Exhibit P

Fish and Wildlife Habitats and Species

Yellow Rosebush Energy Center
August 2024

Prepared for
Yellow Rosebush Energy Center, LLC

Prepared by

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Acronyms and Abbreviations

APLIC	Avian Powerline Interaction Committee
Applicant	Yellow Rosebush Energy Center, LLC
BGEPA	Bald and Golden Eagle Protection Act
EFSC	Oregon Energy Facility Siting Council
Facility	Yellow Rosebush Energy Center
GIS	geographic information systems
O&M	operations and maintenance
OAR	Oregon Administrative Rules
ODFW	Oregon Department of Fish and Wildlife
ORBIC	Oregon Biodiversity Information Center
USFWS	U.S. Fish and Wildlife Service

1.0 Introduction

Yellow Rosebush Energy Center, LLC (Applicant) seeks to develop the Yellow Rosebush Energy Center (Facility), a solar energy generation facility, battery energy storage system, and related or supporting facilities in Wasco and Sherman counties, Oregon.

This Exhibit P was prepared to meet the submittal requirements in Oregon Administrative Rules (OAR) 345-021-0010(1)(p). Exhibit P provides information on the fish and wildlife habitats and species that could be affected by the Facility, other than the species addressed in Exhibit Q.

2.0 Analysis Area

The analysis area for fish and wildlife habitat is the proposed site boundary plus a 0.5-mile buffer, as defined by OAR 345-001-0010(35)(c) and as confirmed by the Project Order (ODOE 2024). The proposed site boundary is defined in detail in Exhibits B and C. The fish and wildlife habitat analysis area is shown on Figure P-1. A portion of the proposed site boundary is designated as the proposed micrositing corridor, where solar arrays and all other related and supporting facilities may be located. The Applicant performed field surveys within the majority of the proposed micrositing corridor, while desktop analysis was used to understand the area within the proposed site boundary, the 0.5-mile buffer around the proposed site boundary, and the portion of the micrositing corridor not accessible for field surveys along the alternate generation-tie line and areas with severe slopes along Buck Hollow and Hauser canyons (Figure P-1; Attachment P-1).

3.0 Agency Consultation

To inform wildlife use of the site boundary, the Applicant consulted with the Oregon Department of Fish and Wildlife (ODFW) and U.S. Fish and Wildlife Service (USFWS), as summarized below:

- Met with ODFW staff via video call on May 31, 2023, to discuss survey methods. ODFW concurred with the survey methods, including timing and extent of surveys.
- Met with ODFW staff at the Facility site on June 15, 2023, to discuss habitat mapping and strategies to reduce Facility habitat impacts.
- Met with ODFW staff via video call on August 30 and December 14, 2023, to discuss mitigation options for Facility habitat impacts.
- Met with USFWS staff via video call on December 5, 2023, to discuss eagle avoidance and minimization measures.

4.0 Description of Biological and Botanical Surveys Performed – OAR 345-021-0010(1)(p)(A)

OAR 345-021-0010(1)(p) Information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in subsection (q) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant must include:

OAR 345-021-0010(1)(p)(A) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey.

This section describes the biological and botanical surveys conducted in support of this exhibit as required under OAR 345-021-0010(1)(p)(A), including the timing and scope of each survey. Biological and botanical surveys included an initial desktop-level review, followed by field surveys.

4.1 Information Review

4.1.1 Desktop Review

Prior to conducting field surveys in 2023, the Applicant conducted a desktop review to identify special status fish and wildlife species that had the potential to occur in the analysis area, including federal and state endangered, threatened, proposed, and candidate species; species of concern; birds of conservation concern; sensitive and sensitive-critical species; and Oregon Conservation Strategy species (Attachment P-1; OCS 2016; ODFW 2021a; ODFW 2021b; ORBIC 2019; ORBIC 2023a; USFWS 2021; USFWS 2023a; USFWS 2023b). The Applicant reviewed habitat and range information for special status fish and wildlife species known to occur in Wasco County and Sherman County and the Columbia Plateau/Columbia Basin 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 analysis area, or their range did not overlap with the analysis area; species were included if they have the potential for vagrancy at the Facility.

The Applicant identified target rare plants species with the potential to occur within the analysis area based on known occurrences recorded by herbaria and other sources (Burke Museum of Natural History and Culture 2023; ODA 2023; Oregon Flora 2023a; Oregon Flora 2023b; Oregon Flora 2023c; ORBIC 2019; ORBIC 2023a; ORBIC 2023b; USFWS 2023a). The Applicant identified all vascular plants listed as endangered or threatened by the USFWS under the federal Endangered Species Act, as well as candidates and species proposed for listing, and plants listed as endangered, threatened, or candidates for listing by the Oregon Department of Agriculture under the Oregon Endangered Species Act.

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 10 miles of the Facility (ORBIC 2023a). The Applicant

also reviewed aerial photographs, National Wetlands Inventory data, the National Hydrography Dataset, and big game winter range spatial data to preliminarily identify ODFW habitats within the analysis area (ODFW 2013; USFWS 2022; USFWS 2023c; USGS 2023; Leal 2020; ORBIC 2023a).

4.2 Field Surveys

The Applicant conducted field surveys within the majority of the proposed micrositing corridor in June 2023. The Applicant did not have land access to the alternate generation-tie line corridor or areas with severe slopes (greater than 30 percent) along Buck Hollow and Hauser canyons (1,050 acres) during the 2023 survey season; this area received a desktop review in June 2023 and will be field surveyed prior to construction, as appropriate. Because the steeper slopes do not fall within the micrositing corridor, they will not be impacted by construction or operations of the Facility. Therefore, the only area not yet surveyed that may be affected by construction is the alternate gen-tie line. If special status species are found during any additional surveys conducted prior to construction, the Applicant will work with ODFW to avoid and minimize impacts during construction to the extent possible. Figure P-2 shows the extent of surveys within the proposed micrositing corridor in 2023. A detailed description of the surveys can be found in the biological survey reports (Attachment P-1).

4.2.1 Wildlife Habitat Mapping and Categorization Surveys

Prior to conducting field surveys, the Applicant mapped preliminary habitat polygons using aerial photography, previous habitat assessments, and U.S. Department of Agriculture CropScape Cropland Geographic Information System (GIS) data to identify the range of habitat types within the analysis area (ODFW 2013; USDA-NASS 2023). The Applicant conducted wildlife and habitat surveys within the majority of the proposed micrositing corridor in June 2023 to field verify habitat mapping. Surveyors confirmed or recategorized areas of relatively homogenous vegetation and characterized the composition and structure of habitat types. Each delineated vegetation polygon was assigned a habitat type, subtype, and habitat quality category guided by the draft habitat categorization table in Attachment P-1. Data characterizing a particular habitat type and quality described representative conditions of all such polygons. A minimum mapping unit of 1 acre was used, except for specialized habitat types, such as cliffs.

Surveyors walked meandering transects within non-cultivated land inside the proposed micrositing corridor, scanning the landscape and mapping habitats within the proposed micrositing corridor. Following field surveys, the digitized boundaries were downloaded and processed in a GIS program, and the field datasheets were incorporated into the spatial data. Data were reviewed for quality control and processed to incorporate wetlands and waters data. Habitat types and categories were not assigned to wetlands and waters in the field; they were derived from data collected during wetlands and waters surveys where available, following the habitat categorization field effort.

Outside of the accessible areas within the proposed micrositing corridor, but inside the analysis area, habitats were categorized based on desktop analysis. The alternate generation-tie line and steep canyon slopes (i.e., the non-accessible portion of the micrositing corridor) were also analyzed

via desktop (Figure P-2). Data from National Wetlands Inventory and National Hydrography Dataset were incorporated into desktop-delineated habitat within the analysis area (USFWS 2023c, USGS 2023; Figure P-2). The Applicant believes that desktop data for these areas accurately represent habitat types for the purpose of identifying wildlife species that may occur in the analysis area. The extent of field surveys conducted in 2023 are shown in Figure P-2. For the complete survey methods employed, see Attachment P-1. Results of the combined desktop analysis and field surveys are detailed in Section 5.0.

4.2.2 Special Status Wildlife Species Surveys

Special status wildlife species surveys were conducted concurrent to habitat categorization surveys in June 2023. Surveyors walked meandering transects within non-cultivated land inside the proposed micrositing corridor, focusing on areas likely to support special status wildlife species. Areas unlikely to support special status species (i.e., cultivated land, developed areas) were surveyed primarily from field vehicles, using the same method as described above for habitat mapping. Surveyors alternately scanned the landscape, the sky, and the ground looking for special status wildlife species and recognizable sign. In addition to pedestrian surveys, biologists installed motion-activated game cameras within the proposed micrositing corridor to document white-tailed jackrabbit (*Lepus townsendii*) presence, as recommended by ODFW (Attachment P-1). During surveys, biologists recorded the location of special status wildlife species (or recognizable sign) and recorded information on the number of individuals and their behavior. Surveyors also kept a running list of all wildlife species observed and documented special habitats and unique features such as raptor nests, cliffs, rimrock, rock outcrops, and talus slopes, if encountered. Following field surveys, the digitized data were downloaded and processed in a GIS program and were reviewed for quality control and assurance.

4.2.3 Special Status Plant Species Surveys

The Applicant conducted botanical field surveys within the majority of the proposed micrositing corridor in June 2023. Special status plant species with the potential to occur within the analysis area are discussed in Exhibit Q.

4.2.4 Raptor Nest Survey

Raptor nest surveys were conducted concurrent to habitat categorization and special status wildlife surveys in June 2023. Surveyors systematically searched raptor nest habitat within the proposed micrositing corridor and surrounding 0.5-mile buffer by vehicle and on foot. Nesting substrate within the proposed micrositing corridor was investigated from public and private roads and on foot. Property outside the proposed micrositing corridor but within the 0.5-mile buffer was searched by scanning suitable nesting habitat from public roads or from the edge of the proposed micrositing corridor boundary. A 0.5-mile buffer around the alternate generation tie-line was also searched for raptor nests from public roads. Periodic stops were made to scan suitable habitat (e.g., trees, utility towers, power poles, and rock outcrops) and examine nests with the aid of binoculars.

Due to the lack of publicly accessible areas within the 0.5-mile buffer, some areas were not visited in 2023 and will need to be surveyed prior to construction where possible. To determine the status of a nest, biologists made observations on the behavior of adults, presence of young, signs of nest building, or whitewash. Biologists also documented American crow (*Corvus brachyrhynchos*) and common raven (*Corvus corax*) nests. Although not raptors, American crow and common raven nests were recorded during the surveys because they are stick nests that could be used by nesting raptors during subsequent breeding seasons. Following field surveys, the digitized data were downloaded and processed in a GIS program and were reviewed for quality control and assurance.

5.0 Identification and Description of Habitat – OAR 345-021-0010(1)(p)(B)(C)

OAR 345-021-0010(1)(p)(B) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype;

OAR 345-021-0010(1)(p)(C) A map showing the locations of the habitat identified in (B);

The ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415-0025) provides a framework for assigning one of six category types to habitats based on the relative importance of these habitats to fish and wildlife species. The definition of each category type is shown in Table P-1.

Table P-1. ODFW Habitat Categorization

ODFW Habitat Category	Definition[1]
1	Irreplaceable, essential habitat for a fish or wildlife species, population, or a unique assemblage of species and is limited on either a physiographic province or site-specific basis, depending on the individual species, population or unique assemblage.
2	Essential habitat for a fish or wildlife species, population, or unique assemblage of species and is limited either on a physiographic province or site-specific basis depending on the individual species, population or unique assemblage.
3	Essential habitat for fish and wildlife, or important habitat for fish and wildlife that is limited either on a physiographic province or site-specific basis, depending on the individual species or population.
4	Important habitat for fish and wildlife species.
5	Habitat for fish and wildlife having high potential to become either essential or important habitat.
6	Habitat that has low potential to become essential or important habitat for fish and wildlife.
1. Source: OAR 635-415-0025.	

5.1 Description of Fish and Wildlife Habitat in the Analysis Area

Table P-2 describes habitat categories and types found within the analysis area. During field surveys, the Applicant identified habitat that met the definitions for Category 2, 3, 4, 5, and 6 habitats based on primarily vegetative characteristics (Attachment P-1). Based on consultation with ODFW, the Applicant mapped areas within ODFW-designated Mule Deer Winter Range (ODFW 2013) as Category 2 habitat, except for cultivated cropland and developed land, which is Category 6 habitat. Table P-2 describes the vegetation and other characteristics of each habitat type and category within the analysis area; however, all areas not mapped as Category 6 were ultimately determined to be Category 2, as ODFW-designated Mule Deer Winter Range covers the entirety of the analysis area.

Table P-2. Habitat Types and Categories within the Analysis Area

Habitat Type	Habitat Subtype	Category 2	Category 3	Category 4	Category 5	Category 6
Big Game Winter Range Habitat Overlay applies to all habitat sub-types except for cropland (i.e., Wheat Fields and Other Row Crops) and developed areas (i.e., Urban and Mixed Environs)		Mule Deer Winter Range as designated by ODFW (2013).	N/A	N/A	N/A	N/A
Open Water – Lakes, Rivers, Streams	**Permanent Ponds/Lakes** Open water areas, including natural lakes, reservoirs, stock ponds, beaver ponds	*Natural lakes or beaver ponds with high-quality habitat.*	Most other open water areas with lower-quality habitat (for example, some habitat requisites missing or bullfrogs abundant).	*Highly degraded open water area, dominated by non-native vegetation or no vegetation around margins (for example, highly degraded stock pond).*	N/A	N/A
	Seasonal Ponds Open water areas that contain water part of the year	*Seasonal ponds with high quality, mostly native vegetation.*	*Seasonal ponds with lower-quality habitat that is still dominated by native plant species.*	Highly degraded, with a higher proportion of non-native vegetation or no vegetation around margins (for example, a seasonal stock pond).	Habitat almost completely dominated by non-native plant species or otherwise highly degraded.	N/A
	Perennial Streams Streams mapped by USGS having permanent (year-round) flow	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	*Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat;* *or* *non-fish-bearing natural stream channels that drain into fish-bearing streams based on StreamNet data.*	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	N/A	N/A
	Intermittent or Ephemeral Streams Streams mapped by USGS as intermittent	Fish-bearing natural stream channels that support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provides good spawning (gravel beds present, non-embedded) and/or rearing habitat, with native emergent, shrub, or forested riparian margins.	Fish-bearing natural stream channels that do not support native, migratory fish based on StreamNet data or input from ODFW fish biologists; and provide marginal spawning (gravel present in pockets/30% embedded) and/or rearing habitat; or non-fish-bearing natural stream channels which drain into fish-bearing streams based on StreamNet data.	Non-fish-bearing natural stream channels that do not directly drain into fish-bearing streams.	Non-fish-bearing ephemeral streams or excavated channels with high restoration potential; not important habitat.	N/A
Wetlands	**Emergent Wetlands** Emergent wetlands with herbaceous vegetation	High quality habitat, dominated by native species.	Mixture of native and non-native plant species and low to moderate disturbance	N/A	Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.	N/A
	Scrub-shrub Wetlands Wetlands with woody vegetation less than 20 feet tall	High quality habitat, dominated by native plant species.	Mixture of native and non-native plant species and low to moderate disturbance.	N/A	*Farmed or previously filled wetlands; highly disturbed, dominated by non-native plant species.*	N/A

Habitat Type	Habitat Subtype	Category 2	Category 3	Category 4	Category 5	Category 6
	Forested Wetlands Forests (defined as areas with a minimum of 40% canopy closure > 20 feet tall), dominated by wetland indicator species	Exceptional habitat; well-buffered, with few or no non-native plant species, relatively undisturbed surroundings, or part of a large wetland complex, old-growth, or large sawtimber stage.	Mixture of native and non-native plant species at sapling, pole, sawtimber stage.	N/A	N/A	N/A
Riparian Forest and Natural Shrubland Complexes	**Eastside (Interior) Riparian**	*High quality, diverse riparian areas that are not degraded.*	*Typical mid-seral riparian, provides wildlife habitat.*	*Provides marginal habitat; somewhat degraded.*	*Highly degraded; dominated by non-native plant species.*	N/A
Upland Grassland, Shrub-steppe and Shrubland	**Eastside Grasslands** Grassland areas with few shrubs (not irrigated or cultivated/planted)	*Undisturbed habitat dominated by native species (i.e., greater than 75% ground cover is native), or moderately disturbed habitat (i.e., between 50 to 75% ground cover is native) that contains a sagebrush component.*	Moderately disturbed habitat with a mix of natives and non-natives (i.e., between 50 to 75% ground cover is native), or highly disturbed habitat (i.e., between 15 to 50% ground cover is native) that contains a sagebrush component.	Highly disturbed habitat with a high percentage of non-native plant species (i.e., between 15 to 50% ground cover is native), or very highly disturbed habitats (i.e., less than 15% ground cover is native) that contain a sagebrush component.	Very highly disturbed habitats with a high percentage of non-native plant species (i.e., less than 15% ground cover is native), but which do not contain a sagebrush component.	N/A
	Shrub-steppe Grassland and shrubland mosaic	High degree of cover; contains native shrubs and native grasses; good structure/forage for wildlife. Understory dominated by native species. More diversity than Category 3 habitat.	Habitat that is limited within the area (e.g., relatively undisturbed habitat); high degree of cover; moderate cover by weeds, moderate structure/forage for wildlife.	Important wildlife habitat that is moderately to heavily degraded and weedy habitat.	Very low quality dominated by non-native species with high restoration potential.	N/A
Agriculture, Pasture, and Mixed Environs	**Planted Grasslands**	N/A	*Croplands planted to grassland with characteristics necessary to potentially provide essential habitat for sensitive wildlife due to cover and forage quality.*	Croplands planted to grassland that lack later seral stage vegetative communities or are of less importance as wildlife habitat due to management or location.	*Croplands planted to grassland that lack later seral stage vegetative communities and are highly disturbed or degraded, and have high restoration potential.*	N/A
	Wheat Fields and Other Row Crops	N/A	N/A	N/A	N/A	Active agricultural areas with low potential for restoration.
Cliffs, Caves, and Talus		*Sites with known bat colonies.*	Sites without known bat colonies.	N/A	N/A	N/A
Urban and Mixed Environs		N/A	N/A	N/A	N/A	All developed areas.

