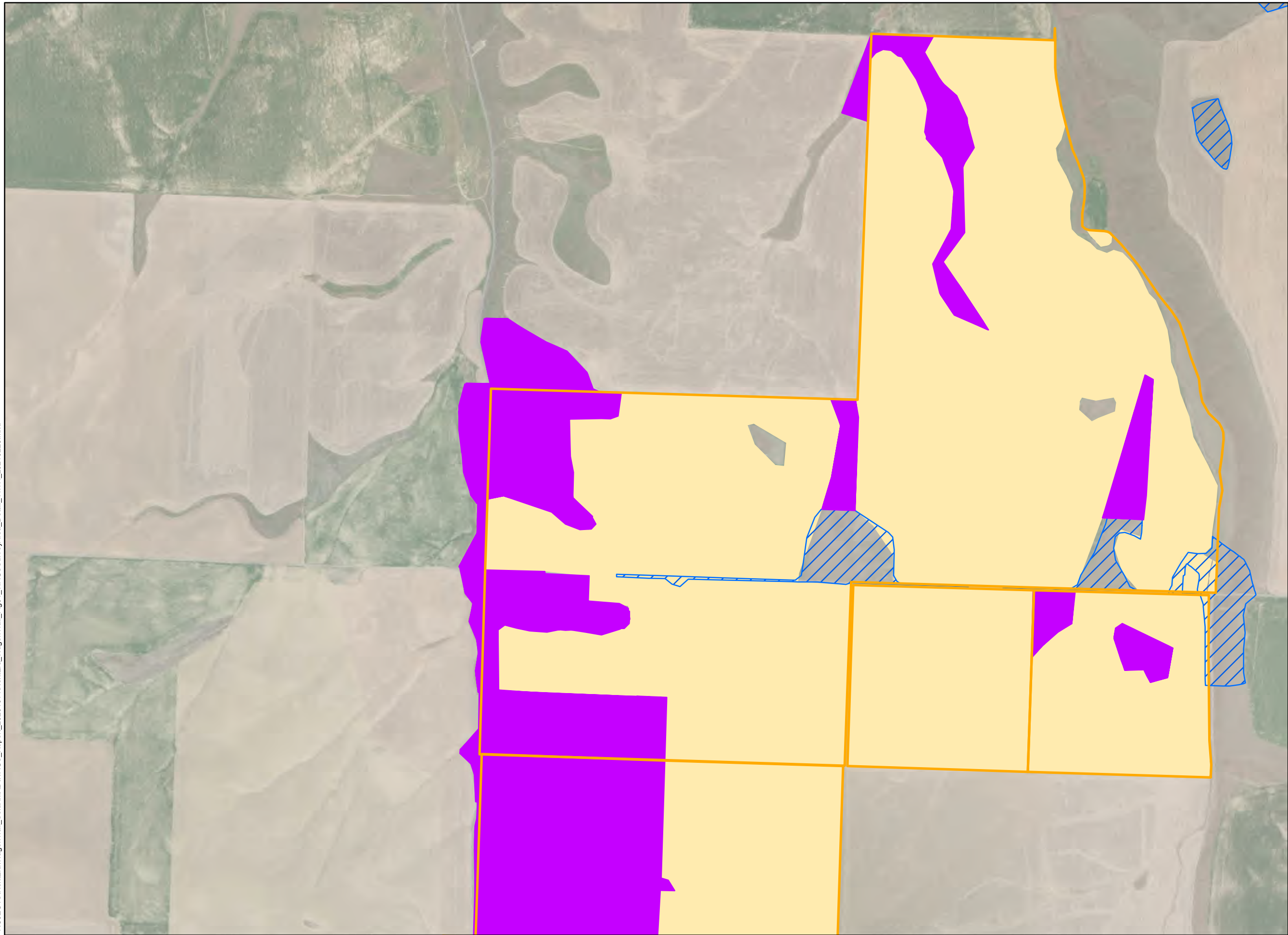
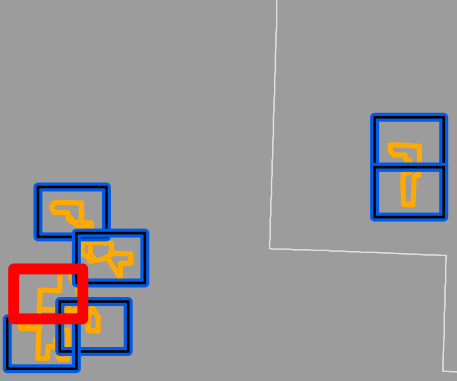
## Figure 1.3 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Proposed Site Boundary (01/30/2020)
- 2020 Survey Area
- 2019 Survey Area
- Developed



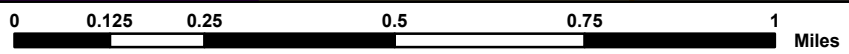
Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_11171\_20210223.mxd