Note: Italicized text describes habitat subtypes and categories not found within the analysis area but presented for comparative purposes. No Category 1 habitat occurs within the analysis area.

Table P-3 shows the acreages of each habitat type and habitat category within the analysis area and within the proposed micrositing corridor, including the habitat categories initially assigned in the field and the final habitat categories following incorporation of the Mule Deer Winter Range overlay. The locations of each habitat category are shown in Figure P-3, both as they were field-surveyed within the proposed micrositing corridor and as they were desktop-delineated within the analysis area. Figure P-4 shows the location of each habitat type and final habitat category considering the Mule Deer Winter Range overlay.

Table P-3. Acres of Habitat Categories and Types within the Micrositing Corridor and the Analysis Area

Final Habitat Category	Preliminary Habitat Category	Habitat Type-Subtype	Acres within Micrositing Corridor	Acres within Analysis Area
2	2	Emergent Wetlands	—	3.9
		Forested Wetlands	0.4	5.1
		Intermittent or Ephemeral Streams	—	0.1
		Perennial Streams	—	53.0
		Scrub-shrub Wetlands	—	2.9
		Shrub-steppe	71.9	72.3
	Category 2 Total		72.3	137.3
2	3	Cliffs, Caves, and Talus	19.7	1,399.4
		Eastside Grasslands	402.3	947.9
		Emergent Wetlands	0.3	4.4
		Forested Wetlands	0.2	0.3
		Intermittent or Ephemeral Streams	0.1	212.3
		Permanent Ponds/Lakes	—	4.1
		Scrub-shrub Wetlands	—	3.1
		Shrub-steppe	2,463.8	4,477.7
	Category 3 Total		2,886.2	7,049.2
2	4	Eastside Grasslands	1,362.0	4,447.8
		Intermittent or Ephemeral Streams	0.2	80.4
		Perennial Streams	—	0.6
		Planted Grasslands	1,247.3	1,313.7
		Seasonal Ponds	—	1.7
		Shrub-steppe	149.2	1,425.1
	Category 4 Total		2,758.7	7,269.2
2	5	Eastside Grasslands	949.4	1,672.8
		Emergent Wetlands	0.5	241.6

Final Habitat Category	Preliminary Habitat Category	Habitat Type-Subtype	Acres within Micrositing Corridor	Acres within Analysis Area
		Intermittent or Ephemeral Streams	4.4	6.4
		Seasonal Ponds	1.4	5.2
		Shrub-steppe	—	107.9
	Category 5 Total		955.6	2,033.8
Category 2 Final Total			6,672.9	16,489.5
6	6	Wheat Fields and Other Row Crops	303.2	1,605.1
		Urban and Mixed Environs	49.7	287.6
	Category 6 Total		352.9	1,892.7
Category 6 Final Total			**352.9**	**1,892.7**
Grand Total			**7,025.8**	**18,382.2**

Note: numbers may not sum correctly due to rounding. "— " means no acres.
1. Acres represent area within the Analysis Area not impact areas. Impacts are discussed in Section 8.

6.0 Identification of State Sensitive Species and Site-Specific ODFW Issues – OAR 345-021-0010(1)(p)(D)

OAR 345-021-0010(1)(p)(D) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW.

6.1 Survey Results

Based on the desktop analysis and field surveys (Section 4.0), 21 state sensitive species, two eagle species, and one ODFW species of interest have the potential to occur within the analysis area (Table P-4). State endangered, threatened, and candidate species are addressed in Exhibit Q. Of these 21 state sensitive species, 8 are sensitive-critical species and 13 are sensitive species in the Columbia Plateau/Columbia Basin Ecoregion (Table P-4). While adverse impacts to bald eagles (*Haliaeetus leucocephalus*) and golden eagles (*Aquila chrysaetos*) are not expected due to construction and operation of the Facility, eagles are addressed briefly in this document as a species of concern protected under the Bald and Golden Eagle Protection Act (BGEPA), even though they are not state sensitive species. The white-tailed jackrabbit is addressed at the request of ODFW even though they are not a state sensitive species in the Columbia Plateau/Columbia Basin Ecoregion.

Table P-4. State Sensitive Species with the Potential to Occur within the Analysis Area

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Mammals						
hoary bat *Lasiurus cinereus*	-	S	Associated with deciduous and coniferous forests and woodland edges and forages among forest brush and riparian corridors. Roosts in tree foliage and cavities. Will uncommonly use rock crevices and caves. Shows roost fidelity across years.	During roosting periods, especially spring and early summer maternal roosting period. This species is not believed to hibernate in Oregon.	No bat species were observed during surveys, although no acoustic surveys targeting bats were performed. Occurs in Wasco County (ORBIC 2019).	Limited habitat available. Potential transient during fall.
pallid bat *Antrozous pallidus*	-	S	Associated with rocky terrain in arid, desert landscapes with shrub-steppe components. Roosts in abandoned buildings, narrow crevices of bridges, cliffs, mines or in ponderosa pine snags. Forages on the ground in open areas.	During roosting periods, especially spring and early summer maternal roosting and winter hibernation roosting periods.	No bat species were observed during surveys, although no acoustic surveys targeting bats were performed. Occurs in Wasco County (ORBIC 2019).	Potential foraging, roosting in cliff habitat.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
silver-haired bat *Lasionycteris noctivagans*	-	S	Associated with older Douglas-fir/western hemlock and ponderosa pine forests as well as juniper woodland habitat near streams, ponds and lakes. Roosts in tree cavities, under loose bark, caves, mines and in abandoned buildings.	During roosting periods, especially spring and early summer maternal roosting and winter hibernation roosting periods. Sources are undecided if this species hibernates in Oregon.	No bat species were observed during surveys, although no acoustic surveys targeting bats were performed. Occurs in Wasco County (ORBIC 2019).	Limited habitat available. Potential transient.
spotted bat *Euderma maculatum*	-	S	Found in a variety of habitat types including arid shrub-steppe, juniper shrublands, grasslands, montane coniferous stands, and open ponderosa pine woodlands. Highly associated with cliffs and crevices in canyons.	During roosting periods, especially spring and early summer maternal roosting and winter hibernation roosting periods.	No bat species were observed during surveys, although no acoustic surveys targeting bats were performed. Occurs in Wasco County (ORBIC 2019).	Potential foraging, roosting in cliff habitat.
Townsend's big-eared bat *Corynorhinus townsendii*	-	SC	Associated with desert scrub-shrub habitat in eastern Oregon. Cave/mine obligate; associated with this habitat type year-round.	During roosting periods, especially spring and early summer maternal roosting and winter hibernation roosting periods.	No bat species were observed during surveys, although no acoustic surveys targeting bats were performed. Occurs in Wasco County (ORBIC 2019).	Potential foraging, roosting in cliff habitat.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
white–tailed jackrabbit *Lepus townsendii*[4]	–	–	Associated with open grasslands and desert sagebrush plains as well as open coniferous forest and alpine meadow habitats.	During reproductive periods which vary by climate, but generally occur in the spring.	Scat observed within grassland and shrub-steppe habitats (Attachment P-1).	Breeding, foraging, transient in shrub-steppe and grasslands.
Birds						
bald eagle *Haliaeetus leucocephalus*[4]	BCC, BGEPA	–	Nests in forested areas adjacent to large bodies of water. Nests in trees, rarely on cliff faces and ground nests in treeless areas. Known to scavenge opportunistically on carcasses in otherwise unsuitable habitat particularly during migration.	During the reproductive and nesting periods which occur February through mid-August.	Not observed during surveys. Occurs in Wasco County and Sherman County (ORBIC 2019).	Cliff nesting habitat available. Possible migrant or transient.
Brewer's sparrow *Spizella breweri*	BCC	S	Closely associated with sagebrush steppe, generally with a canopy height of more than 5 feet. Often associated with big sagebrush (*Artemisia tridentata*). Nest in thick crowns or low in brush, or in clumps of grass.	During the reproductive and nesting periods which occur mid-April through late July.	Observed in grassland and shrub-steppe habitat (Attachment P-1).	Breeding, foraging, migrating in shrub-steppe and grasslands.
western burrowing owl *Athene cunicularia hypugaea*	SOC	SC	Associated with open, treeless areas with available burrows excavated by other species. Diurnal in the breeding season but become nocturnal in the winter.	During the reproductive and nesting periods which occur early April through the spring.	Not observed during surveys. Occurs in Wasco County and Sherman County (ORBIC 2019).	Potential breeding, foraging in shrub-steppe, grasslands, and croplands.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
common nighthawk *Chordeiles minor*	–	S	Nests on bare ground in open areas ranging from forest clearings and unused gravel roads to rocky scablands and dry streambeds. Forages for insects in all habitats, including urban and developed environments.	During the reproductive and nesting periods which occur late May through summer.	Not observed during surveys. Occurs in Wasco County and Sherman County (ORBIC 2019).	Potential breeding, hunting, roosting, migrating in all mapped habitats.
ferruginous hawk *Buteo regalis*	BCC, SOC	SC	Open, grassy areas and shrub-steppe with scattered shrubs or trees for perching and nesting. Can nest in juniper or cottonwood trees near small streams, on rocky sites with an expansive view, on rimrock, or on undisturbed ground.	During the reproductive and nesting periods which occur mid-April through the spring.	Observed hunting in grassland habitat (Attachment P-1).	Hunting, migrating, breeding in all mapped habitats.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
golden eagle *Aquila chrysaetos*[4]	BCC, BGEPA	-	Usually nests on cliffs but also can nest in trees. Breeds in open and semi-open habitats at a variety of elevations, in tundra, shrublands, grasslands, woodland-brushlands, and coniferous forests, farmland and riparian areas. Typically forages in open habitats like grasslands, areas with steppe-like vegetation.	During the reproductive and nesting periods which occur February through mid-August.	Known nesting occurrences in Buck Hollow Canyon (ORBIC 2023a, Leal 2020, Attachment P-1).	Nests present along cliffs. The proposed alternate generation-tie line is approximately 1.2 miles from the nearest golden eagle nest, and the proposed micrositing corridor boundary is approximately 0.3 miles from the nearest nest. Migrant occurrence likely.
grasshopper sparrow *Ammodramus savannarum*	-	S	Associated with medium height grassland and sagebrush-steppe, typically small vegetative clumps amongst bare ground. Often inhabits native grassland habitat with less than 35 percent shrub cover.	During the reproductive and nesting periods which occur April through September.	Observed within grassland and shrub-steppe habitat (Attachment P-1).	Breeding, foraging, migrating in shrub-steppe and grasslands.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Lewis's woodpecker *Melanerpes lewis*	BCC, SOC	SC	Ponderosa pine forests, oak woodlands, oak-pine woodlands, cottonwood riparian forests, and areas burned by wildfires. Specifically requires aerial insects for foraging, large snags for nesting (especially soft or well-decayed snags), and relatively open canopy for flycatching.	During the reproductive and nesting periods which occur late April through August.	Not observed during surveys. Occurs in Wasco County and Sherman County (ORBIC 2019).	Possible migrant.
loggerhead shrike *Lanius ludovicianus*	BCC	S	Associated with open areas containing occasional shrubs and trees for nesting, and elevated perch sites for hunting and singing. Commonly associated with sagebrush steppe, juniper woodlands, mountain shrublands, and open oak and pine woodlands.	During the reproductive and nesting periods which occur mid-March through mid-August.	Observed hunting on power lines (Attachment P-1).	Breeding, hunting, migrating in all mapped habitats.
long-billed curlew *Numenius americanus*	BCC	SC	Associated nesting habitat includes eastern Oregon grasslands and prairies with low density shrub cover, near water or wet meadows. Dryland wheat areas are also sometimes used as nesting and foraging habitat.	During the reproductive and nesting periods which occur late March through August.	Not observed during surveys. Occurs in Wasco County (ORBIC 2019).	Potential to nest and forage in shorter grass areas or cropland. Possible migrant.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
sagebrush sparrow *Artemisiospiza nevadensis*	BCC	SC	Nests in shrub-steppe habitats. Requires high shrub cover and is closely associated with big sagebrush. During migration and in winter they are associated with dry shrublands and grasslands.	During the reproductive and nesting periods which occur May through July.	Not observed during surveys. Occurrence records near Maupin (Sullivan et al. 2009).	Potential breeding, migrating in shrub-steppe and grasslands.
Swainson's hawk *buteo swainsoni*	-	S	Associated with open sagebrush steppe, grassland, juniper woodlands, agricultural areas with trees, and large meadows in forested mountains. Tumbleweed and twig nests are built in trees of various sizes, most often willow or juniper trees. Forages over open grasslands and fertile irrigated agriculture fields for small mammals.	During the reproductive and nesting periods which occur mid-April to early August.	Observed nesting and hunting (Attachment P-1).	Breeding, hunting, migrating in all mapped habitats.
Reptiles						

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
northern sagebrush lizard *Sceloporus graciosus graciosus*	SOC	S	Highly associated with desert shrub-steppe habitat containing open, sun-exposed basking areas with loose sand soils between rocks, shrubs, or trees for nearby refuge. Little is known about winter hibernation sites, but it is expected that this species hibernates in rodent burrows, under rocks and in rock crevasses.	During the reproductive and nesting periods June through mid-August. During winter hibernation months if hibernacula is disturbed.	Observed sunning on rocks in grassland and shrub-steppe habitat (Attachment P-1).	Breeding, foraging in shrub-steppe and grasslands.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
western painted turtle *Chrysemys picta bellii*	-	SC	Primarily aquatic (marshy ponds, small lakes, slow-moving streams, and quiet off-channel portions of rivers). Breeds in terrestrial habitats generally within 165 feet of suitable aquatic habitat. Can disperse across terrestrial habitat.	During hibernation and nesting periods which could occur year-round. During winter hibernation within mud substrate of water body. Terrestrial nesting occurs between May and July, but eggs and hatchlings often stay within the nest until the following spring before migrating to water.	Not observed during surveys, although no surveys targeting this species were performed. Occurs in Wasco County and Sherman County (ORBIC 2019).	Habitat limited to Buck Hollow Canyon and Hauser Canyon.
Fish						

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Pacific lamprey *Entosphenus tridentatus*	SOC	S	Associated spawning habitat includes stream riffles with sand, gravel, or rock bottom depressions. Ammocetes (larval lamprey) associated with clear stream eddies with settled mud, silt, and sand. Anadromous species that migrates in the spring from the Pacific Ocean to spawning habitat.	During the extended reproductive and development periods which occur the first four to six years of life prior to migration to the Pacific Ocean and reproductive status is achieved.	Not observed during surveys; surveys were not conducted specifically for fish. Occurs in Wasco County and Sherman County (ORBIC 2019).	Habitat limited to Buck Hollow Canyon.
Steelhead / (Middle Columbia River Species Management Unit/ Evolutionarily Significant Unit, summer run) *Oncorhynchus mykiss*	T	SC	Anadromous species associated with deep pools in the winter, and medium elevation, flat stretches of streams with high pool complexity in the summer. Steelhead are known to inhabit the Deschutes River and some tributaries including Buck Hollow Canyon.	During the reproductive migration, spawning and juvenile rearing periods which extend throughout the year.	Not observed during surveys; surveys were not conducted specifically for fish. Per ORBIC (2023) and StreamNet (2021), Buck Hollow Canyon is habitat for this run.	Habitat limited to Buck Hollow Canyon.
western brook lamprey *Lampetra richardsoni*	-	S	Associated with clear freshwater creeks and medium-sized rivers with moderate gradient and pool and riffle habitats. Non-migratory species that spawns in late April to July in riffles on rock, sand, or gravel stream bottoms; eggs require temperatures of 50 - 60 °F to hatch.	During the extended reproductive and development periods which occur the first five to six years of life prior to reaching reproductive age.	Not observed during surveys; surveys were not conducted specifically for fish. Occurs in Wasco County and Sherman County (ORBIC 2019).	Habitat limited to Buck Hollow Canyon.

Common Name *Scientific Name*	Federal Status[1/]	ODFW Status in Columbia Plateau/ Columbia Basin[2/]	Habitat and Species Information	Sensitive Period(s)[3]	Observed or Expected Occurrence within Analysis Area	Potential Use of Habitat within Analysis Area
Sources: Bechard et al. 2010; Brigham et al. 2011; Buehler 2000; Csuti et al. 2001; Dugger and Dugger 2002; Gervais et al. 2009; Kochert et al. 2002; Marshal et al. 2006; Martin and Carlson 1998; NatureServe 2023; Ng et al. 2017; OCS 2016; ODFW 2021a; ODFW 2021b; ORBIC 2019; ORBIC 2023a; OWE 2023; Poulin et al. 2011; Rotenberry 1990; Rotenberry et al. 1999; StreamNet 2021; Sullivan et al. 2009; USFWS 2021; USFWS 2022; USFWS 2023a; USFWS 2023b; Vickery 1996; Vierling et al. 2013; Yosef 1996. [1] Federal Status: T = Threatened, SOC = Species of Concern, BCC = Bird of Conservation Concern, BGEPA = Bald and Golden Eagle Protection Act. [2] Oregon Department of Fish and Wildlife Status: SC = Sensitive-Critical Species, S = Sensitive Species. [3] Period in which species is most sensitive to disturbance, such as nesting, mating, migrating, or hibernating. [4] This species does not have a special status in the Columbia Plateau/Columbia Basin ecoregion as of October 2023 but is included in this table as recommended by ODFW.						

6.2 Site-Specific Issues Identified by ODFW

During ongoing coordination, ODFW has identified big game as a site-specific issue at the Facility, as ODFW-mapped Mule Deer Winter Range encompasses the entire analysis area. The Applicant has worked with ODFW to avoid, minimize, and mitigate impacts to big game, as described in Section 9.0. For example, in response to ODFW's comments on the Facility Notice of Intent, the Applicant will limit construction and operation activities outside the Facility's fenced area during the winter to reduce disturbance to big game. The Applicant is also working with ODFW to provide mitigation for impacts to big game winter range habitat, which has been mapped as Category 2 habitat per ODFW's recommendation.

Mule deer within the analysis area (and within the Columbia Plateau/Columbia Basin Ecoregion) are non-migratory, and ODFW expects Buck Hollow Canyon and Hauser Canyon to the north and east of the Facility to provide movement corridors for big game. The canyons are mapped Priority Wildlife Connectivity Areas, which provide important corridors for wildlife movement across the landscape (ODFW 2023). In response to ODFW's concerns about wildlife habitat connectivity, the Applicant has modified the Facility layout to set back from the canyons to the north and south where feasible. These setbacks also reduce impacts to sagebrush (shrub-steppe) habitat, an ODFW Strategy Habitat (ODFW 2016). The Facility is located in an elk de-emphasis area; therefore, there are no agency management objectives for elk at the Facility. As a result of these considerations, the Applicant anticipates impacts to big game will be minimized by siting facilities set back from the canyons to maintain habitat connectivity, and unavoidable impacts will be mitigated consistent with the ODFW Fish and Wildlife Habitat Mitigation Policy goals and standards (OAR 635-415-0025), and as described below.

ODFW also identified the white-tailed jackrabbit as a site-specific issue at the Facility due to known observations nearby, though they are not a state sensitive species in the Columbia Plateau/Columbia Basin Ecoregion. The Applicant consulted with ODFW to adapt surveys to detect white-tailed jackrabbits if present (e.g., use of game cameras) and documented habitat suitability specifically for this species. The Applicant has also worked with ODFW to avoid, minimize, and mitigate impacts to the white-tailed jackrabbit, as described in Section 9.0. For example, the Applicant is considering fencing specifications to allow movement through the Facility such as fixed-knot (or a similar wildlife-friendly option) and raising the fence approximately 6 to 8 inches from the ground to accommodate small animal movement. The Applicant is also working with ODFW to provide white-tailed jackrabbit benefits in mitigation actions. Unavoidable impacts will be mitigated consistent with the fish and wildlife habitat mitigation goals, the standards of OAR 635-415-0025, and as described below.

7.0 Baseline Survey of Habitat Use by State Sensitive Species – OAR 345-021-0010(1)(p)(E)

OAR 345-021-0010(1)(p)(E) A baseline survey of the use of habitat in the analysis area by species identified in (D) performed according to a protocol approved by the Department and ODFW.

Table P-4 includes a description of expected habitat for each sensitive or otherwise applicable species with the potential to occur in the analysis area, whether the species is known to occur within the analysis area or nearby, and the potential for each species' use of the habitats identified within the analysis area. Field surveys were designed to document state sensitive species if present, and targeted areas likely to support these species; however, species not documented during surveys were not necessarily considered absent from the analysis area, as species that are present within the analysis area only seasonally (e.g., during winter) or only during a particular time of day (e.g., nocturnal or crepuscular species) would not have been documented during surveys. Additionally, field surveys may not have documented all habitat use by an observed species. As a result, the Applicant assumed presence of the state sensitive species identified in Table P-4 based on the presence of suitable habitat in the analysis area and determined habitat use of the analysis area by these species based on known habitat associations in combination with the results of field surveys.

Six state sensitive species and one ODFW species of concern were detected within the analysis area during 2023 surveys (Figure P-5). Survey methods are discussed in Section 4.2, and additional details on the results are provided in Attachment P-1. Observed habitat use by each of these species is as follows:

- **Swainson's hawk:** This species was observed in four locations hunting primarily in open grasslands, and in one location nesting in a conifer tree (Figure P-6).
- **Ferruginous hawk:** This species was observed in one location hunting in open grassland.
- **Brewer's sparrow:** This species was observed in two locations within grassland and shrub-steppe habitats.
- **Grasshopper sparrow:** This species was observed in eight locations, primarily in grassland habitat.
- **Loggerhead shrike:** This species was observed in two locations perched on power lines near developed areas.
- **Northern sagebrush lizard:** Individuals observed in three locations sunning on rocks in grassland and shrub-steppe habitats.
- **White-tailed jackrabbit:** Characteristic scat observed in seven locations in grasslands and shrub-steppe habitats. All scat found is assumed to be white-tailed jackrabbit scat.

8.0 Description of Potential Adverse Impacts – OAR 345-021-0010(1)(p)(F)

OAR 345-021-0010(1)(p)(F) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility.

Construction and operation of the Facility would result in both permanent and temporary impacts to wildlife and their habitats. As described in detail in Exhibit B, the Applicant proposes to construct the Facility in phases. The impact analysis presented in this exhibit represents a fully built-out scenario but takes into consideration a phased construction schedule. Habitat mitigation and vegetation management associated with construction and operation are discussed in this section, and in more detail in the Habitat Mitigation Plan (Attachment P-2) and the Revegetation and Reclamation Plan (Attachment P-3). However, as the fenced areas of the Facility are considered permanently impacted for the purposes of habitat mitigation, revegetation efforts described in this application primarily address limited areas of temporary impact outside the fenced area that will be restored following construction.

8.1 Potential Impacts to Fish and Wildlife Habitat

Due to the multi-year construction schedule of the Facility, both permanent and temporary impacts to fish and wildlife habitat will occur in phases over this time period. Permanent impact areas are those that would be converted from the existing condition to a different condition for the life of the Facility, including within the fenced solar array area where vegetation may not necessarily be disturbed but the habitat will no longer be available to mule deer and other big game. Temporary impact areas are those areas that would be disturbed during construction activities but would not become permanent parts of the Facility. Direct impacts to habitat include permanent loss and temporary disturbance of some specific habitat types; indirect impacts may include increased potential for the invasion of noxious weeds, particularly along fence lines and roads. Before each phase of construction, some areas within the construction footprint will be cleared of vegetation, with permanent and temporary impacts to habitats within the proposed micrositing corridor. These habitats are identified and described in Section 5.0, and Table P-5 provides the number of acres that will be permanently or temporarily impacted by the Facility, organized by habitat category and subtype. Exhibit C provides the total, cumulative disturbance impact acreage by Facility component.

Table P-5. Potential Impacts by Habitat Category, Type and Subtype

Final Habitat Category	Preliminary Habitat Category	Habitat Type	Habitat Subtype	Permanent	Temporary
2	2	Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	52.8	4.2
		Open Water – Lakes, Rivers, Streams	Perennial Streams	—	<0.1*
		Wetlands	Scrub-shrub Wetlands	—	<0.1*
	Category 2 Total			**52.8**	**4.3**
2	3	Cliffs, Caves, and Talus	Cliffs, Caves, and Talus	0.1	3.7
		Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	<0.1*	<0.1*
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	239.4	33.2
		Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	1,203.7	66.5
		Wetlands	Emergent Wetlands	<0.1*	—
	Category 3 Total			**1,443.1**	**103.5**
2	4	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	1,152.8	19.7
		Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	<0.1*	<0.1*
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	1,125.1	47.6
		Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	69.0	16.1
	Category 4 Total			**2,346.9**	**83.4**
2	5	Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	0.3*	0.2*
		Open Water – Lakes, Rivers, Streams	Seasonal Ponds	—	0.4*
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	847.2	10.5
		Wetlands	Emergent Wetlands	0.3*	—

Final Habitat Category	Preliminary Habitat Category	Habitat Type	Habitat Subtype	Permanent	Temporary
	Category 5 Total			**847.8**	**11.0**
Category 2 Final Total				**4,690.7**	**202.2**
6	6	Agriculture, Pasture, and Mixed Environs	Wheat Fields and Other Row Crops	291.9	15.2
		Urban and Mixed Environs	Urban and Mixed Environs	30.3	13.3
	Category 6 Total			**322.2**	**28.5**
Category 6 Final Total				**322.2**	**28.5**
Grand Total				**5,012.9**	**230.7**

Note: Totals in this table may not be precise due to rounding. "-" means no acres while <0.1 means greater than zero but less than 0.05 acres.

* Impacts to wetlands and Waters of the State will be avoided during final design (see Exhibit J). Wetlands and Waters of the State within the fenced solar array area are considered permanently impacted for the purposes of habitat impacts, but will not be disturbed by the Facility.

Solar array areas will be fenced, and all areas inside the fence are considered permanently disturbed. In addition to the solar array, the collector substation, the operations and maintenance (O&M) building, and the battery storage area will be fenced, as required by electrical code or security needs (see Exhibits B and C). While these areas are considered permanently disturbed, the Applicant intends to manage low-height native plant habitat inside the fenced area. Both the application of gravel and the revegetation of areas within the fenced areas may effectively provide habitat for some wildlife species, as described in Section 8.2.

All temporary disturbance areas are outside the fenced solar arrays. Temporary impact areas are those areas that would be disturbed during construction activities but would not become permanent parts of the Facility. Temporary disturbances will occur related to the improvement of existing roads, and during the construction of collector and transmission lines, new roads, staging areas, and fences. Some areas of temporary disturbance, such as staging areas, will be graveled during construction, and will be reclaimed by removing the gravel surface, re-grading to match adjacent contours, and reseeding. The specific extent of each component's temporary impact is detailed in Exhibit C, and is described in terms of a total, worst-case scenario impact for the full duration of phased construction.

The duration of this temporal loss varies among habitats, with shrub-steppe habitats generally taking more than five years to recover, and grassland around five years (Bakker and van Diggelen 2006; McArthur and Stevens 2004; Pyke et al. 2015; Rosentreter 2005; Wambolt et al. 2001; Watts and Wambolt 1996). Restoration of the temporary impact areas will occur following construction phases, as described in the Revegetation and Reclamation Plan (Attachment P-3).

The Applicant has and will continue to minimize or avoid impacts to high-quality habitat through the proposed micrositing considerations described in Section 9.0 and will mitigate for impacts that cannot be avoided as described in the Habitat Mitigation Plan (Attachment P-2). Impacts to state sensitive and other applicable species are described in Section 8.2. Impacts by habitat category, and specifically to ODFW-designated Mule Deer Winter Range habitat, are described below.

8.1.1 Category 2 Habitat

The analysis area is located entirely within the Mule Deer Winter Range, and as such, all habitat field categorized as Category 3, 4, or 5 has been mapped as Category 2 habitat, per ODFW's recommendation. Permanent Category 2 habitat impacts are primarily to eastside grassland (approximately 44 percent of permanently impacted areas), followed by shrub-steppe (approximately 26 percent), and planted grassland (approximately 23 percent) (Table P-5). Approximately 68 percent of the grassland and shrub-steppe habitat located in the permanent impact areas were determined to be highly or very highly disturbed habitat (Categories 4 and 5). Approximately 31 percent of all grassland and shrub-steppe habitat within the permanent impact areas were characterized as moderately disturbed habitat (Category 3). Approximately 1 percent of the permanent impact areas were characterized as Category 2, or high-quality minimally disturbed habitat.

Areas characterized as Category 3 grasslands in the permanent impact areas are categorized as such due to a dominant bluebunch wheatgrass (*Pseudoroengeria spicata*) component. Bluebunch wheatgrass is an infrequent component of the Category 4 and 5 grasslands in the permanent impact areas. Areas characterized as Category 4 planted grasslands in the permanent impact areas are categorized as such due to an alfalfa (*Medicago sativa*) component, which while not native, provides forage for big game. These areas contain a higher proportion of weedy plant species such as cheatgrass, medusahead, rush skeleton weed (*Chondrilla juncea*) and tumble mustard (*Sisymbrium altissimum*), non-native species such as intermediate wheatgrass (*Thinopyrum intermedium*), and are often heavily disturbed by grazing. These non-native species are present and occasionally co-dominant in areas of Category 3 grassland habitat as well.

Field-delineated Category 2 shrub-steppe in permanent impact areas are characterized by mature big sagebrush (*Artemisia tridentata*) and rubber rabbitbrush (*Ericameria nauseosa*) with a high degree of cover and an understory of dominant native grasses such as bluebunch wheatgrass, and dominant native forbs such as buckwheat (*Eriogonum* sp.), yarrow (*Achillea millefolium*), and desert yellow fleabane (*Erigeron linearis*). Category 3 shrub-steppe habitat within the permanent impact areas is primarily concentrated in the northern half of the proposed micrositing corridor and along drainages. Dominant shrub layer species in these areas include stiff/scabland sagebrush (*Artemisia rigida*), big sagebrush, and rubber rabbitbrush. Some areas of Category 3 shrub-steppe contain an encroaching western juniper (*Juniperus occidentalis*) component. Cliffs, caves, talus habitat in both permanent and temporary impact areas was entirely field-delineated as Category 3 habitat and ultimately considered Category 2 habitat due to overlap with Mule Deer Winter Range. Cliffs, caves,

and talus habitat within permanent and temporary impact areas is primarily present along drainages in the north and eastern portions of the proposed micrositing corridor.

Although Table P-5 identifies permanent and temporary impacts to emergent wetlands, scrub-shrub wetlands, perennial streams, seasonal ponds, and intermittent or ephemeral streams, impacts to wetlands and Waters of the State will be avoided during final design as described in Exhibit J. Wetlands and Waters of the State within the fenced solar array area are considered permanently impacted for the purposes of habitat impacts, but will not be disturbed by the Facility. Ephemeral streams proposed to be impacted by the Facility are described in Exhibit J.

Temporary impacts to Category 2 habitat are primarily eastside grassland and shrub-steppe habitats (Table P-5). Eastside grasslands account for 40 percent of all temporary impact areas, and shrub-steppe habitat accounts for approximately 38 percent of all temporary impact areas. Planted grasslands account for 9 percent of temporarily impacted habitat.

Temporary disturbance to the already moderately to very highly disturbed shrub-steppe and grassland habitats at the Facility will have a limited impact on mule deer forage, as these temporary impacts will not result in loss of high-quality forage habitat. Approximately 47 percent of the temporarily impacted areas of grassland and shrub-steppe habitat were categorized (field or desktop) as Categories 4 and 5 (highly disturbed and very highly disturbed, respectively; Table P-2). Approximately 50 percent of the grassland and shrub-steppe habitat that will be temporarily impacted was categorized as Category 3 (moderately disturbed). Approximately 2 percent of the grassland and shrub-steppe habitat was field-categorized as Category 2 (high-quality habitat dominated by native species). Deer require high-quality forage to maintain overall good body condition during the winter (ODFW 2003). Deer populations are most productive in early to mid-seral vegetation, which can be adversely impacted by juniper incursion into shrub-steppe habitat, wildfire, seeding with non-native species, and non-native invasive weeds (deVos et al. 2003; ODFW 2014). The areas temporarily disturbed by construction will be converted to an early seral stage, which could improve overall habitat quality in these areas, and therefore benefit deer when suitable deer forage species are planted following construction.