1:16,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

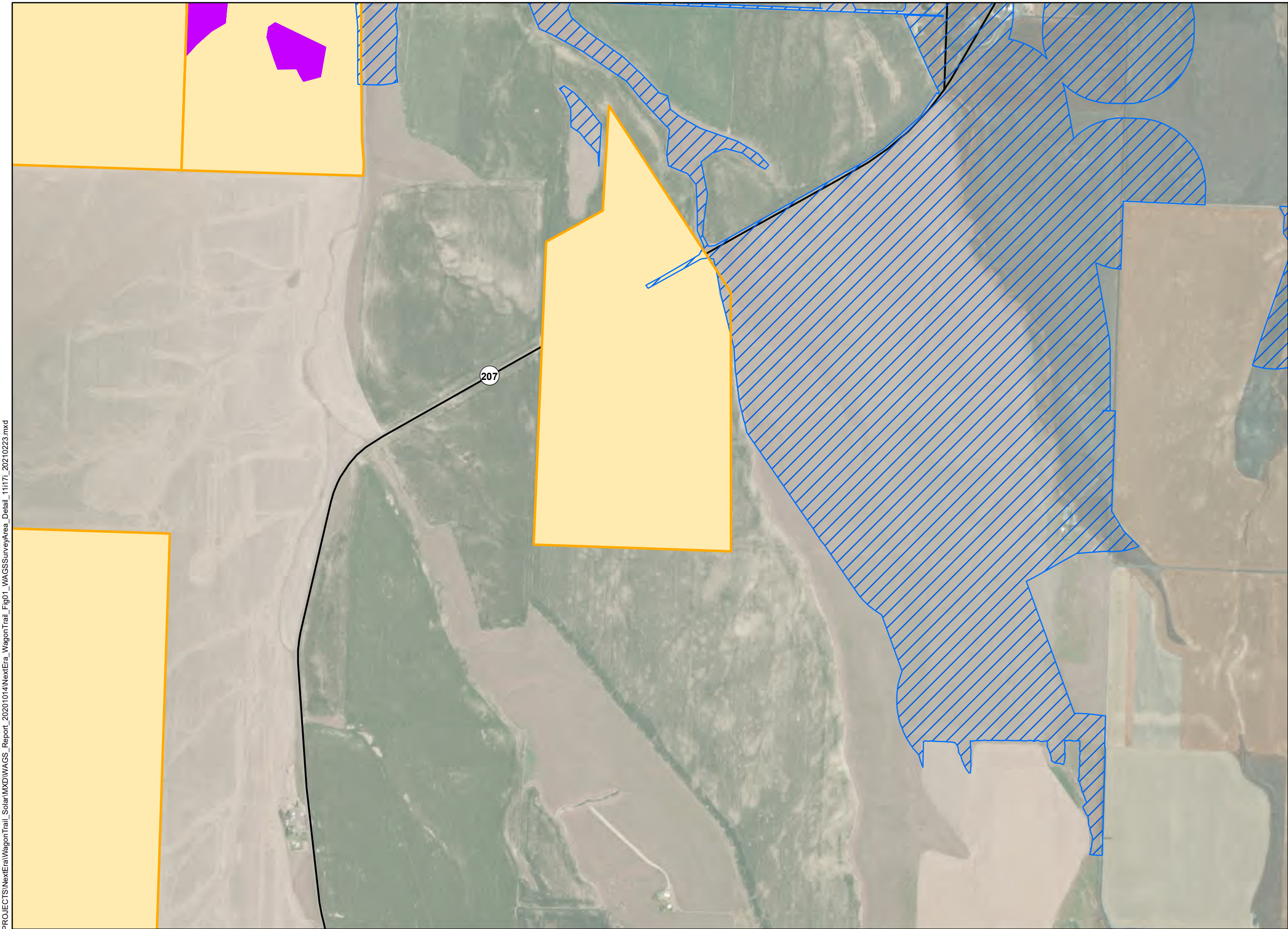
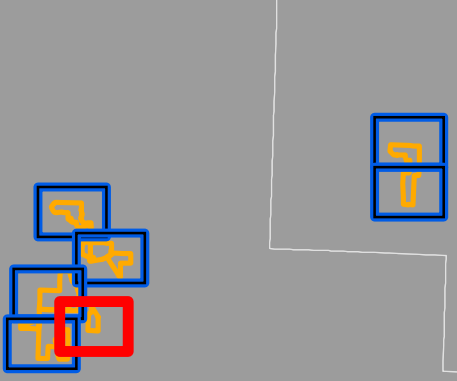
## Figure 1.4 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Proposed Site Boundary (01/30/2020)
- 2020 Survey Area
- 2019 Survey Area
- Secondary Road
- Developed



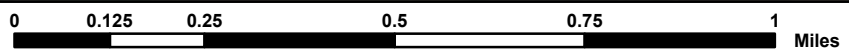
Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_11171\_20210223.mxd



1:16,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

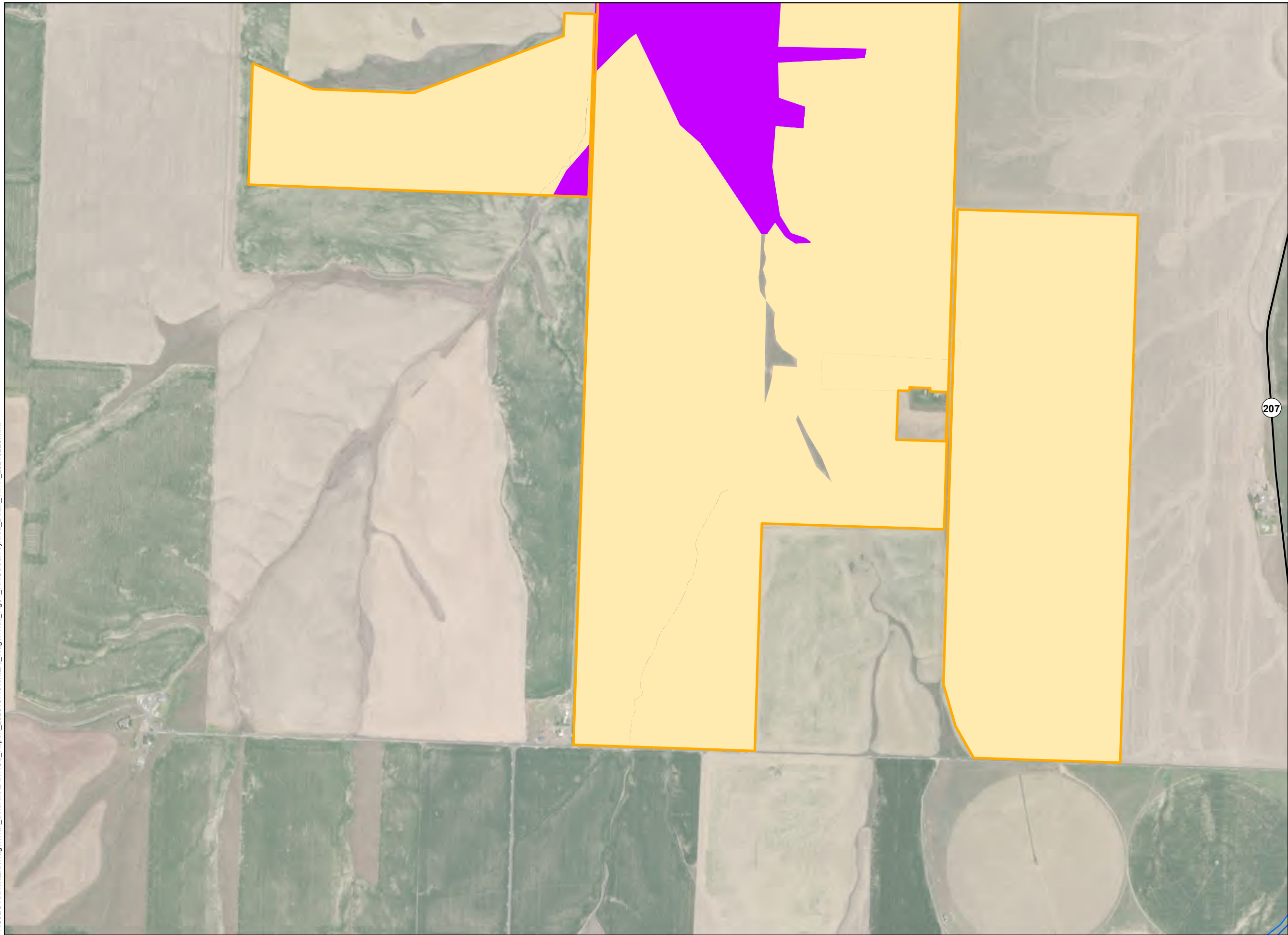
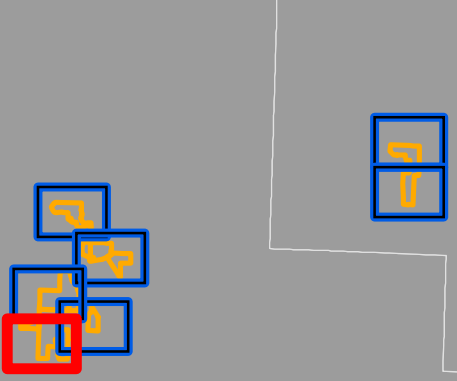
## Figure 1.5 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