8.1.2 Category 6 Habitat

There are potential temporary and permanent impacts to Category 6 habitat within the proposed micrositing corridor. Dryland crops (i.e., winter wheat and triticale/barley)(i.e., winter wheat), cattle rangeland and urban and mixed environs (i.e., roads and other developed areas) are proposed to be impacted.

8.2 Potential Impacts to State Sensitive Species

This section addresses potential impacts to state sensitive and other applicable species identified in Section 6.0. Habitat modification resulting from construction activities will occur in both temporary and permanent impact areas, and the associated impacts will vary by species. In addition to these habitat-related impacts (e.g., habitat loss and modification), potential adverse impacts to sensitive species due to construction and operation may include the introduction of noxious weeds and other

non-native invasive species, potential nesting and breeding disturbance, electrocution, powerline collision, structure collision, vehicular collision, disturbance related to artificial lighting, entrapment within open vertical pipes, disturbance to wintering big game, and entrapment within fenced areas.

8.2.1 Mammals

Five state sensitive bat species have the potential to occur within the analysis area: hoary bats, pallid bats, silver-haired bats, spotted bats, and Townsend's big-eared bats (Table P-4). Areas of cliffs and juniper trees are located within the analysis area along creek canyons, and construction and operation of the Facility may have limited impacts to these roosting habitats. Impacts to foraging habitats such as wetlands and waters have been avoided and minimized. Additionally, construction activities will generally occur during daylight hours when bats are generally absent, and thus construction activities are not anticipated to disturb foraging bats.

Any impacts to bats that do occur would likely be limited to late summer and fall, during the migratory period for tree-roosting bats. Post-construction bat mortality data at utility scale photovoltaic solar energy sites are limited; however, three publicly available studies from California sites have reported small numbers of bat carcasses found both during fatality searches and incidentally (WEST 2017). Data from non-photovoltaic solar projects with higher bat fatalities reported (e.g., a power-trough facility in California) suggest that the timing of potential bat fatalities at solar facilities is primarily in late summer and fall. While cause of mortality in these studies is generally inconclusive based on the condition of the carcasses when found, some of these may be due to collision with project infrastructure. Insects may be attracted to lighting around structures, which may in turn attract bats to forage near project infrastructure. Thus, artificial lighting at night may increase the risk of collision fatalities. However, the potential for collision risk due to artificial night lights will be avoided and minimized, as described in Section 9.0. As a result, construction and operation of the Facility are anticipated to have minimal impact on these bat species.

Mule deer are not a state sensitive species; however, potential direct, adverse impacts to mule deer within ODFW-identified Mule Deer Winter Range have been identified in response to consultation with ODFW. A study investigating habitat use and mule deer survival in eastern Oregon identified that mortality risks varied between male and female populations (Mulligan 2015). For mule deer males, the cumulative risk was highest for legal harvest, with predation the next highest cause of mortality for this sex. For females, the cumulative risk was highest for predation, with anthropogenic causes (vehicles, fences) and illegal harvest also important sources of mortality. Winter survival does not appear to be the primary limiting factor for adult mule deer; however, low coverage and quality of forage in wintering habitat can result in poor deer condition, and thus, survival (ODFW 2003). Agency recommendations have been considered during the design and selection of fence components and layout, as discussed in Section 9.0. The potential for vehicle collisions during all phases of construction and operation of the Facility are also addressed in Section 9.0. Additional potential impacts include displacement from foraging in temporary impact

areas due to vegetation removal, and disturbance by construction activities in the winter, when deer are nutritionally stressed (ODFW 2014).

White-tailed jackrabbits are not a state sensitive species; however, populations are declining in Oregon and potential adverse impacts to this species have been identified in response to consultation with ODFW. Throughout its range, research indicates loss of grassland habitat has significantly contributed to population declines of the white-tailed jackrabbit (Brown et al. 2018; Brown et al. 2019, Lim 1987, Simes et al. 2015). Even partial changes in grassland ecosystems may negatively impact white-tailed jackrabbits by changing nutritional availability and removing shelter from predators. Reduced availability of nutritious vegetation can negatively impact reproductive performance (Brown 1947, Beaudoin and Beaudoin 2012). During spring, summer, and fall months white-tailed jackrabbits primarily feed on grasses and forbs, while shrubs become an important food source in winter months (Simes et al. 2015). Potential adverse impacts include displacement from foraging in temporary impact areas due to vegetation removal, alteration of vegetation community, and disturbance by construction activities in the winter when white-tailed jackrabbits are nutritionally stressed. Agency recommendations have been considered and will continue to be considered during the design and selection of fence components and layout, as discussed in Section 9.0. The potential for vehicle collisions during all phases of construction and operation of the Facility are also addressed in Section 9.0, though this impact is less likely due to the crepuscular and nocturnal habits of this species.

8.2.2 Birds

Ten state sensitive bird species and two eagle species have the potential to occur within the analysis area (Table P-4). Construction and operation of the Facility will result in some temporary and permanent impacts to habitat, which could displace nesting and foraging birds. However, birds using habitat within the proposed micrositing corridor are expected to relocate to other comparable habitat in the analysis area and the greater vicinity of the Facility. Avian mortality at the Facility due to collision with infrastructure is also possible, although the available data on avian mortality at utility scale solar energy sites suggests mortality at photovoltaic facilities is comparatively low.

A study focusing on avian use at photovoltaic installations at or near five airports in the United States found that passerine species, including red-winged blackbirds, sometimes use shade provided by panels on summer days, and sometimes perch on panels to sing in the early part of the breeding season (DeVault et al. 2014). DeVault et al. (2014) also found that while insectivorous avian species were observed foraging near the arrays, the abundance of foraging birds was similar to the abundance in nearby grasslands. No fatalities were clearly attributable to collision with panels.

The limited avian mortality and usage data for utility scale solar energy sites suggests that mortality at photovoltaic facilities in particular is low; therefore, impacts to sensitive bird species with the potential to occur within the proposed micrositing corridor are addressed below in terms of habitat removal, structural collision, vehicular collision, artificial lighting and nesting disturbance during

construction and operation. Measures described in Section 9.0 will be used to minimize or avoid these potential impacts.

- **Bald eagle** (BGEPA). Bald eagles were not observed within the analysis area during 2023 special status species surveys. Surveys occurred during the breeding period, when this species was most likely to be observed. No bald eagle nests are located within 5 miles of the proposed micrositing corridor (ORBIC 2023a). Bald eagles are observed during all months of the year in Wasco County and Sherman County (Sullivan et al. 2009). Bald eagles primarily hunt in or near aquatic habitats, such as the nearby Deschutes River, but opportunistically forage on carrion particularly in winter (Buehler 2000). Powerline collision and electrocution are the primary potential, adverse impacts to bald eagles, mainly during migration and winter.
- **Brewer's sparrow** (state sensitive). Brewer's sparrows were observed during 2023 surveys (Figure P-5). This species uses shrublands, generally with a canopy height of more than 5 feet. Brewer's sparrows are most closely associated with big sagebrush (OCS 2016, Rotenberry et al. 1999). Limited stands of big sagebrush of this size were observed during field surveys. Potential adverse impacts to this species due to the construction and operation of the Facility are habitat loss and potential nesting disturbance in areas where limited stands of larger shrubs may be located. Additionally, collision with infrastructure during nocturnal migration may be an adverse impact to this species. Several studies have shown that birds can be attracted to artificial lighting on human infrastructure, which can result in collision (Gehring et al. 2009; Kerlinger et al. 2010; Poot et al. 2008). Impacts to this species have been minimized through the shielding of operational lighting, as described in Section 9.0.
- **Burrowing owl** (state sensitive-critical). Burrowing owls were not observed within the analysis area during 2023 special status species surveys. Surveys occurred during the breeding period, when this species was most likely to be observed. This species breeds in burrows excavated by other animals in open areas with a high proportion of bare ground (OCS 2016). This species is generally migrant, but a small proportion in neighboring Idaho and Washington have been found to overwinter (Poulin et al. 2011). Arrival in Oregon likely occurs in March; egg-laying begins in April. Dispersal generally occurs in during September. Potential adverse impacts to this species during construction are nesting and foraging habitat loss (burrows and grassland, respectively), and vehicle collision. Generally tolerant of human activity, and opportunistic hunters for insects and small mammals, burrowing owls may use the operating Facility to hunt, and may also nest if burrows become available. Potential operational impacts to this species include collision with vehicles during the breeding season.
- **Common nighthawk** (state sensitive). Common nighthawk was not observed in the analysis area during 2023 surveys. A long-distance migrant, this species is only present in Oregon during its breeding season, arriving in mid- to late-May (Brigham et al. 2011). Surveys occurred during the breeding period, when this species was most likely to be

observed. Common nighthawks are rarely observed in Wasco County or Sherman County after August (Sullivan et al. 2009). Common nighthawks are most active at dusk and dawn. Surveys were conducted during the day only, lowering the potential to observe common nighthawks in flight during their typical crepuscular activity period. Construction and operation of the Facility could pose a risk to these birds, which nest on a variety of substrates in open areas including bare ground, gravel, and lithosol. Males also tend to roost on gravel roads, and therefore may roost in temporary impact areas in use during construction such as staging areas. During construction and operation, nesting disturbance and collision with vehicles may adversely impact this species.

- **Ferruginous hawk** (state sensitive-critical). Ferruginous hawks were observed in the analysis area during 2023 surveys (Figure P-5). This species occurs in open, grassy areas and shrub-steppe with scattered shrubs or trees for perching and nesting. They can nest in juniper or cottonwood trees near small streams, on rocky sites with an expansive view, on rimrock, or on undisturbed ground (OCS 2016). Available habitat within the proposed micrositing corridor is appropriate for nesting and hunting during the breeding season and hunting during migration. Surveys occurred during the breeding period, when this species was most likely to be observed. Ferruginous hawks can be present on breeding territories as early as late February to early March and can be found in Oregon in small numbers year-round (Ng et al. 2017; Sullivan et al. 2009). In addition to potential electrocution and powerline collision, impacts to this species include habitat loss and potential nesting disturbance if ferruginous hawks build new nests adjacent to but outside the proposed micrositing corridor, although these impacts will be minimized, as described in Section 9.0. No ferruginous hawk nests were found during 2023 surveys.
- **Golden eagle** (BGEPA). Golden eagles were not observed during 2023 surveys; however, they are known to nest on the rocky cliffs along Buck Hollow Canyon within the analysis area (ORBIC 2023a). Three historic nest locations in Buck Hollow Canyon were visited during 2023 surveys; one nest was present but inactive. Surveys occurred during the breeding period, when this species was most likely to be observed. Habitat within the proposed micrositing corridor is appropriate for hunting year-round, and the canyons in the analysis area are suitable for nesting. Vegetation will be removed inside the fenced areas during each phase of construction, resulting in the loss of available hunting areas; however, given the extent of available habitat for hunting within the analysis area, this impact is limited. Golden eagles are opportunistic, but generally prey on medium and small mammals such as rabbits and squirrels. These species occur in habitat abundantly available throughout the analysis area in particular, and in Wasco County and Sherman County in general. The proposed alternate generation-tie line is approximately 1.2 miles from the nearest golden eagle nest, and the proposed micrositing corridor boundary is approximately 0.3 miles from the nearest nest. Potential impacts include powerline collision and electrocution and habitat disturbance due to the construction and operation of the Facility. However, these impacts will be limited by avoidance and minimization measures, as described in Section 9.0.

- **Grasshopper sparrow** (state sensitive). Grasshopper sparrows were recorded during 2023 special status species surveys (Figure P-5). This species uses dry grasslands with low shrub cover for breeding (OCS 2016). In Oregon, this species breeds primarily in native bunchgrass. Its breeding period generally begins in May (Vickery 1996). Fall migration timing is poorly understood for this secretive species, but data suggest migration is underway in September. Surveys occurred during the time period when this species is present and breeding in Oregon. This species was generally detected by identifying its song rather than by observing a perched or flying bird. The grasshopper sparrow's singing fluctuates by both season and day, and can vary with changing weather. Seasonal song frequency also varies between populations in different geographic areas. In Oregon, populations breed in different locations from year to year depending on the suitability of habitat (Csuti et al. 2001), further contributing to the difficulties in consistent detection of this species. Construction and operation of the Facility will result in the loss of some suitable breeding and foraging habitat for grasshopper sparrow. Generally a nocturnal migrant, this species may be attracted to artificial lights during migration; therefore, collision is an additional potential, adverse impact to this species during construction and operation of the Facility.
- **Lewis's woodpecker** (sensitive-critical). Lewis's woodpeckers were not observed during 2023 special status species surveys. Surveys occurred during the breeding period, when this species was most likely to be observed. This cavity-nesting species may find nesting opportunities in the riparian canyons adjacent to the proposed micrositing corridor (Vierling et al. 2013). Juniper trees found within the proposed micrositing corridor are not typical breeding habitat for this species in Oregon (Csuti et al. 2001). This species has limited potential to occur at the Facility as a vagrant during migration. Construction of the Facility will not result in a loss of habitat for this species. A diurnal migrant, this species will not be adversely impacted by artificial lighting.
- **Loggerhead shrike** (state sensitive). Loggerhead shrikes were observed during 2023 surveys (Figure P-5). This species uses patches of tall brush or trees in open habitats for nesting and roosting, and forages in open areas with grasses and bare ground (Csuti et al. 2001; OCS 2016). Loggerhead shrikes can establish territories as early as mid-February and complete nests as early as mid-March in some states; however, data indicate that early to mid-March is the early arrival period for this species in Wasco County and Sherman County and that nesting is underway by April (Csuti et al. 2001; Sullivan et al. 2009; Yosef 1996). While these birds nest early in the season, they produce two broods per year, and are present Oregon through September. The primary potential adverse effects to loggerhead shrike are habitat loss and nesting disturbance. Little information exists regarding whether this species is a nocturnal or diurnal migrant; impact to this species during migration due to artificial lighting is unknown.
- **Long-billed curlew** (state sensitive-critical). Long-billed curlews were not observed during 2023 surveys. Surveys occurred during the breeding period, when this species was most

likely to be observed. This grassland-associated species prefers shorter grass, and can occur in agricultural fields (Dugger and Dugger 2002; OCS 2016). The timing of this species' migration, whether diurnal or nocturnal, is poorly understood. Long-billed curlews arrive in Oregon late March to early April, initiate nesting through early May, and are rarely observed in Wasco County after June (Sullivan et al. 2009). The Facility is west of their typical breeding range in Oregon; however, long-billed curlews may identify the Facility as stopover habitat during migration, as revegetation with a low-growing seed mix may create their preferred, open, short-grass habitat within the Facility. Therefore, potential adverse impacts due to Facility operation are limited to the migration window for this species during the spring and early summer and consist only of potential collision with vehicles intermittently operating on site.

- **Sagebrush sparrow** (state sensitive-critical). Sagebrush sparrows were not observed during 2023 surveys. Surveys occurred during the breeding period, when this species was most likely to be observed. This often difficult-to-detect species is found in shrub-steppe habitat with high shrub cover and is closely associated with big sagebrush communities (Martin and Carlson 1998; OCS 2016). Sagebrush sparrows can establish territories as early as late February and can still be found migrating in Oregon in early November. Potential adverse effects to sagebrush sparrows are habitat loss, nesting disturbance, and possibly lighting-related disturbance during migration, though its migratory behavior is poorly described.
- **Swainson's hawk** (state sensitive). This species was observed during 2023 surveys (Figure P-5). Within the proposed micrositing corridor, Swainson's hawks were observed hunting and flying, and one active nest was found in a conifer tree near a residence. Swainson's hawks are open-country specialists that hunt and forage in grassland, shrub-steppe, and agricultural areas, and often focus on row-crop agriculture. Nests are frequently in lone trees or isolated shrubs in open country. In the non-breeding season, particularly during fall migration in North America, they are often observed hunting in groups behind agricultural equipment, opportunistically preying on rodents and insects (Bechard et al. 2010). Swainson's hawks typically establish breeding territories after arriving from South America in April and are rarely reported in Wasco County in September (Sullivan et al. 2009). Construction will result in permanent and temporary impacts to habitat appropriate for hunting during breeding and migration. Nesting disturbance could also occur if Swainson's hawks occupy the same nest found within the proposed micrositing corridor in 2023, or if they build new nests within or adjacent to the proposed micrositing corridor, although these impacts will be minimized, as described in Section 9.0.

8.2.3 Reptiles

Two state sensitive reptile species have the potential to occur within the analysis area: northern sagebrush lizards and western painted turtles (Table P-4). Targeted surveys for reptiles were not conducted, but special status species surveys occurred after the hibernation periods for each

species and were conducted during the day, when diurnally active reptiles have the potential to be observed in the appropriate habitat. The northern sagebrush lizard was observed during 2023 surveys and could be affected by Facility construction, as described below. Habitat for the western painted turtle (state sensitive-critical) is limited within the analysis area in general, and in the proposed micrositing corridor in particular (Table P-4). This species was not observed during 2023 surveys but occurs in Wasco County and Sherman County (ORBIC 2019). No adverse impacts to western painted turtles are anticipated.

- **Northern sagebrush lizard** (state sensitive). Northern sagebrush lizards were observed during 2023 surveys. This species typically occurs in shrub-steppe and juniper woodland habitat with sandy soils and sparse vegetation in the grass/forb layer (OCS 2016). Potential adverse impacts to this species include loss of habitat and disturbance during construction if individuals are present, although the Applicant has microsited away from the higher quality habitats in the norther portion of the micrositing corridor where this species was observed.
- **Western painted turtle** (state sensitive-critical). Western painted turtles were not observed during 2023 surveys. Potential habitat for this species within the analysis area includes slow-moving wetland areas near perennial streams. This habitat does not occur in the proposed micrositing corridor but is present in Buck Hollow Canyon within the analysis area. Predicted habitat for this species within occupied watersheds does not encompass the majority of Wasco County or Sherman County, including the analysis area (OWE 2023). No records of western painted turtles were identified by an ORBIC query submitted by the Applicant (ORBIC 2023a); however, this species occurs within Wasco County and Sherman County and is sensitive-critical in the Columbia Plateau Ecoregion (ORBIC 2019; ODFW 2021a). While terrestrial dispersal of western painted turtles (1-2 miles) has been documented, the canyon topography and lack of records for this species in the analysis area suggests that the occurrence of this species in the proposed micrositing corridor is extremely unlikely. Therefore, no adverse impacts to western painted turtles are anticipated as a result of Facility construction and operation.

8.2.4 Fish

Three state sensitive fish species have the potential to occur within the analysis area: pacific lamprey, western brook lamprey, and Middle Columbia River Evolutionarily Significant Unit summer run steelhead (Table P-4). No suitable habitat for these species will be impacted by the Facility and as a result no adverse impacts are anticipated, as described below.

- **Lamprey** (both species state sensitive)**.** Neither lamprey species was observed during 2023 surveys, although fish surveys were not performed. Habitat for both pacific lamprey and western brook lamprey is limited to Buck Hollow Canyon within the analysis area and absent in the proposed micrositing corridor (Table P-4). Both lamprey species occur in Wasco County and Sherman County (ORBIC 2019). No lamprey habitat will be impacted by

the construction and operation of the Facility. As a result, no adverse impacts to pacific lamprey or western brook lamprey are anticipated.

- **Steelhead, Middle Columbia River Species Management Unit, summer run** (state sensitive-critical). Steelhead were not observed during 2023 surveys, although fish surveys were not performed. Habitat for steelhead occurs within the analysis area in Buck Hollow Canyon (ORBIC 2023a, StreamNet 2021), which is outside of the proposed micrositing corridor. No perennial streams and no fish-bearing streams occur within the proposed micrositing corridor, and no riparian areas associated with fish bearing streams will be impacted. Therefore, no adverse impacts to steelhead are anticipated.

9.0 Measures to Avoid, Reduce, or Mitigate Impacts – OAR 345-021-0010(1)(p)(G)

OAR 345-021-0010(1)(p) (G) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (F) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (F) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025, and a discussion of how the proposed measures would achieve those goals and requirements.

This section identifies the avoidance, minimization, and mitigation measures that have been and will be implemented to avoid, minimize, and mitigate potential adverse impacts to fish and wildlife habitat and state sensitive species, as well as big game, white-tailed jackrabbit and eagles, and it describes how these measures will meet the ODFW habitat mitigation goals. The analysis area is not with the range of the sage grouse (*Centrocercus urophasianus*); therefore, the application of the Greater Sage-Grouse Conservation Strategy is not required.

9.1 Avoidance and Minimization

9.1.1 During Facility Design and Micrositing

Measures employed during Facility design and micrositing to avoid and minimize impacts to fish and wildlife habitat, state sensitive species, and eagles included the following:

- Spiral markers will be installed on the ground wire of the alternate generation-tie line in areas over canyons or within 2 miles of a known eagle nest.
- The Applicant will use Facility-specific measures that follow Avian Powerline Interaction Committee (APLIC) guidelines for minimizing avian electrocutions (APLIC 2006). This is

expected to minimize the risk of electrocution to raptors generally, and to bald eagles, golden eagles, Swainson's hawks, and ferruginous hawks in particular.

- The Applicant will implement down-shield lighting for permanent lighting at the substation and O&M building. Outdoor lighting will be sited, limited in intensity, shielded, and hooded in a manner that prevents the lighting from projecting onto adjacent properties, roadways, and waterways. This is expected to minimize the risk of avian collision with Facility infrastructure for all birds and bats in general, but to nocturnal migrant species (including Brewer's sparrows, sagebrush sparrows, grasshopper sparrows) and to the crepuscular, insectivorous common nighthawk in particular. Down-shield lighting will be in place year-round, mitigating impacts to birds and bats both during migration and while foraging for insects at any time of the year.
- The Applicant will cap or otherwise modify vertical pipes and piles to prevent cavity-dwelling and nesting birds from entering. This also prevents any perching bird from inadvertently falling into pipes. These caps are expected to minimize the risk of fatalities to all birds (including the cavity-nesting Lewis's woodpecker), as well as small mammals and lizards such as the northern sagebrush lizard.
- Facility components will be fenced to exclude big game.
- The Applicant has microsited the Facility layout to set back from Buck Hollow and Hauser canyons where feasible to reduce impacts to Priority Wildlife Connectivity Areas and shrub-steppe Strategy Habitats as well as the higher quality habitats mapped in these areas.

9.1.2 Prior to Construction

Measures for avoiding and minimizing impacts to state sensitive species and other wildlife will be implemented prior to construction as follows:

- As recommended by ODFW, if construction is scheduled to overlap with the raptor nesting season (February 1 – August 31), the Applicant will conduct a raptor nest survey within 2 miles of the defined work area to identify the location of raptor nests, and eagle nests in particular, that could be affected by construction. The survey protocol will be approved by ODFW, and the surveys will occur no earlier than 2 years prior to construction.

9.1.3 During Construction

Measures for avoiding and minimizing impacts to fish and wildlife habitat and to state sensitive and other wildlife species will be implemented during construction as follows:

- As recommended by ODFW, the Applicant will apply the buffers and seasonal restrictions in Table P-6 around raptor nests identified during pre-construction surveys to avoid disturbance to nesting raptors as practicable. The Applicant will consult with ODFW for prior approval for exceptions to nest buffers during construction if needed.

Table P-6. ODFW Raptor Nest Buffers and Seasonal Restrictions

Species	Spatial Buffer	Seasonal Restriction	Release Date if Unoccupied
western burrowing owl	0.25 mile	April 1 to Aug 15	May 31
golden eagle	0.5 mile	Feb 1- Aug 15	May 15
red-tailed hawk	300-500 feet	Mar 1- Aug 15	May 31
ferruginous hawk	0.25 mile	Mar 15- Aug 15	May 31
Swainson's hawk	0.25 mile	April 1- Aug 15	May 31
prairie falcon	0.25 mile	Mar 15- Jul 1	May 15
peregrine falcon	0.25 mile	Jan 1- Jul 1	May 15
American kestrel	0.25 mile	Mar 1- Jul 31	May 15

- As recommended by ODFW, the Applicant will clear vegetation prior to the critical period for ground-nesting birds (April 15 – September 1) to avoid disturbing active nests. Removal of vegetation outside the breeding season will also eliminate the potential for ferruginous hawks and Swainson's hawks to establish new nests within the fenced areas. Should ground disturbance occur during this period, vegetative removal will occur prior to the critical nesting period. If vegetation removal is necessary between April 15 and September 1, a biologist will conduct a clearance survey for nesting birds prior to vegetation removal. Active nests will be flagged for avoidance.
- Prior to construction, streams, wetlands, and other sensitive habitat features (e.g., mature trees, intact sagebrush) that are not proposed to be impacted will be flagged for avoidance during construction. The Applicant will develop a map set showing these sensitive resources that will be kept on site during construction, and updated if additional information on sensitive resources is obtained. These maps will show buffer zones and temporal restrictions of sensitive resources, as applicable. As described below, construction personnel will be instructed to work outside the flagged and mapped sensitive resources.
- The Applicant will limit construction activities outside the fenced area (i.e., at the overhead collection line, transmission line, and roads) between December 1 and April 1 to minimize disturbance to wildlife, and wintering deer in particular.
- Construction vehicles will be limited to 20 miles per hour on all Facility access roads (excluding public roads). This is expected to limit impacts specifically to common nighthawks, long-billed curlews, white-tailed jackrabbits, and big game, and to wildlife in general.

9.1.4 During Operation

Following construction, measures for avoiding and minimizing impacts to fish and wildlife habitat and to state sensitive and other wildlife species will be implemented as follows:

- After Facility construction, areas where habitat was temporarily disturbed outside the fenced area will be restored to their original conditions and monitored as necessary according to provisions in the Revegetation and Reclamation Plan (Attachment P-3). Measures to minimize the spread of noxious weeds are described in the Noxious Weed Control Plan (Attachment P-4). The Noxious Weed Control Plan specifically addresses noxious weeds along solar fence lines. Revegetation and noxious weed control will minimize impact to the quality of available deer and white-tailed jackrabbit forage.
- The Applicant intends to manage low-height native vegetation inside the fenced area. Weed control measures would follow the Applicant's Noxious Weed Control Plan (Attachment P-4).
- The Applicant will contact licensed local wildlife rehabilitators capable of responding to the Facility in the event of injured wildlife, such as Think Wild in Bend, Oregon, and Blue Mountain Wildlife in Pendleton, Oregon.
- Operations and maintenance vehicles will be limited to 20 miles per hour on all Facility access roads (excluding public roads). This is expected to limit impacts specifically to burrowing owls, common nighthawks, long-billed curlews, white-tailed jackrabbits, and big game, and to all wildlife in general.
- The Applicant will use fixed-knot (or a similar wildlife-friendly option) or chain-link perimeter fencing up to 8 feet in height that may be raised off the ground approximately 6 to 8 inches to accommodate small animal movement under the fence.

9.2 Mitigation

After avoidance and minimization measures have been implemented, some impacts to wildlife habitat and sensitive species will remain. Temporary[1] and permanent habitat loss will be mitigated for according to ODFW Habitat Mitigation Policy goals and standards, as described in the Habitat Mitigation Plan (Attachment P-2). Included in this plan are measures for conserving and enhancing sufficient acreages of wildlife habitat to compensate for those acreages temporarily and permanently impacted by the Facility. This protection will be—at a minimum—for the duration of the Facility. As recommended by ODFW during consultation, the Applicant is developing mitigation to offset the footprint of the fenced area at the Facility to provide for "no net loss, net benefit" as outlined in the Mitigation Policy. The Habitat Mitigation Plan includes success criteria and provisions for monitoring whether mitigation goals are achieved, and this plan has mitigation provisions for both temporary habitat disturbance associated with construction activities and permanent habitat loss.

[1] Much of the area that will be temporarily impacted contains habitats for which restoration and regeneration is anticipated to be less than 5 years, and thus will be fully mitigated for through successful restoration. However, shrub-steppe habitat will be impacted, some of which is anticipated to take greater than 5 years to recover, and thus will be mitigated for as described in the Habitat Mitigation Plan (Attachment P-2).

9.3 Compliance with ODFW Mitigation Goals – OAR 635-415-0025

The Applicant mapped ten habitat types with the proposed micrositing corridor that meet the definition of habitat Categories 2 through 6, per OAR 635-415-0025. However, the entire analysis area is in the Mule Deer Winter Range, which ODFW considers as Category 2 habitat regardless of actual habitat types, except for agricultural and developed lands. Therefore, there are two habitat categories within the analysis area: Category 2 big game winter range, and Category 6 agricultural lands and developed areas. The Applicant will minimize Category 2 habitat impacts by siting facilities on agricultural lands within the proposed micrositing corridor to the maximum extent possible. Because there is minimal agricultural land within the proposed micrositing corridor and all other land is considered Category 2, there is limited opportunity to avoid impacts through alternatives to the proposed development action. However, the Applicant will microsite the Facility layout where feasible to reduce impacts to Priority Wildlife Connectivity Areas and high-quality (field-mapped Category 2) habitats. The Applicant will provide mitigation to offset unavoidable impacts, as described in its Habitat Mitigation Plan (Attachment P-2). This mitigation is intended to meet the goals of OAR 635-415-0025, as determined by the Oregon Energy Facility Siting Council (EFSC).

10.0 Monitoring Program – OAR 345-021-0010(1)(p)(H)

> *OAR 345-021-0010(1)(p)(H) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G).*

The Applicant will conduct revegetation monitoring and noxious weed monitoring as described in the Revegetation and Reclamation Plan (Attachment P-3) and Noxious Weed Control Plan (Attachment P-4), respectively. The Applicant will coordinate with ODFW to determine the need for post-construction wildlife monitoring. If recommended by ODFW, the Applicant will conduct post-construction monitoring as described in a Wildlife Post-construction Monitoring Plan, which would be provided at final design prior to construction. Monitoring related to mitigation success is described in the Habitat Mitigation Plan (Attachment P-2).

11.0 Conclusion

As part of the Facility siting process, the fish and wildlife habitats within the analysis area were identified and categorized pursuant to OAR 635-415-0025. Based on survey results, the Facility was adjusted to avoid impacts to field-mapped Category 2 habitat where possible (no Category 1 habitat was identified), and minimize impacts to field-mapped Category 3, 4, and 5 habitats. Unavoidable habitat impacts will be mitigated consistent with OAR 635-415-0025.

Therefore, based on the information provided in this exhibit, there is sufficient evidence upon which EFSC may find that the design, construction, and operation of the Facility, taking into account the proposed mitigation measures, are consistent with the fish and wildlife mitigation goals and

standards of OAR 635-415-0025. Accordingly, the Applicant demonstrates compliance with OAR 345-022-0060.

12.0 Submittal Requirements and Approval Standards

12.1 Submittal Requirements

Table P-7. Submittal Requirements Matrix

Requirement	Location
OAR 345-021-0010(1)(p) Information about the fish and wildlife habitat and the fish and wildlife species, other than the species addressed in subsection (q) that could be affected by the proposed facility, providing evidence to support a finding by the Council as required by OAR 345-022-0060. The applicant must include:	–
(A) A description of biological and botanical surveys performed that support the information in this exhibit, including a discussion of the timing and scope of each survey;	Section 4.0
(B) Identification of all fish and wildlife habitat in the analysis area, classified by the general fish and wildlife habitat categories as set forth in OAR 635-415-0025 and the sage-grouse specific habitats described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through -0025 (core, low density, and general habitats), and a description of the characteristics and condition of that habitat in the analysis area, including a table of the areas of permanent disturbance and temporary disturbance (in acres) in each habitat category and subtype;	Section 5.0
(C) A map showing the locations of the habitat identified in (B).	Figure P-4
(D) Based on consultation with the Oregon Department of Fish and Wildlife (ODFW) and appropriate field study and literature review, identification of all State Sensitive Species that might be present in the analysis area and a discussion of any site-specific issues of concern to ODFW;	Section 6.0
(E) A baseline survey of the use of habitat in the analysis area by species identified in (D) performed according to a protocol approved by the Department and ODFW;	Section 7.0
(F) A description of the nature, extent and duration of potential adverse impacts on the habitat identified in (B) and species identified in (D) that could result from construction, operation and retirement of the proposed facility;	Section 8.0
(G) A description of any measures proposed by the applicant to avoid, reduce, or mitigate the potential adverse impacts described in (F) in accordance with the general fish and wildlife habitat mitigation goals and standards described in OAR 635-415-0025 and a description of any measures proposed by the applicant to avoid, minimize, and provide compensatory mitigation for the potential adverse impacts described in (F) in accordance with the sage-grouse specific habitat mitigation requirements described in the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-140-0000 through 635-140-0025, and a discussion of how the proposed measures would achieve those goals and requirements; and	Section 9.0
(H) A description of the applicant's proposed monitoring plans to evaluate the success of the measures described in (G).	Section 10.0

12.2 Approval Standards

Table P-8. Approval Standard

Requirement	Location
OAR 345-022-0060 Fish and Wildlife Habitat	–
To issue a site certificate, the Council must find that the design, construction and operation of the facility, taking into account mitigation, are consistent with:	-
(1) The general fish and wildlife habitat mitigation goals and standards of OAR 635-415-0025(1) through (6) in effect as of February 24, 2017, and	Section 9.0
(2) For energy facilities that impact sage-grouse habitat, the sage-grouse specific habitat mitigation requirements of the Greater Sage-Grouse Conservation Strategy for Oregon at OAR 635-415-0025(7) and OAR 635-140-0000 through -0025 in effect as of February 24, 2017.	N/A