- Proposed Site Boundary (01/30/2020)
- 2020 Survey Area
- 2019 Survey Area
- Secondary Road
- Developed



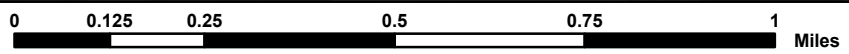
Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_11171\_20210223.mxd



1:16,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION






P:\GIS\_PROJECTS\NextEra\WagonTrail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_111171\_20210223.mxd

# Wagon Trail Solar Project

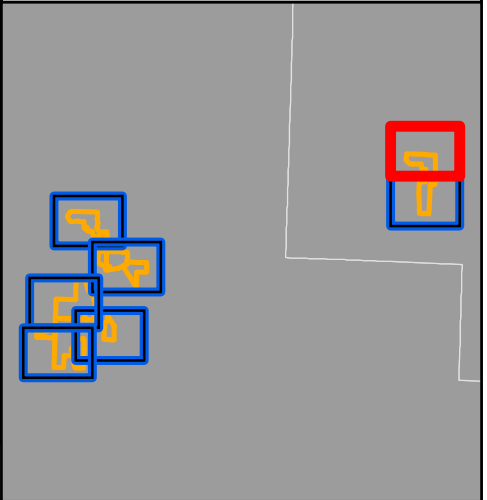
## Figure 1.6 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

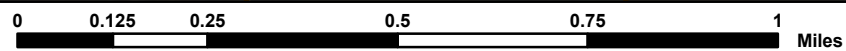
-  Proposed Site Boundary (01/30/2020)
-  2020 Survey Area
-  Developed



Reference Map



1:16,000 WGS 1984 UTM Zone 11N





NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

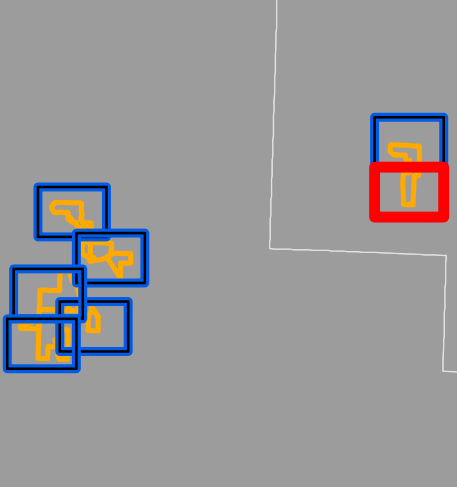
## Figure 1.7 Washington Ground Squirrel Survey Areas (2019-2020)

MORROW AND UMATILLA COUNTIES, OR

-  Proposed Site Boundary (01/30/2020)
-  Developed



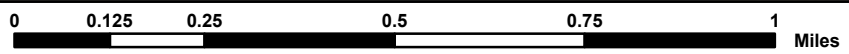
Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\WAGS\_Report\_20201014\NextEra\_WagonTrail\_Fig01\_WAGSSurveyArea\_Detail\_11171\_20210223.mxd



1:16,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

# **Attachment 1. Washington Ground Squirrel Colony Data Sheet**

This page intentionally left blank

# Washington Ground Squirrel Colony Datasheet

Date: \_\_\_\_\_ Surveyor(s): \_\_\_\_\_

Colony # \_\_\_\_\_

Wind: Direction from (circle one): N NE E SE S SW W NW n/a Wind Speed (mph): \_\_\_\_\_

Precipitation(circle one) none light rain rain snow sleet hail other Temp (F): \_\_\_\_\_ Cloud Cover: \_\_\_\_\_

<b>Site Occupancy:</b>	<b>Activity Confirmation (check all that apply):</b>	<b>How was first colony discovered?:</b>
<input type="checkbox"/> Confirmed Active (1)	<input type="checkbox"/> Visual(1)	<input type="checkbox"/> Visual(1)
<input type="checkbox"/> Confirmed Inactive (2)	<input type="checkbox"/> Alarm call (2)	<input type="checkbox"/> Alarm call (2)
<input type="checkbox"/> Possible Activity (3)	<input type="checkbox"/> Scat (3)	<input type="checkbox"/> Scat (3)

## Habitat Characteristics

<b>Soil Type:</b>	<b>Shrub Cover:</b>	<b>Shrub Distibution:</b>	<b>Plant Species Composition:</b>
<input type="checkbox"/> Sandy (1)	<input type="checkbox"/> <1%(1)	<input type="checkbox"/> Patchy (1)	<input type="checkbox"/> native species dominant (>60%)
<input type="checkbox"/> Silty (2)	<input type="checkbox"/> 1-10% (2)	<input type="checkbox"/> Homogenous (2)	<input type="checkbox"/> exotic species dominant (>60%)
<input type="checkbox"/> Silty Sand (3)	<input type="checkbox"/> 11-20% (3)	<input type="checkbox"/> Unknown or N/A (0)	<input type="checkbox"/> neither native or exotics dominate
<input type="checkbox"/> Silty loam (4)	<input type="checkbox"/> 21-40% (4)		<input type="checkbox"/> native species present (percent _____)
<input type="checkbox"/> Silty Sand or loam w/ Gravel (5)	<input type="checkbox"/> 41-60% (5)		
<input type="checkbox"/> Rocky (6)	<input type="checkbox"/> 61-80% (6)		
	<input type="checkbox"/> 81-100% (7)		

**General habitat type:** (circle one) bunchgrass, sagebrush steppe, annual grassland, other \_\_\_\_\_

<b>Grazing Intensity:</b>	<b>Dominant Plant Species:</b> _____
<input type="checkbox"/> 0-25% Lightly Grazed (1)	_____
<input type="checkbox"/> 25-50% Moderately Grazed (2)	_____
<input type="checkbox"/> 50-75% Heavily Grazed (3)	_____
<input type="checkbox"/> 75-100% Overgrazed (4)	_____

**Disturbances (circle all that apply):** Anthropogenic Off Road Vehicles Grazing Wind Fire Erosion None Other: \_\_\_\_\_

## Activity Center Information

**Number of Burrows:** \_\_\_\_\_ **Photo Number(s):** \_\_\_\_\_  
**Number of Burrows with scat (approximate):** \_\_\_\_\_  
**Number of scat found (approximate):** \_\_\_\_\_ **Scat photo Number(s):** \_\_\_\_\_

**Colony UTM's (Activity Center and Boundary):**

N: 5xxxxxx	E: 02 or 07xxxxx	GPS unit # + wpt #	Description (i.e. alarm call, burrow, colony boundary, etc.)
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		
N:	E:		

**Notes:** \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

This page intentionally left blank

**Attachment Q-2. 2021 Washington Ground  
Squirrel Survey Report (**CONFIDENTIAL**)**

**(Provided under separate cover)**

This page intentionally left blank



# **Attachment Q-3. 2020-2021 Rare Plant Survey Report**

This page intentionally left blank

# **2020 - 2021 Rare Plant Survey Report**

---

**Wagon Trail Solar Project  
August 2021**

**Prepared for**



**Prepared by**



**Tetra Tech, Inc.**

This page intentionally left blank

## Table of Contents

1.0	Introduction .....	1
2.0	Methods.....	1
2.1	Background Review .....	1
2.2	Target Plant Species and Previous Field Surveys .....	1
2.3	Survey Area.....	2
2.4	Field Survey Methods .....	2
3.0	Results .....	3
4.0	Conclusions.....	3
5.0	References.....	4

## List of Figures

Figure 1. Project Overview

Figure 2. 2020 and 2021 Rare Plant Survey Areas

## List of Attachments

Attachment 1. Vascular Plant Species Observed During the 2020 and 2021 Field Surveys

This page intentionally left blank

## 1.0 Introduction

This survey report presents the methods and results for the 2020 – 2021 rare plant surveys conducted by Tetra Tech, Inc. (Tetra Tech) for the Wagon Trail Solar Project (Facility). These surveys are in support of Wheatridge East Wind, LLC’s (Applicant) anticipated Application for Site Certificate through the Oregon Energy Facility Siting Council. The objective of these surveys was to identify rare plant species (i.e., federal and state endangered, threatened, proposed, and candidate plant species) within the Facility’s Site Boundary (Figure 1), so that impacts to rare plants may be avoided or minimized.

## 2.0 Methods

### 2.1 Background Review

In order to identify federal and state endangered, threatened, proposed, and candidate plant species with the potential to occur within the Facility’s Site Boundary, a review of existing information was conducted. Sources of information included:

- Burke Herbarium Image Collection (Burke Museum 2020);
- Oregon Listed Plants by County (ODA 2020a);
- Oregon Biodiversity Information Center (ORBIC) 2019 Rare, Threatened and Endangered Species Oregon (ORBIC 2019);
- Oregon Flora Project – Rare Plant Guide (OFP 2011);
- Oregon Flora Project – Oregon Plant Atlas and digitized specimen labels and submitted observations (OFP 2019);
- OregonFlora online guide to vascular plants of Oregon (OregonFlora 2021);
- USFWS’s Oregon’s Endangered Species (USFWS 2020);
- Washington Department of Natural Resources’ Rare Plant Online Field Guide (WDNR 2020); and
- Ecological Investigations Report for the Wheatridge Wind Energy Facility – Attachment P-1 of the Wheatridge Wind Energy Facility 2015 Application for Site Certificate (Gerhardt and Anderson 2014.).

### 2.2 Target Plant Species and Previous Field Surveys

Based on the background literature and information review, one state-listed threatened or endangered plant species, Laurent’s milkvetch (*Astragalus collinus* var. *laurentii*; state threatened species, federal species of concern), was identified with the potential to occur within the Site

Boundary. In addition to Laurent's milkvetch, four other state candidate plant species, Henderson ricegrass (*Achnatherum hendersonii*), dwarf evening primrose (*Eremothera [Camissonia] pygmaea*), disappearing monkeyflower (*Erythranthe inflatula [Mimulus evanescens]*), and sessile mousetail (*Myosurus sessilis*), were determined to have the potential occur within the Site Boundary.

Surveys for Laurent's milkvetch and the four other candidate species were conducted in 2019 within portions of the Site Boundary that overlap with pre-construction Survey Areas associated with the Wheatridge Wind Energy Facility (Tetra Tech 2019). No populations of Laurent's milkvetch or the four other candidate species were identified within the portions of the Site Boundary surveyed in 2019.

Based on the background review, including review of previous surveys conducted in the vicinity, it was determined that Laurent's milkvetch is the only federal and state endangered, threatened, proposed, and candidate plant species likely to occur within the Site Boundary. Therefore, surveys conducted in 2020 and 2021 were focused on Laurent's milkvetch.

### 2.3 Survey Area

The Survey Areas for target plant species consisted of all potential suitable habitat within the Site Boundary (Figure 2). Surveys were initially conducted in July of 2020. Additional areas were added to the Site Boundary subsequent to rare plant surveys conducted in 2020. In June 2021, surveys were conducted within the previously unsurveyed portions of the expanded Site Boundary with the exception of 9.5 acres where right of entry was not permitted at the time of the surveys. All areas of suitable or marginally suitable habitat within the Site Boundary were surveyed; only active agricultural lands and the 9.5 acres where access was not permitted were excluded from surveys.

### 2.4 Field Survey Methods

Field surveys for Laurent's milkvetch were conducted July 13-15, 2020 and June 22, 2021. Fruiting individuals are needed for positive identification of this species; therefore, the survey schedule was chosen to cover the period when Laurent's milkvetch was likely to be in fruit (ODA 2020b). Surveys were conducted by a Tetra Tech, Inc. (Tetra Tech) senior botanist familiar with suitable habitat for and identification of Laurent's milkvetch. Prior to conducting field surveys, fact sheets for Laurent's milkvetch were compiled. These fact sheets were used by surveyors in the field and included:

- Photos of Laurent's milkvetch and its habitat;
- Information detailing habitat associations;
- Range and flowering period;
- Identifying features; and
- Characteristics distinguishing Laurent's milkvetch from similar species within its range.

In addition, prior to commencing surveys, a known occurrence of Laurence's milkvetch was visited. Visiting a known occurrence helps surveyors determine the current phenology of the species,



provides an identification reference for individuals if encountered within the survey area, and confirms that surveys were being conducted at the appropriate time for positive identification.