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Figures

(Figure P-5 is confidential and provided under separate cover)

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Yellow Rosebush Energy Center

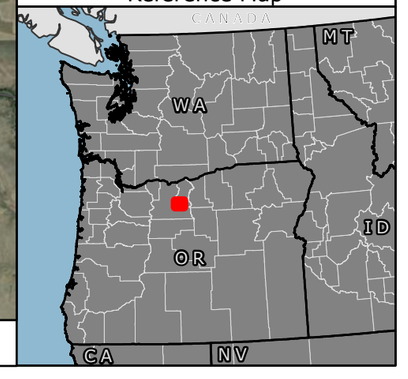
Figure P-1
Fish & Wildlife Analysis Area

SHERMAN AND WASCO COUNTIES, OR

- Facility Site Boundary
- Analysis Area (0.5-mile Buffer)
- City/Town
- County Boundary
- US Highway
- Local Roads
- Creeks

TETRA TECH SAVION A RENEWABLE ENERGY COMPANY

Reference Map



Sherman County
Wasco County
Kent
97
Buck Hollow Creek
Buck Hollow Canyon
Wilson Road
Hauser Canyon
Bakeoven Road
Bakeoven Creek

1:65,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Yellow Rosebush Energy Center

Figure P-2
2023 Survey Area within Facility Site Boundary

SHERMAN AND WASCO COUNTIES, OR

Sherman County

Wasco County

Buck Hollow Creek

Buck Hollow Canyon

Hauser Canyon

Bakeoven Creek

Wilson Road

Bakeoven Road

97

- Facility Site Boundary
- Micrositing Corridor
- Analysis Area (0.5-mile Buffer)
- County Boundary
- US Highway
- Local Roads
- Creeks

Survey Areas

- Wildlife and Habitat Survey Area
- Desktop Survey Area

TETRA TECH SAVION A RENEWABLE ENERGY COMPANY

Reference Map

1:65,000

WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Yellow Rosebush Energy Center

Figure P-3 Preliminary Habitat Categories within the Analysis Area

SHERMAN AND WASCO COUNTIES, OR

Sherman County

Wasco County

Buck Hollow Creek

Buck Hollow Canyon

Meuser Canyon

Wilson Road

Bakeoven Road

Bakeoven Creek

97

- Facility Site Boundary
- Micrositing Corridor
- Analysis Area (0.5-mile Buffer)
- County Boundary
- US Highway
- Local Roads
- Creeks

Habitat Category

- 2
- 3
- 4
- 5
- 6

TETRA TECH

SAVION
A RENEWABLE ENERGY COMPANY

Reference Map

1:65,000

WGS 1984 UTM Zone 10N

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Yellow Rosebush Energy Center

Figure P-4
Habitat Subtypes & Final Habitat Categories within the Analysis Area

SHERMAN AND WASCO COUNTIES, OR

Habitat Subtype
- Cliffs, Caves, and Talus
- Eastside Grasslands
- Emergent Wetlands
- Forested Wetlands
- Intermittent or Ephemeral Streams
- Orchards, Vineyards, Wheat Fields, Other Row Crops
- Perennial Streams
- Permanent Ponds/Lakes
- Planted Grasslands
- Scrub-shrub Wetlands
- Seasonal Ponds
- Shrub-steppe
- Urban and Mixed Environs

Sherman County

Wasco County

Buck Hollow Creek

Buck Hollow Canyon

Hauser Canyon

Bakeoven Creek

97

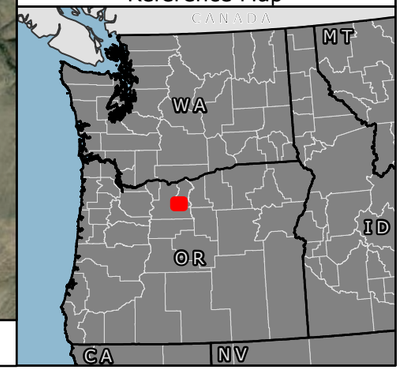
- Facility Site Boundary
- Micrositing Corridor
- Analysis Area (0.5-mile Buffer)
- County Boundary
- US Highway
- Local Roads
- Creeks

Habitat Category
- 2
- 6

TETRA TECH

SAVION
A RENEWABLE ENERGY COMPANY

Reference Map



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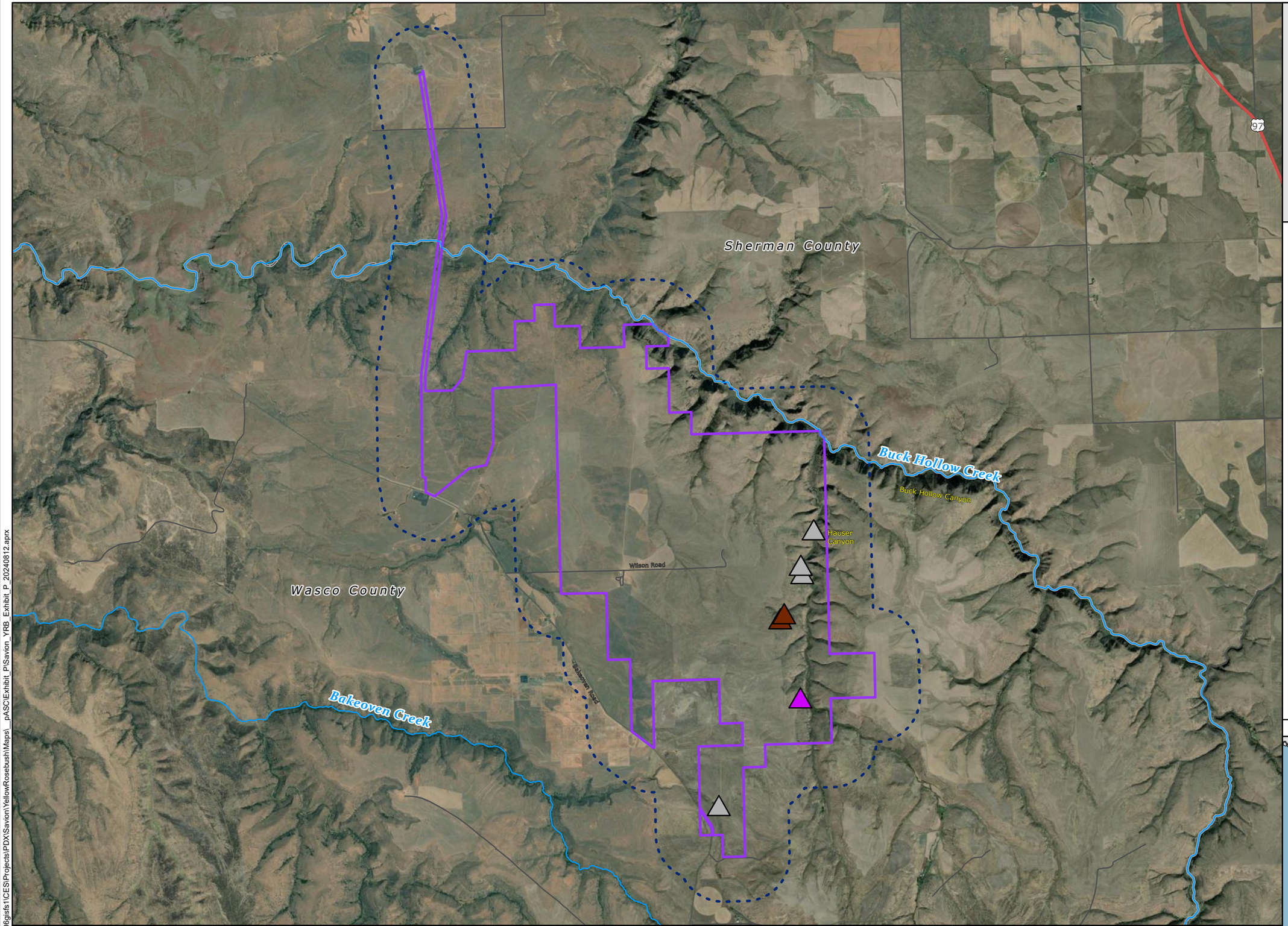
Yellow Rosebush Energy Center

Figure P-6
2023 In-Use Raptor Nests

SHERMAN AND WASCO COUNTIES, OR



- Facility Site Boundary
- Raptor Nest Survey Area (0.5-mile buffer)
- County Boundary
- US Highway
- Local Roads
- Creeks

Species Using Nest, Nest Status

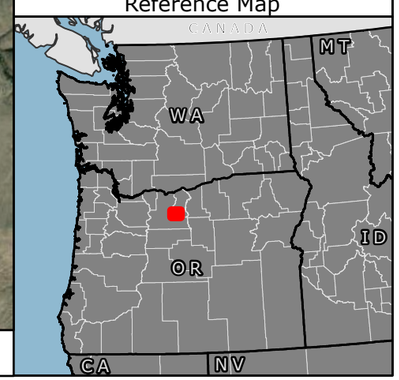
Small Nests

- Common raven, In-use
- Swainson's hawk, In-use
- Unknown, Inactive

*Historical golden eagle nest confirmed present but unoccupied, located north of the 0.5 mile raptor nest survey buffer.

TETRA TECH SAVION A RENEWABLE ENERGY COMPANY

Reference Map



1:65,000 WGS 1984 UTM Zone 10N 0 0.5 1 2 Miles NOT FOR CONSTRUCTION

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Attachment P-1. Biological Survey Reports

(2023 Wildlife, Habitat, and Raptor Nest Survey Report is confidential and provided under separate cover)

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Botanical Survey Report
Yellow Rosebush Energy Center

Prepared for
Yellow Rosebush Energy Center, LLC

Prepared by

Tetra Tech, Inc.

November 2023

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Table of Contents

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1.0 Introduction

Yellow Rosebush Energy Center, LLC contracted Tetra Tech, Inc. (Tetra Tech) to perform botanical surveys for the Yellow Rosebush Energy Center (Facility), located in Wasco County, Oregon. This report presents the methods and results for the botanical surveys. The Facility is located within Wasco County, approximately 8.5 miles east of Maupin, Oregon (Figure 1). The botanical surveys aimed to record the presence of federal or state-listed endangered, threatened, and candidate vascular plants, as well as state and county designated noxious weeds. This botanical survey report is prepared for inclusion in the Facility's Application for Site Certificate to the Oregon Energy Facility Siting Council.

2.0 Methods

2.1 Target Species

The initial list of potential primary target species included all vascular plant species listed as endangered, threatened, proposed, or candidates for listing by the U.S. Fish and Wildlife Service (USFWS) under the federal Endangered Species Act (ESA), or by the Oregon Department of Agriculture (ODA) under the Oregon ESA, that are known or have potential to occur within Wasco County. Based on Tetra Tech's preliminary desktop review and knowledge of the area, there are seven state threatened, endangered, and candidate species (i.e., rare plants) that could potentially occur within the Facility Site Boundary: diffuse stickseed (*Hackelia diffusa* var. *diffusa*), disappearing monkeyflower (*Erythranthe inflatula*), dwarf evening primrose (*Eremothera* [*Camissonia*] *pygmaea*), Henderson's ricegrass (*Eriocoma* [*Achnatherum*] *hendersonii*), hepatic monkeyflower (*Erythranthe jungermannioides*), sessile mousetail (*Myosurus sessilis*), and Tygh Valley milkvetch (*Astragalus tyghensis*) (Table 1). Sources of information for the desktop review included:

- Oregon Listed Plants by County (ODA 2023a);
- Oregon Biodiversity Information Center (ORBIC) 2019 Rare, Threatened and Endangered Species of Oregon (ORBIC 2019);
- ORBIC Element Occurrence Records for the vicinity of the Facility Site Boundary (ORBIC 2023);
- Oregon Flora Digitized Collections of the Oregon State University Herbarium (Oregon Flora 2023a); and
- U.S. Fish and Wildlife Service's (USFWS) Information for Planning and Consultation Resource List for the Facility Site Boundary (USFWS 2023).

Tetra Tech reviewed the results of a query to the Oregon Biodiversity Information Center (ORBIC) that was received in May 2023 (ORBIC 2023). Review of the results of the ORBIC query found that none of the seven state threatened, endangered, and candidate species Tetra Tech identified had been documented within the Facility Site Boundary, according to the ORBIC database.

Of all identified species, the presence of Tygh Valley milkvetch in the Facility Site Boundary was expected because it has been found in similar habitats nearby. These habitats consist of dry, sandy, rocky soils overlaying basalt bedrock on hillsides and valley floors within sagebrush-bunchgrass communities (ODA 2023b). Because Tygh Valley milkvetch looks similar to other related species when not in bloom, surveys were planned for June, during the flowering season of this plant (ODA 2023b).

Table 1. Threatened, Endangered, and Candidate Vascular Plant Species with Potential to Occur in the Facility Site Boundary

Scientific Name	Common Name	Federal Status[1]	State Status[2]	Habitat	Flowering Period[3]
Astragalus tyghensis	Tygh Valley milkvetch	SOC	T	Dry, sandy, rocky soils overlying basalt bedrock on hillsides and valley floors within sagebrush-bunchgrass communities. Many occurrences are located along roadsides.	Late May to mid-June. Flowering from May to early June and Fruiting in July.
Eremothera [*Camissonia*] *pygmaea*	dwarf evening primrose	-	C	Dry plains and slopes with unstable soils or on gravel in steep talus, dry washes, banks, and roadcuts.	June-August
Eriocoma [*Achnatherum*] *hendersonii*	Henderson's ricegrass	-	C	Dry shallow rocky soils described from basalt in sagebrush or ponderosa pine. Soils are often subject to frost heave.	May-June
Erythranthe inflatula	disappearing monkeyflower	-	C	Moist gravelly, rocky areas, and low, wet fields, in sagebrush-juniper zones. Elevation: 3,900-5,600 ft.	May-June
Erythranthe jungermannioides	hepatic monkeyflower	-	C	Moist crevices and seeps in basalt cliff faces and canyon walls. Elevation: 500-3,300 ft.	June-August (as long as water is present)

Scientific Name	Common Name	Federal Status[1]	State Status[2]	Habitat	Flowering Period[3]
Hackelia diffusa var. diffusa	diffuse stickseed	-	C	Shaded areas, cliffs, talus, wooded flats and slopes. Elevation: ~1000 ft.	May-June
Myosurus sessilis	sessile mousetail	SOC	C	Vernal pools and alkali flats.	March-May (depending on hydrology)

Sources: Burke Museum of Natural History and Culture 2023; ODA 2023a; ODA 2023b; Oregon Flora 2023a; Oregon Flora 2023b; Oregon Flora 2023c; ORBIC 2019; ORBIC 2023; USFWS 2023.

1. SOC = Species of Concern.
2. T = Threatened; C = Candidate for listing.
3. Species may bloom anytime within the range presented.

2.2 Survey Areas

The Facility Site Boundary encompasses 8,075 acres in Wasco County. Before initiating surveys, Tetra Tech conducted a review of aerial imagery of the Facility Site Boundary and excluded active agricultural fields from consideration for surveys because they do not provide suitable habitat for target rare plant species. Furthermore, at the discretion of Yellow Rosebush Energy Center, LLC, the eastern section of the Facility Site Boundary, which includes a steep north to south running canyon, Hauser Canyon, was excluded from the survey. This decision was made due to the steepness of the terrain, which has slopes exceeding 30 percent and is unsuitable for development. The slopes exceeding 30 percent also pose a danger to the surveyors. As a result, the Survey Area described in this report consists of 7,026 acres of uncultivated habitat to the west of Hauser Canyon, which was surveyed in 2023 (Figure 1).

An additional desktop assessment of potential rare plant occurrences was conducted within the alternative generation tie line route located north of the Survey Area and for the steep, non-surveyable area within the Facility Site Boundary to the east of Hauser Canyon (see Desktop Survey Area, Figure 1). The total acreage of the Desktop Survey Area is approximately 1,049 acres.

When access was available and slopes were not hazardous to field staff, additional land was surveyed on the ground alongside Hauser Canyon within the Desktop Survey Area. This is reflected in the noxious weed observations figure (Figure 2), indicating where many instances of noxious weeds were identified outside of the Survey Area.

2.3 Background Review

Tetra Tech completed a review of existing literature, herbarium records, and other sources prior to field surveys to gather information about each of the rare plant species which could possibly be encountered within the Survey Area. This information was also used to inform the desktop review of the Desktop Survey Area (see section 2.1 for list of sources). Prior to conducting field surveys,

fact sheets for the target rare plant species were compiled. These fact sheets were used by the surveyor in the field and included the following:

- Photos of the target species and their habitats;
- Information detailing habitat associations;
- Range and flowering periods;
- Identifying features; and
- Characteristics distinguishing the target species from lookalikes which grow within a similar distribution.