Field surveys were conducted using the Intuitive Controlled survey method, a standard and commonly accepted survey protocol (USFS and BLM 1998). This method incorporates meandering transects that traverse the survey area, and that target the full array of major vegetation types, aspects, topographical features, habitats, and substrate types. While en route, the surveyors search for the target species, and when the surveyors arrive at an area of high potential habitat, they conduct a complete survey for the target species. Complete surveys include an examination of 100 percent of the habitat.

The survey protocol includes recording the Global Positioning System location of any target species encountered with a tablet using ArcGIS Collector software. Survey methods also include completing ORBIC siting forms for any rare plant populations observed and taking photos to serve as digital specimen vouchers to illustrate identifying characteristics, plant habits, and habitat.

Data collected for each rare plant population, if encountered, would include:

- Species phenology;
- Number of plants observed;
- Age class;
- Habitat information and associated species; and
- Visible threats.

During surveys, Tetra Tech maintained a running list of vascular plant species encountered and made informal collections of unknown species for later identification. Identification was verified by the use of appropriate plant keys; in particular, *Flora of the Pacific Northwest* (Hitchcock and Cronquist 2018). Nomenclature follows that used by *OregonFlora* (OregonFlora 2021). The final vascular plant species list for the surveys is included as Attachment 1 of this report.

### **3.0 Results**

No individuals of Laurent's milkvetch were observed within the Survey Areas and only limited areas of suitable native perennial grassland for this species were observed within the Survey Areas. In addition, no other state-listed endangered, threatened, or candidate species were observed within the Survey Areas.

### **4.0 Conclusions**

No populations of Laurent's milkvetch or any other state threatened, endangered, or candidate species were observed during surveys conducted in July 2020 and June 2021. Therefore, no

documented individuals or populations of Laurent's milkvetch or any other state threatened, endangered, or candidate species would be affected by construction or operation of the Project.

## 5.0 References

- Burke Museum (Burke Museum Herbarium). 2020. Burke Herbarium Image Collection. University of Washington. Seattle, WA. Available online at: <http://biology.burke.washington.edu/herbarium/imagecollection.php>.
- Gerhardt and Anderson. 2014. Ecological Investigations Report for the Wheatridge Wind Energy Project. Northwest Wildlife Consultants, Inc. Pendleton, OR.
- Hitchcock, C. L., and A. Cronquist. 2018. Flora of the Pacific Northwest; an Illustrated Manual. Second Edition. Edited by D.E Giblin, B. S. Legler, P.F. Zika, and R.G. Olmstead. University of Washington Press. Seattle, WA.
- ODA (Oregon Department of Agriculture). 2020a. Oregon Listed Plants by County. Available online at: <https://www.oregon.gov/ODA/programs/PlantConservation/Pages/ListedPlants.aspx>.
- ODA. 2020b. Lawrence's milkvetch (*Astragalus collinus* var. *laurentii*) Fact Sheet. Available online at: <https://www.oregon.gov/oda/shared/Documents/Publications/PlantConservation/AstragalusCollinusLaurentiiProfile.pdf>
- OFP (Oregon Flora Project). 2011. Rare Plant Guide. Oregon Flora Project Plant Atlas. Department of Botany and Plant Pathology, Oregon State University. Corvallis, OR. Available online at: <http://oregonflora.org/rareplants.php>. Accessed June 2020.
- OFP. 2019. Oregon Flora Project Plant Atlas. Department of Botany and Plant Pathology, Oregon State University. Corvallis, OR. Available online at: <http://www.oregonflora.org/atlas.php>. Accessed June 2020.
- ORBIC (Oregon Biodiversity Information Center). 2019. Rare, Threatened and Endangered Species of Oregon. Oregon Biodiversity Information Center, Institute for Natural Resources, Portland State University, Portland, Oregon. 133 pp.
- OregonFlora. 2021. OregonFlora Website. Oregon State University, Department of Botany and Plant Pathology. Corvallis, OR. Available online at: <https://oregonflora.org/>. Accessed July 2021.
- Tetra Tech (Tetra Tech, Inc.). 2019. 2019 Rare Plant Survey Report for the Wheatridge Wind Energy Facility. Portland, OR.
- USFS and BLM (U.S. Forest Service and Bureau of Land Management). 1998. Survey Protocols for Survey and Manage Strategy 2 Vascular Plants. Version 2.0.
- USFWS (U.S. Fish and Wildlife Service). 2020. Oregon's Endangered Species – Plants. Oregon Fish and Wildlife Office. Accessed at: <https://www.fws.gov/oregonfwo/promo.cfm?id=177175701>. Accessed December 2020.

WDNR (Washington Department of Natural Resources). 2020. Rare Plant Online Field Guide. Washington Natural Heritage Program. Available online at:  
<https://www.dnr.wa.gov/NHPfieldguide>

This page intentionally left blank




# Figures

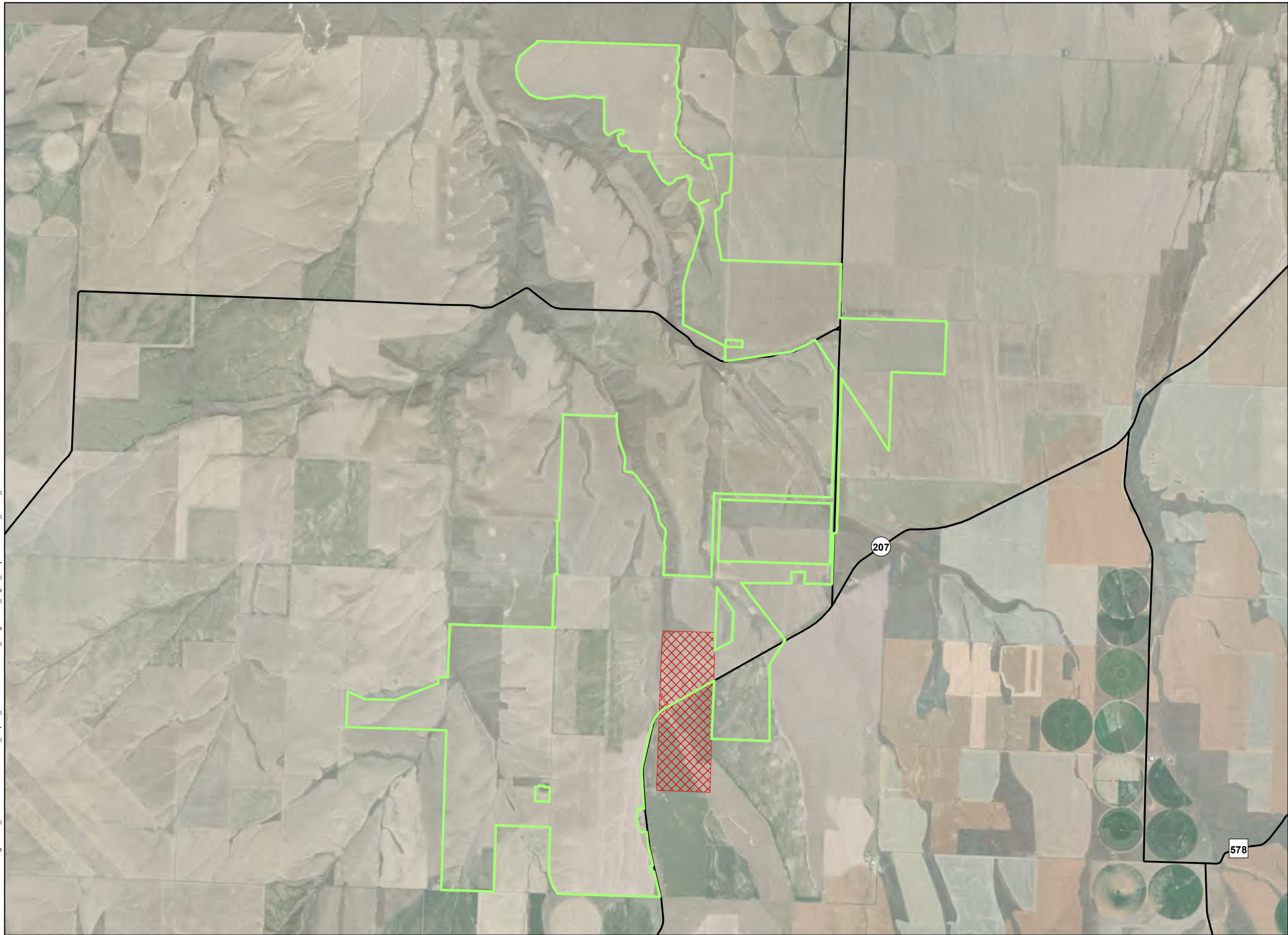
This page intentionally left blank

# Wagon Trail Solar Project

## Figure 1 Project Overview

MORROW COUNTY, OR

-  No Access Parcel
-  Proposed Site Boundary (03/01/2021)
-  Secondary Road



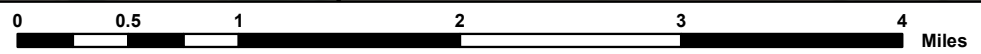
### Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\RarePlants\_Report\_2020\0909\NextEra\_WagonTrail\_Fig01\_ProjectOverview\_111171\_20210811.mxd



1:55,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

# Wagon Trail Solar Project

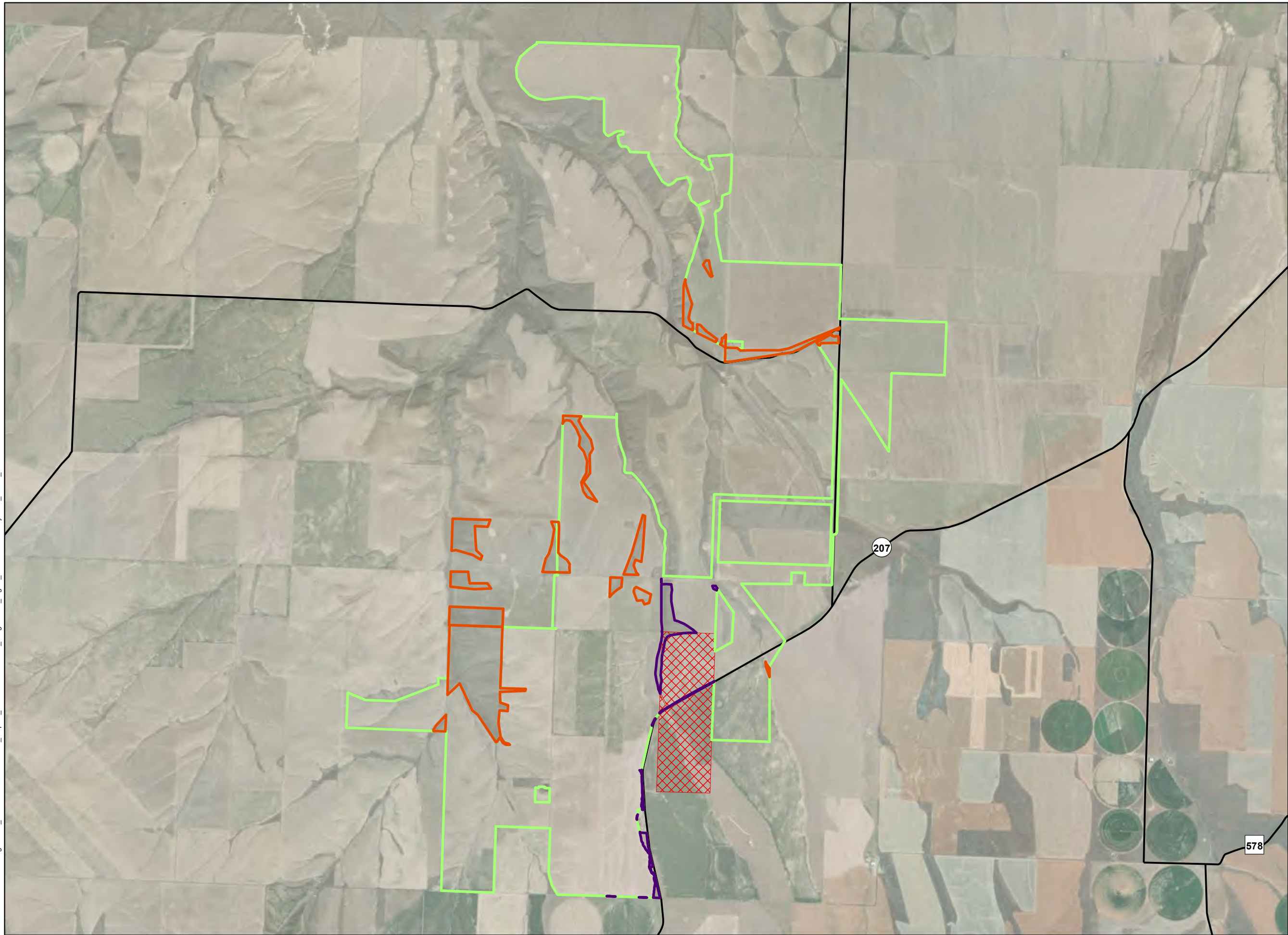
## Figure 2 Rare Plant Survey Area

MORROW COUNTY, OR

- Proposed Site Boundary (03/01/2021)
- 2021 Rare Plants Survey Area
- 2020 Rare Plants Survey Area
- No Access Parcel
- Secondary Road