Additionally, surveyors visited a nearby known location of Tygh Valley milkvetch. The purpose of this inspection was to determine the current phenological state of the species for ease and accuracy of identification within the Survey Area.

Lastly, Tetra Tech reviewed the list of noxious weed species designated as A, B, and T by ODA (ODA 2022) as well as noxious weed lists for Wasco County (Wasco County 2008). These lists were carried by surveyors and were referred to often while conducting surveys.

2.4 Survey Schedule

Tetra Tech completed their botanical surveys from June 6-June 14, 2023, a timeframe when all of the target species, with the exception of sessile mousetail (*Myosurus sessilis*), were likely to be identifiable. Plants were considered 'identifiable' if they were expected to be flowering during the survey period based on their known bloom period (Table 1). Surveys were not conducted during the period of flowering for sessile mousetail because the plant's habitat was not likely to be found within the Survey Area. If this habitat was found, it was surveyed at a higher level of precision to increase the likelihood that the vegetative structures of sessile mousetail would be located.

2.5 Field Survey Methods

Tetra Tech utilized the Intuitive Controlled survey method, a standard and widely accepted survey protocol (USFS and BLM 1999), for conducting botanical field surveys. This method involves the implementation of meandering transects throughout the Survey Area, aiming to target the full range of vegetation types, topographical features, habitats, and substrate types. During the survey, the field personnel actively search for the target species while meandering through the Survey Area. Additionally, when surveyors came across areas with high potential habitat, either identified during the pre-field review or discovered during the field visit, they performed a thorough survey for target species in that specific area. This approach allows for comprehensive surveys of areas with high potential habitat.

Standard Tetra Tech survey protocol includes recording GPS locations of any target species encountered with a tablet using ArcGIS FieldMaps software and a submeter accuracy GPS unit. Survey methods also include completing ORBIC siting forms for any rare plant population observed

and taking photos to serve as digital specimen vouchers to illustrate identifying characteristics, plant habit, and habitat.

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

- Species phenology;
- Number of plants observed;
- 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 using appropriate plant keys; in particular, *Flora of the Pacific Northwest* (Hitchcock and Cronquist 2018). Nomenclature follows that used by Oregon Flora (Oregon Flora 2023c). The final vascular plant species list for the Survey Area is included as Attachment 1 of this report. Site photos are included in Attachment 2.

Surveyors also recorded observations of ODA-listed noxious weeds, which included A, B, and T listed species (ODA 2022), as well as listed weeds for Wasco County (Wasco County 2008). Observations were recorded as GPS polygons including the relative density of the plants. Field bindweed (*Convolvulus arvensis*), a listed weed species, was desktop delineated with approximate locations following the field surveys.

3.0 Results

Botanical surveys were conducted within the 7,026-acre Survey Area from June 6-14, 2023. The Survey Area was predominately flat, with minimal elevation change. The primary habitat types could be characterized as eastside grasslands (2,714 acres, 39 percent of the total Survey Area) and shrub-steppe (2,691 acres, 38 percent of the total Survey Area). Non-native grasses including cheatgrass (*Bromus tectorum*), and medusahead (*Taeniatherum caput-medusae*), as well as the native perennial bunchgrass bluebunch wheatgrass (*Pseudoroegneria spicata*) were the dominant species both in eastside grasslands as well as the understory of shrub-steppe habitat. Big sagebrush (*Artemisia tridentata)* was the most common shrub species, while the most common tree was western juniper (*Juniperus occidentalis),* though it was less abundant than the shrubs or grasses across the expanse of the Survey Area. The western side of Hauser Canyon leading into the depths of canyon contained a higher density of western juniper stands, along with a wider variety of weedy species, including thistles (*Cirisium* sp. and *Onopordum acanathium)* and common mullein (*Verbascum thapsus).* There was minimal bare ground throughout the Survey Area, generally only found on the cliffs of Hauser Canyon. Basalt outcrops and talus slopes were occasionally found throughout the Survey Area. Overall, the Survey Area is dominated by invasive species and highly disturbed due to the current and historic farming, cattle grazing, roads, and installed fences.

Tetra Tech did not observe any target species or other threatened, endangered, proposed, or candidate vascular plant species within the Survey Area. One vernal pool, a potential habitat for sessile mousetail, was located within the Survey Area), but there was no evidence of the plant in the area, or close vicinity. Additionally, there is no evidence from desktop review of historical records that the target rare plants occur within the Desktop Survey Area.

Tetra Tech recorded seven listed noxious weed species within the Survey Area; including five ODA-listed noxious weed species and three Wasco County-listed weeds (Table 2, Figure 2). Noxious weeds were most abundant along roadsides, within drainages, and in or near current and former agricultural fields and structures such as field sheds, water troughs, and fence lines. Table 2 lists the noxious weed species observed, their noxious weed designation, and the frequency of observations.

Table 2. Noxious Weeds Located Within the Survey Area

Scientific Name	Common Name	Status (State[1]/Wasco County[2])	Frequency
Centaurea diffusa	Diffuse knapweed	B*/B*	Two observed patches, one of which is expansive.
Cirsium arvense	Canada thistle	B*/B	Infrequent small patches observed.
Cirsium vulgare	Bull thistle	B*/Not listed	Infrequent small patches observed.
Convolvulus arvensis	Field bindweed	B*/C	Infrequently found along two-track roads within the Survey Area.
Onopordum acanthium	Scotch thistle	B/Not listed	Rare, occurrences consisted of small to medium patches
Taeniatherum caput-medusae	Medusahead	B/Not listed	Dominant ground cover. Near ubiquitous throughout Survey Area. Extremely common.
Verbascum thapsus	Common mullein	Not listed/Q	Common alongside Hauser Canyon and in the westernmost Survey Area.

1. "A" designated weeds: Weeds of known economic importance which occur in the state in small enough infestations to make eradication/containment possible; or which are not known to occur, but their presence in neighboring states makes future occurrence in Oregon seem imminent. "B" designated weeds: Weeds of economic importance which are regionally abundant, but which may have limited distribution in some counties. "T" designated weeds: A priority noxious weed designated by the Oregon State Weed Board as a target for which the ODA will develop and implement a statewide management plan. "T" designated noxious weeds are species selected from either the "A" or "B" list (ODA 2022). Species marked with a (*) are targeted for biocontrol.
2. "A" Pests: A weed of known economic importance known to occur in the county in small enough infestations to make eradication practical. "B" Pests: A weed of known economic importance and of limited distribution within the county and is subject to intensive control or eradication, where feasible, at the county level. "C" Pests: A weed that also has economic importance but is more widely spread. Control of these weeds will be limited by conditions that warrant special attention. "Q" Pests: A weed that exists in the county, but is of little, no, or undetermined economic importance. However, they are to be monitored and subject to control if they begin to appear threatening. *Within Bakeoven/Maupin area is a knapweed control zone. Control efforts are mandatory under ORS 570.510 and 570.515 (Wasco County 2008).

Noxious weeds were relatively uncommon within the Survey Area; except for medusahead, an ODA B-listed non-native annual grass, which was abundant throughout the Survey Area. As noted above, medusahead was commonly observed alongside cheatgrass, another annual invasive grass, and together they were the dominant species in the Survey Area. Even when medusahead became less abundant, surveyors could not walk more than approximately 50 feet without encountering more individuals. The ubiquity of medusahead led to its omission from Figure 2 as it encompassed the entire Survey Area.

Diffuse knapweed (*Centaurea diffusa*) was found in only two locations within the Survey Area. One population was less than 0.25-acres and contained approximately 200 individuals. The second population was extensive, located along the road connecting Wilson Road to Rattlesnake Road in the center of the Survey Area and surrounding a residence located at the eastern end of Wilson Road. Along that road, the diffuse knapweed was largely in the center of the two-tracks and running parallel to the tire tracks (Figure 2).

Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*) were relatively uncommon in the Survey Area and occurred only in moderate to low abundance. Bull thistle was restricted to the westernmost section of the Survey Area, while Canada thistle had a broader distribution, including several observations in the eastern section of the Survey Area, particularly in drainages and adjacent to Hauser Canyon. Three populations of Scotch thistle (*Onopordum acanthium*) were identified: one in the westernmost Survey Area and the other two within drainages to the west of Hauser Canyon.

Common mullein (*Verbascum thapsus*) was the most frequently encountered noxious weed within the Survey Area after medusahead. There were 22 occurrences of common mullein noted, primarily in drainages, along roadsides, and in disturbed regions of the Survey Area. It was often found adjacent to Hauser Canyon, often growing alongside other weedy species such as Scotch thistle, Canada thistle, and wild teasel (*Dipsacus fullonum*).

Weeds found within the Survey Area, except for common mullein, are state "B"-designated weeds. These are economically important weeds that are abundant regionally but may have limited distribution in certain counties. Intensive control measures are recommended for these weeds, determined on a case-by-case basis. Four of these B-designated noxious weeds (diffuse knapweed, Canada thistle, bull thistle, and field bindweed) are specifically targeted for biocontrol by ODA and must be managed accordingly (ODA 2023).

At the county level, two species, diffuse knapweed and Canada thistle, are listed as B pests. In Wasco County, this designation indicates that these weeds are of known economic importance but have limited distribution within the county. Intensive control is recommended for these species, where feasible, within the county. Control efforts for diffuse knapweed concentrate on the Bakeoven and Maupin regions, which are county-designated knapweed control zones. Knapweed control zones include obligatory control measures according to ORS 570.510 and 570.515 (Wasco County 2008).

Additionally, common mullein was the only Wasco County Q-listed pest species found within the Survey Area. Q-listed pests are weeds that exist in the county but have little, no, or undetermined economic importance. However, monitoring and potential control measures are still recommended if these species become threatening (Wasco County 2008).

4.0 Conclusions

Botanical surveys in 2023 documented no endangered, threatened, proposed, or candidate vascular plant species within the Survey Area. No precautions need be taken to avoid the disturbance of rare plants. There is also no evidence of rare plant occurrences within the Desktop Survey Area, and field surveys are anticipated to occur in the spring of 2024 along the northwestern gen-tie line to confirm the lack of rare plants in this region of the Facility Site Boundary.

Tetra Tech documented seven state or county designated noxious weed species within the Survey Area. Noxious weed populations were observed in disturbed areas, such as along roadsides, within drainages, and around both active and abandoned farming/ranching structures and corrals. They were also occasionally found in higher-quality shrub-steppe habitats, alongside native sagebrush shrubs and within western juniper stands. The state-designated noxious weed medusahead was present in high abundance throughout the Survey Area across habitat types, excluding cliff faces.

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Figures

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Yellow Rosebush Energy Center

Figure 1
Project Location

SHERMAN AND WASCO COUNTIES, OR

Sherman County

Wasco County

97

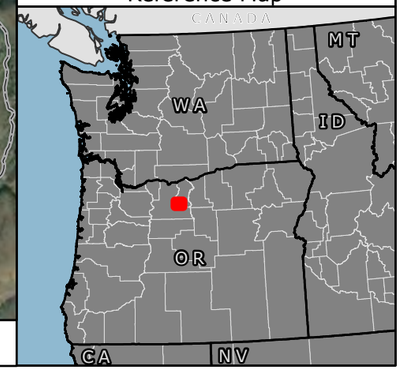
Earthstar Geographics

- Survey Area
- Desktop Survey Area
- County Boundary
- US Highway
- Local Roads

TETRA TECH

SAVION
A RENEWABLE ENERGY COMPANY

Reference Map



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Yellow Rosebush Energy Center

Figure 2
Noxious Weed Observations

SHERMAN AND WASCO COUNTIES, OR

Sherman County

Wasco County

Survey Area
Desktop Survey Area
County Boundary

Noxious Weed Scientific Name[1]

- *Centaurea diffusa*
- *Cirsium arvense*
- *Cirsium vulgare*
- *Convolvulus arvensis*[2]
- *Onopordum acanthium*
- *Verbascum thapsus*

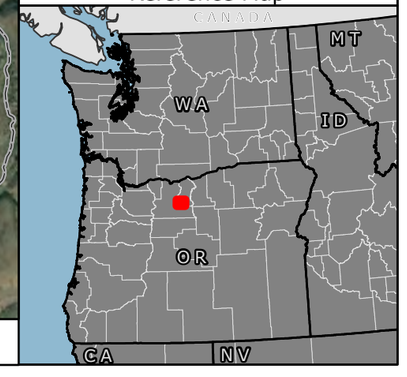
[1] Medusahead (*Taeniatherum caput-medusae*), B-listed state weed, is not noted on the figure due to its ubiquity across the Survey Area.

[2] Desktop delineated; locations were approximated.

TETRA TECH

SAVION
A RENEWABLE ENERGY COMPANY

Reference Map



Earthstar Geographics

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Attachment 1. Vascular Plants Observed During the 2023 Field Surveys

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Attachment 1. Vascular Plants Observed During Surveys

Scientific Name	Common Name	Native or Introduced? (1)	Synonyms	Notes
Achillea millefolium	Common yarrow	N		
Agoseris sp.	Mountain dandelion	N		
Allium acuminatum	Tapertip onion, Hooker's onion	N		
Amsinckia lycopsoides	Tarweed fiddleneck, bugloss fiddleneck	N		
Amsinckia tessellata	Bristly fiddleneck	N		
Antennaria sp.	Pussytoes	N		
Artemisia ludoviciana	White sagebrush	N		
Artemisia rigida	Stiff sagebrush, scabland sagebrush	N		
Artemisia tridentata	Big sagebrush	N		
Asclepias fascicularis	Narrowlead milkweed	N		
Astragalus filipes	Basalt milkvetch	N		
Astragalus purshii	Woollypod milkvetch	N		
Astragalus sp.	Milkvetch sp.	N		
Balsamorhiza careyana	Carey's balsamroot	N		
Balsamorhiza sagittata	Arrowleaf balsamroot	N		
Blepharipappus scaber	Rough eyelashweed	N		
Bromus inermis	Smooth brome	I		
Bromus tectorum	Cheatgrass, downy chess, downy brome	I		
Centaurea diffusa	Diffuse knapweed	I		ODA Noxious Weed, B List; Wasco County Weed, B Pest
Ceratocephala testiculata	Hornseed buttercup	I	*Ranunculus testiculatus*	
Chaenactis douglasii	Hoary false yarrow	N		
Chenopodium album	White goosefoot, baconweed	I		
Chenopodium fremontii	Fremont's goosefoot	N		
Chenopodium rubrum	Low goosefoot	N		
Chrysothamnus vicidiflorus	Green rabbitbrush	N		

Cirisium arvense	Canada thistle, creeping thistle	I		ODA Noxious Weed, B List
Cirisium undulatum	Wavy leaf thistle	N		
Cirisium vulgare	Bull thistle	I		ODA Noxious Weed, B List
Clematis ligusticifolia	Old-man's beard, peppervine	N		
Collinsia parviflora	Small flowered blue-eyed Mary	N		
Convolvulus arvensis	Field bindweed	I		ODA Noxious Weed, B List; Wasco County Weed, C Pest
Collomia grandiflora	Large flowered collomia	N		
Crepis atribarba	Long leaved hawksbeard, tapertip hawksbeard	N		
Crepis barbigera	Bearded hawksbeard	N		
Crepis intermedia	Gray hawksbeard, intermediate hawksbeard	N		
Delphinium nuttallianum	Upland larkspur	N		
Descurainia sophia	Flixweed, tansy mustard	I		
Descurainia sp.	Flixweed spp.	N		
Dieteria canescens	Hoary tansyaster	N		
Dipascus fullonum	Wild teasel, Fuller's teasel	I	*Dipascus sylvester*	
Elymus elymoides	Squirreltail	N	*Sitanium hystrix*	
Ericameria nauseosa	Rubber rabbitbrush	N		
Erigeron linearis	Desert yellow daisy, lineleaf fleabane	N		
Eriogonum douglasii	Douglas' buckwheat	N		
Eriogonum elatum	Tall buckwheat	N		
Eriogonum heracleoides	Parsnipflower buckwheat	N		
Erodium cicutarium	African filaree, red-stemmed filaree	I		
Festuca idahoensis	Idaho fescue	N		
Fritillaria pudica	Yellow bells, yellow frittilary	N		