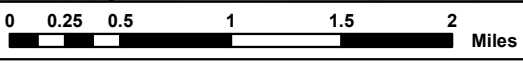
### Reference Map



P:\GIS\_PROJECTS\NextEra\Wagon Trail\_Solar\MXD\RarePlants\_Report\_2020\909\NextEra\_WagonTrail\_Fig02\_RarePlantSurveyArea\_11171\_20210811.mxd



1:55,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION



# **Attachment 1. Vascular Plant Species Observed During the 2020 and 2021 Field Surveys**

This page intentionally left blank

**Attachment 1: Vascular Plant Species Observed During the 2020 and 2021 Field Surveys**

Scientific Name <sup>1</sup>	Common Name <sup>2</sup>	Family <sup>1</sup>	Type	Non-Native <sup>1</sup>	Noxious Weed Designation State / Morrow County <sup>3</sup>	Synonyms/Notes <sup>2</sup>
<i>Achillea millefolium</i>	common yarrow	Asteraceae	Forb			
<i>Acroptilon repens</i>	Russian knapweed	Asteraceae	Forb	x	List B / Weed of Economic Importance	<i>Centaurea repens</i>
<i>Aegilops cylindrica</i>	jointed goatgrass	Poaceae	Graminoid	x	List B / Weed of Economic Importance	
<i>Agoseris grandiflora</i>	large-flowered agoseris	Asteraceae	Forb			
<i>Agoseris heterophylla</i>	annual agoseris	Asteraceae	Forb			
<i>Agropyron cristatum</i>	crested wheatgrass	Poaceae	Graminoid	x		
<i>Amsinckia</i> spp.	fiddleneck	Boraginaceae	Forb			
<i>Antennaria dimorpha</i>	low pussytoes	Asteraceae	Forb			
<i>Artemisia tridentata</i>	big sagebrush	Asteraceae	Shrub			
<i>Astragalus lentiginosus</i>	freckled milkvetch	Fabaceae	Forb			
<i>Astragalus purshii</i>	woollypod milkvetch, Pursh's milkvetch	Fabaceae	Forb			
<i>Avena fatua</i>	wild oats	Poaceae	Graminoid	x	Not listed / Weed of Economic Importance	
<i>Balsamorhiza careyana</i>	Carey's balsamroot	Asteraceae	Forb			
<i>Bassia scoparia</i>	kochia, mock cypress, burning bush	Amaranthaceae	Forb	x	List B / Weed of Economic Importance	<i>Kochia scoparia</i>
<i>Brickellia oblongifolia</i>	narrowleaf brickellia, Mojave brickellbush	Asteraceae	Forb/Subshrub			
<i>Bromus diandrus</i>	ripgut brome	Poaceae	Graminoid	x		<i>Bromus rigidus</i>
<i>Bromus hordeaceus</i>	soft brome, soft chess	Poaceae	Graminoid	x		<i>Bromus mollis</i>
<i>Bromus tectorum</i>	cheatgrass	Poaceae	Graminoid	x		
<i>Calochortus macrocarpus</i> var. <i>macrocarpus</i>	sagebrush mariposa lily	Liliaceae	Forb			
<i>Centaurea diffusa</i>	diffuse knapweed	Asteraceae	Forb	x	List B / Weed of Economic Importance	
<i>Centaurea solstitialis</i>	yellow starthistle, St. Barnaby's thistle	Asteraceae	Forb	x	List B / Noxious Weed	
<i>Chaenactis douglasii</i> var. <i>douglasii</i>	Douglas' dusty maidens, hoary false yarrow	Asteraceae	Forb			
<i>Chamaesyce glyptosperma</i>	ribseed sandmat, ridge-seeded spurge	Euphorbiaceae	Forb			<i>Euphorbia glyptosperma</i>
<i>Chenopodium leptophyllum</i>	slimleaf goosefoot	Amaranthaceae	Forb			
<i>Chondrilla juncea</i>	rush skeletonweed	Asteraceae	Forb	x	List B, List T / Noxious Weed	
<i>Chorispora tenella</i>	chorispora, purple mustard, blue mustard, crossflower	Brassicaceae	Forb	x		
<i>Chrysothamnus viscidiflorus</i>	green rabbitbrush, yellow rabbitbrush, sticky-flowered rabbitbrush	Asteraceae	Shrub			
<i>Convolvulus arvensis</i>	field bindweed	Convolvulaceae	Forb	x	List B / Weed of Economic Importance	

**Attachment 1: Vascular Plant Species Observed During the 2020 and 2021 Field Surveys**

Scientific Name <sup>1</sup>	Common Name <sup>2</sup>	Family <sup>1</sup>	Type	Non-Native <sup>1</sup>	Noxious Weed Designation State / Morrow County <sup>3</sup>	Synonyms/Notes <sup>2</sup>
<i>Conyza canadensis</i>	Canadian fleabane, horseweed	Asteraceae	Forb			
<i>Crepis</i> spp.	hawksbeard	Asteraceae	Forb			
<i>Cymopterus terebinthinus</i>	aromatic spring parsley, turpentine wavewing	Apiaceae	Forb			<i>Pteryxia terebinthina</i>
<i>Dieteria canescens</i> var. <i>canescens</i>	hoary aster, hoary tansyaster	Asteraceae	Forb			<i>Aster canescens</i> , <i>Machaeranthera canescens</i>
<i>Elymus elymoides</i>	squirreltail	Poaceae	Graminoid			<i>Sitanion hystrix</i>
<i>Epilobium brachycarpum</i>	tall annual willowherb, autumn willowherb	Onagraceae	Forb			
<i>Ericameria nauseosa</i>	rubber rabbitbrush	Asteraceae	Shrub			<i>Chrysothamnus nauseosus</i>
<i>Erigeron filifolius</i>	threadleaf fleabane	Asteraceae	Forb			
<i>Erigeron poliospermus</i>	purple cushion fleabane, hairy-seeded daisy	Asteraceae	Forb			
<i>Erigeron pumilus</i> var. <i>intermedius</i>	shaggy fleabane	Asteraceae	Forb			
<i>Eriocoma hymenoides</i>	Indian ricegrass	Poaceae	Graminoid			<i>Achnatherum hymenoides</i> , <i>Oryzopsis hymenoides</i> , <i>Stipa hymenoides</i>
<i>Eriocoma</i> spp.	needlegrass	Poaceae	Graminoid			<i>Achnatherum</i> spp.
<i>Eriogonum niveum</i>	snow buckwheat	Polygonaceae	Forb/Subshrub			
<i>Erodium cicutarium</i>	common stork's bill, red-stemmed filaree, African filaree	Geraniaceae	Forb	x		
<i>Gutierrezia sarothrae</i>	broom snakeweed, matchweed	Asteraceae	Shrub			
<i>Hesperostipa comata</i> ssp. <i>comata</i>	needle-and-thread	Poaceae	Graminoid			<i>Stipa comata</i>
<i>Heterotheca villosa</i> var. <i>villosa</i>	hairy goldenaster	Asteraceae	Forb			<i>Chrysopsis villosa</i> var. <i>villosa</i>
<i>Holosteum umbellatum</i> ssp. <i>umbellatum</i>	jagged chickweed	Caryophyllaceae	Forb	x		
<i>Hordeum murinum</i>	mouse barley, wall barley, hare barley	Poaceae	Graminoid	x		
<i>Lactuca serriola</i>	prickly lettuce	Asteraceae	Forb	x		
<i>Lagophylla ramosissima</i>	slender hareleaf, common rabbitleaf	Asteraceae	Forb			
<i>Lepidium latifolium</i>	perennial pepperweed, broad-leaved peppergrass	Brassicaceae	Forb	x	List B / Weed of Economic Importance	
<i>Lepidium perfoliatum</i>	clasping pepperweed	Brassicaceae	Forb	x		
<i>Leymus cinereus</i>	Great Basin wildrye	Poaceae	Graminoid			<i>Elymus cinereus</i>
<i>Linum lewisii</i> var. <i>lewisii</i>	western blue flax, wild blue flax	Linaceae	Forb			<i>Linum perenne</i> var. <i>lewisii</i>
<i>Logfia arvensis</i>	field filago, field cottonrose	Asteraceae	Forb	x		<i>Filago arvensis</i>
<i>Lomatium dissectum</i>	fernleaf biscuitroot, fernleaf desert parsley	Apiaceae	Forb			
<i>Lomatium</i> cf. <i>macrocarpum</i>	bigseed lomatium, large-fruited desert parsley	Apiaceae	Forb			Plants were senescing during surveys, positive id not possible. Id based on habit and leaf structure
<i>Lupinus</i> spp.	lupine	Fabaceae	Forb			
<i>Madia gracilis</i>	slender tarweed, common tarweed	Asteraceae	Forb			

**Attachment 1: Vascular Plant Species Observed During the 2020 and 2021 Field Surveys**

Scientific Name <sup>1</sup>	Common Name <sup>2</sup>	Family <sup>1</sup>	Type	Non-Native <sup>1</sup>	Noxious Weed Designation State / Morrow County <sup>3</sup>	Synonyms/Notes <sup>2</sup>
<i>Matricaria discoidea</i>	pineapple weed	Asteraceae	Forb			
<i>Medicago sativa</i>	alfalfa	Fabaceae	Forb	x		
<i>Phacelia hastata</i>	lanceleaf phacelia, silverleaf phacelia, cordilleran phacelia	Hydrophyllaceae	Forb			
<i>Phlox longifolia</i>	long leaved phlox	Polemoniaceae	Forb/Sub-shrub			
<i>Plantago patagonica</i>	woolly plantain, Indian wheat	Plantaginaceae	Forb			
<i>Poa bulbosa</i>	bulbous bluegrass	Poaceae	Graminoid	x		
<i>Poa secunda var. juncifolia</i>	big bluegrass, Nevada bluegrass, alkali bluegrass	Poaceae	Graminoid			<i>Poa ampla</i>
<i>Poa secunda var. secunda</i>	Sandberg's bluegrass, Canby's bluegrass	Poaceae	Graminoid			
<i>Polygonum aviculare</i>	common knotweed, knotweed	Polygonaceae	Forb	x		
<i>Pseudoroegneria spicata</i>	bluebunch wheatgrass	Poaceae	Graminoid			<i>Agropyron spicatum; Elymus spicatus</i>
<i>Salsola tragus</i>	prickly Russian thistle, tumbleweed	Amaranthaceae	Forb	x		<i>Salsola kali</i>
<i>Secale cereale</i>	cereal rye, rye	Poaceae	Graminoid	x	Not listed / Weed of Economic Importance	
<i>Sisymbrium altissimum</i>	tumble mustard, tall tumbledustard, Jim Hill mustard	Brassicaceae	Forb	x		
<i>Sporobolus cryptandrus</i>	sand dropseed	Poaceae	Graminoid			
<i>Stephanomeria paniculata</i>	stiff-branched wirelettuce	Asteraceae	Forb			
<i>Tetradymia canescens</i>	gray horsebrush, spineless horsebrush	Asteraceae	Shrub			
<i>Thinopyrum intermedium ssp. intermedium</i>	intermediate wheatgrass	Poaceae	Graminoid	x		<i>Agropyrum intermedium; Elymus hispidus</i>
<i>Thinopyrum ponticum</i>	tall wheatgrass	Poaceae	Graminoid	x		<i>Elytrigia pontica ssp. pontica, Agropyron elongatum</i>
<i>Townsendia florifer</i>	showy townsendia	Asteraceae	Forb			
<i>Tragopogon dubius</i>	yellow salsify	Asteraceae	Forb	x		
<i>Triticum aestivum</i>	wheat	Poaceae	Graminoid	x		
<i>Vulpia microstachys</i>	small fescue, desert fescue	Poaceae	Graminoid			<i>Festuca arida, Festuca microstachys</i>
<i>Vulpia myuros</i>	rattail fescue, rat-tail six-weeks grass	Poaceae	Graminoid	x		

1. Scientific names, family, and nativity, follow OregonFlora (OregonFlora 2021).

2. Sources: OregonFlora- available online at: Flora 2021); the Natural Resources Conservation Service's PLANTS Database - available online at: <https://plants.sc.egov.usda.gov/java/>; and the Burke Herbarium Image Collection - available online at: <http://biology.burke.washington.edu/herbarium/imagecollection.php>

3. Sources: Oregon Department of Agriculture's 2020 Noxious Weed Policy and Classification System, available online at: <https://www.oregon.gov/ODA/programs/Weeds/OregonNoxiousWeeds/Pages/Law.aspx>; Morrow County Weed List - available online at: [https://www.co.morrow.or.us/sites/default/files/fileattachments/planning/page/2461/07052021\\_effective\\_2021\\_code\\_enforcement\\_ordinance.pdf](https://www.co.morrow.or.us/sites/default/files/fileattachments/planning/page/2461/07052021_effective_2021_code_enforcement_ordinance.pdf)

This page intentionally left blank