Galium aparine	Stickywilly, cleavers, catchweed bedstraw	N		
Galium boreale	Northern bedstraw	N		
Grindelia squarrosa	Curlycup gumweed, resinweed	N		
Gutierrezia sarothrae	Broom snakeweed, matchweed	N		
Heracleum maximum	Cow parsnip	N		
Hieracium cynoglossoides	Houndstongue hawkweed	N		
Holodiscus discolor	Ocean spray	N		
Hordeum sp.	Barley	N		
Idaho scapigera	Scalepod, flatpod	N		
Juniperus occidentalis	Western juniper	N		
Lactuca serriola	Prickly lettuce	I		
Lepidium campestre	Field pepperwort, field pepperweed	I		
Lepidium perfoliatum	Clasping pepperweed	I		
Lewisia rediviva	Bitterroot, resurrection flower	N		
Leymus cinereus	Great Basin wildrye	N	*Elymus cinereus*	
Linum lewisii	Linum flax, blue flax	N		
Lithospermum ruderale	Western gromwell, Columbia puccoon	N		
Lomatium nudicaule	Barestem lomatium	N		
Lomatium sp.	Lomatium, Biscuitroot	N		
Lupinus arbustus	Longspur lupine, spur lupine	N	*Lupinus laxiflorus*	
Lupinus lepidus var. *aridus*	Dwarf lupine	N		
Lupinus leucophyllus	Velvet lupine, wooly leaved lupine	N		
Lupinus sericeus	Silky lupine	N		
Medicago sativa	Alfalfa, lucerne	I		
Melilotus officinalis	Common yellow sweetclover	I		
Nasturtium officinale	Watercress, yellow cress	I		
Onobrychis viciifolia	Common sainfoin	I	*Onobrychis sativa*	

Onopordum acanthium	Scotch thistle	I		ODA Noxious Weed, B List
Penstemon deustus var. *duestus*	Hot rock penstemon	N		
Penstemon rydbergii	Rydberg's penstemon	N		
Penstemon speciosus	Royal penstemon	N		
Perideridia gairdneri	Gairdner's yampah, western false caraway	N		
Phacelia hastata	Lance leaf phacelia, cordilleran phacelia	N		
Phacelia linearis	Linear-leaved phacelia	N		
Philadelphus lewisii	Lewis' mock-orange	N		
Phlox hoodii	Wooly phlox	N		
Phlox longifolia	long leaved phlox	N		
Phoenicaulis cheiranthoides	Daggerpod	N		
Pinus sp.	Pine	N		
Poa bulbosa	Bulbous bluegrass	I		
Poa secunda	Secund bluegrass	N		
Polygonum aviculare	Prostrate knotweed	I		
Populus tremuloides	Quaking aspen	I		
Prunus virginiana	Bitter-berry, chokecherry	N		
Pseudoroengeria spicata	Bluebunch wheatgrass	N		
Purshia tridentata	Antelope bitterbrush	N		
Ribes aureum	Golden currant	N		
Ribes cereum	Wax currant	N		
Rosa woodsii	Wood's rose	N		
Rumex crispus	Curly dock	I		
Salix sp.	Willow	N		
Sisymbrium altissimum	Tumble mustard	I		
Symphoricarpos rotundifolius var. *oreophilis*	Roundleaf snowberry	N		
Taeniatherum caput-medusae	Medusahead rye	I		ODA Noxious Weed, B List

Taraxacum officinale	Common dandelion	I		
Tetradymia canescens	Gray horsebrush, spineless horsebrush	N		
Thinopyrum intermedium	Intermediate wheatgrass	I	*Agropyron intermedium*	
Tragopogon dubius	Yellow salsify	I		
Triteleia grandiflora	Large-flowered triteleia	N	*Brodiaea douglasii*	
Typha angustifolia	Lesser cattail, narrow-leaf cattail	N		
Urtica dioica	Stinging nettle	N		
Verbascum thapsus	Flannel mullein, cowboy toilet paper	I		Wasco County Weed, Q Pest
Veronica americana	American brooklime	N		
Viola sp.	Violet	N		
Nomenclature follows Hitchcock 2018, Oregon Flora 2023c. 1. N = Native, I = Introduced				

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Attachment 2. Site Photographs

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Photo 1. Heavily disturbed, grazed grassland. Dominant species include medusahead and cheatgrass. Taken: 6/10/2023. Lat/Long: 45.14795797, -120.8638785.

Photo 2. Large population of common mullein on hillside of a drainage. Vegetation and dead stalks. Taken: 6/14/2023. Lat/Long: 45.12344175, -120.8148209.

Photo 3. Large population of common mullein on hillside of a drainage. Vegetation and dead stalks. Taken: 6/14/2023. Lat/Long: 45.12344175, -120.8148209.

Photo 4. Flowering scotch thistle. Taken: 6/14/2023. Lat/Long: 45.13117486, -120.8172027.

Photo 5. Shrub-steppe ecotype with containing sagebrush, bluebunch wheatgrass, wild buckwheat, medusahead, and cheatgrass. Taken: 6/12/2023. Lat/Long: 45.17073945, -120.8926137.

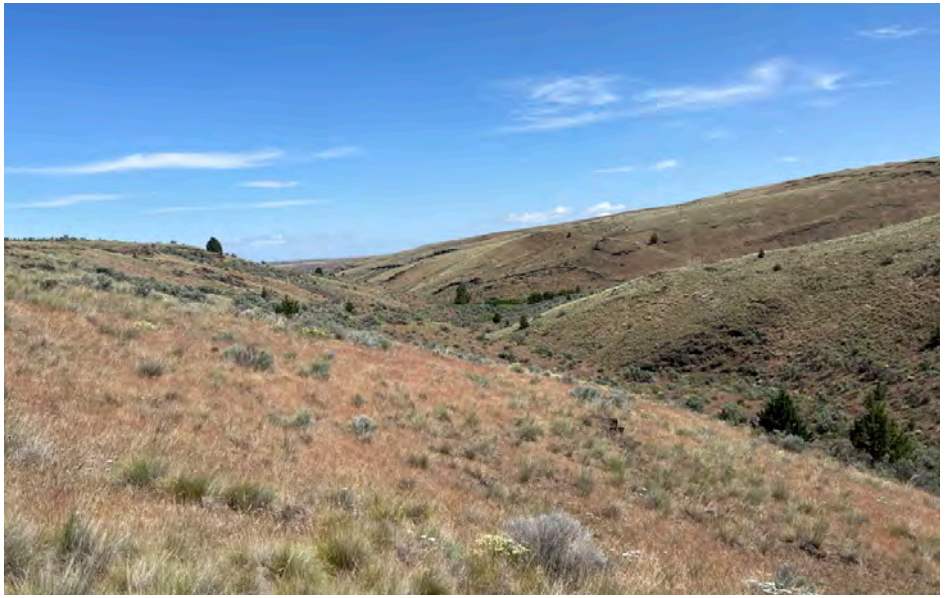

Photo 6. Higher quality upland grassland/shrub-steppe ecotypes still containing ample medusahead and cheatgrass. Taken: 6/14/2023. Lat/Long: 45.12093531, -120.8149661.

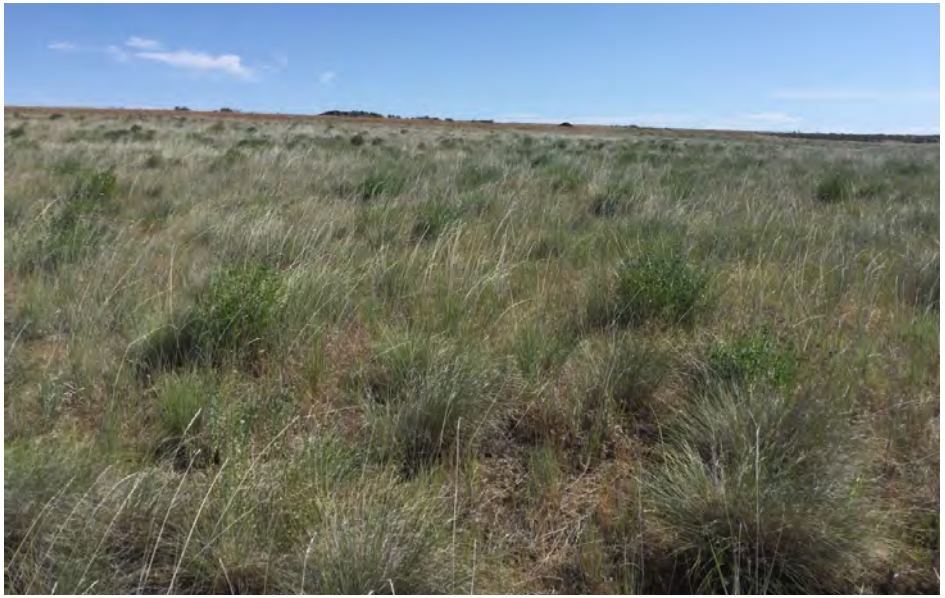

Photo 7. Planted grassland. Dominant species include bluebunch wheatgrass and alfalfa, along with the non-native annual grasses medusahead and cheatgrass. Taken: 6/10/2023. Lat/Long: 45.13493762, -120.8383803.

Photo 8. Medusahead-dominated, disturbed grassland. Fresh plants, alongside cheatgrass. Taken: 6/6/2023. Lat/Long: 45.10788465, -120.8399199.

Photo 9. Medusahead-dominated, disturbed grassland. Dried out plants alongside cheatgrass. Taken: 6/8/2023. Lat/Long: 45.16306, -120.8187924.

Photo 10. Diffuse knapweed individual in smaller, western population. Taken: 6/11/2023. Lat/Long: 45.16381843, -120.8685369.

Photo 11. Heavily disturbed, grazed grassland. Dominant species include medusahead and cheatgrass. Taken: 6/11/2023. Lat/Long: 45.14932227, -120.8543931.

Photo 12. Fresh budding Canada thistle in the hunting recreation area of the northwestern portion of the Survey Area. Taken: 6/12/2023. Lat/Long: 45.18088215, -120.8785682.

Photo 13. Dead stalks of scotch thistle. Taken: 6/12/2023. Lat/Long: 45.17061103, -120.8919795.

Photo 14. Vegetation of bull thistle alongside medusahead. Taken: 6/12/2023. Lat/Long: 45.16654068, -120.8915394.

Photo 15. Vegetation of common mullein. Taken: 6/13/2023. Lat/Long: 45.1681334, -120.8938465.

Photo 16. Common mullein plants along Bakeoven Road and Project Boundary fenceline. Taken: 6/13/2023. Lat/Long: 45.16195351, -120.9001494.

Attachment P-2. Draft Habitat Mitigation Plan

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Draft Habitat Mitigation Plan

Yellow Rosebush Energy Center
August 2024

Prepared for
Yellow Rosebush Energy Center, LLC

Prepared by

TETRA TECH

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1.0 Introduction

This Habitat Mitigation Plan (HMP) describes how Yellow Rosebush Energy Center, LLC (Applicant) will mitigate for the unavoidable wildlife habitat impacts of the Yellow Rosebush Energy Center (Facility). Specifically, this HMP[1] outlines how the Applicant will construct and operate the Facility consistent with the Oregon Department of Fish and Wildlife (ODFW) Habitat Mitigation Policy. This plan addresses mitigation for both the permanent impacts of Facility components (permanent impacts) and the temporal impacts associated with the Facility construction (select temporary impacts). The Applicant proposes to protect and enhance a habitat mitigation area and/or provide commensurate funding for a third party to enhance and monitor a habitat mitigation area. In addition, the Applicant reserves the right to pursue alternative mitigation pathways if available in the future by pursuing an amendment to this HMP, as provided under Section 7.0 below. This HMP specifies preliminary habitat enhancement actions and example monitoring procedures to evaluate the success of those actions, as applicable. The Applicant identified a mitigation option for the Facility in this HMP. If it is determined at final design of any phase of Facility development that additional mitigation is needed, mitigation would be developed in a like manner as the mitigation approach identified in this HMP, subject to ODFW review and approval by Oregon Department of Energy (ODOE).

2.0 Description of the Impacts Addressed by the HMP

The Facility is located entirely within the ODFW Designated Mule Deer Winter Range. ODFW (2013) describes winter range in eastern Oregon as limited and essential habitat for big game; therefore, should be considered as Category 2 under ODFW's Habitat Mitigation Policy. It is not possible to site the Facility outside of the designated winter range because the Facility is location-dependent on its interconnection point at Bakeoven or Buckley substations, which are also in the winter range. Therefore, impacts to Category 2 are unavoidable due to the Facility's interconnection location and the overlapping mule deer winter range.

Notwithstanding the overarching habitat categorization, the area within the Facility micrositing corridor is primarily composed of eastside grasslands (habitat type Upland Grassland, Shrub-Steppe and Shrubland; subtype Eastside Grasslands), shrub-steppe (habitat type Upland Grassland, Shrub-Steppe and Shrubland; subtype Shrub-Steppe), and planted grasslands (habitat type Agriculture, Pasture, and Mixed Environs; subtype Planted Grasslands) (Exhibit P, Tables P-2 and P-3). Essential habitat values for quality big game winter range—such as thermal cover, security from predation and harassment, quality forage, and limited disturbance—are present throughout the shrub-steppe habitat within the Facility micrositing corridor, but generally lacking in the areas

[1] This HMP will be incorporated by reference in the site certificate for the Yellow Rosebush Energy Center and must be understood in that context. It is not a "stand-alone" document.

of eastside grasslands and planted grasslands (Exhibit P, Section 8.1.1). Approximately 72 acres of Category 2 and 2,464 acres of Category 3 shrub-steppe habitat were field-characterized within the Facility micrositing corridor. Approximately 402 acres of Category 3 eastside grasslands habitat were field-characterized within the Facility micrositing corridor. Category 4 planted grasslands account for 1,247 acres (18 percent) of the Facility micrositing corridor. Areas of eastside grasslands and shrub-steppe habitat dominated by non-native plant species (Categories 4 and 5) comprise 2,460 acres (35 percent) of the Facility micrositing corridor (see Exhibit P, Table P-3).

Permanent impact areas are those that would be converted from the existing condition to a different condition for the life of the Facility. Solar array areas will be fenced, and all areas inside the fence are considered permanently disturbed. In addition to the solar array, fencing will occur at the collector substation, the operations and maintenance (O&M) building, and the battery storage area, as required by electrical code or security needs (see Exhibits B and C). Temporary impacts will be mitigated for through successful implementation of the Revegetation Plan (Attachment P-3 to Exhibit P). However, some areas of shrub-steppe and eastside grasslands that will be temporarily impacted include sagebrush stands that could take longer than five years to be restored. Even where restoration of this habitat subtype is successful, there is a loss of habitat function during the restoration period. Therefore, this HMP includes mitigation for both permanently impacted habitat and select areas of temporarily impacted shrub-steppe and eastside grasslands habitat that result in a temporal loss of habitat quality.

The Facility will not impact Category 1 habitat. No mitigation is required for impacts to Category 6 areas. Remaining Category 2, 3, 4, and 5 habitat is considered Category 2 habitat because the Facility is within ODFW's Designated Mule Deer Winter Range, which overlaps the areas of temporary and permanent impact (ODFW 2013). Based on this definition, Table 1 presents anticipated acres of impact for Category 2 habitat present at the Facility, in addition to the preliminary habitat categorization of these areas before the application of this overlay.

Table 1. Potential Impacts by Habitat Category, Type and Subtype

Final Habitat Category	Preliminary Habitat Category	Habitat Type	Habitat Subtype	Permanent	Temporary
2	2	Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	52.8	4.2
		Open Water – Lakes, Rivers, Streams	Perennial Streams	—	<0.1*
		Wetlands	Scrub-shrub Wetlands	—	<0.1*
	Category 2 Total			**52.8**	**4.3**
2	3	Cliffs, Caves, and Talus	Cliffs, Caves, and Talus	0.1	3.7
		Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	<0.1*	<0.1*

Final Habitat Category	Preliminary Habitat Category	Habitat Type	Habitat Subtype	Permanent	Temporary
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	239.4	33.2
		Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	1,203.7	66.5
		Wetlands	Emergent Wetlands	<0.1*	—
	Category 3 Total			**1,443.1**	**103.5**
2	4	Agriculture, Pasture, and Mixed Environs	Planted Grasslands	1,152.8	19.7
		Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	<0.1*	<0.1*
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	1,125.1	47.6
		Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	69.0	16.1
	Category 4 Total			**2,346.9**	**83.4**
2	5	Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	0.3*	0.2*
		Open Water – Lakes, Rivers, Streams	Seasonal Ponds	—	0.4*
		Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	847.2	10.5
		Wetlands	Emergent Wetlands	0.3*	—
	Category 5 Total			**847.8**	**11.0**
Category 2 Final Total				**4,690.7**	**202.2**
6	6	Agriculture, Pasture, and Mixed Environs	Orchards, Vineyards, Wheat Fields, Other Row Crops	291.9	15.2
		Urban and Mixed Environs	Urban and Mixed Environs	30.3	13.3
	Category 6 Total			**322.2**	**28.5**
Category 6 Final Total				**322.2**	**28.5**
Grand Total				**5,012.9**	**230.7**

Note: Totals in this table may not be precise due to rounding. "-" means no acres while <0.1 means greater than zero but less than 0.05 acres.

* Impacts to wetlands and Waters of the State will be avoided during final design (see Exhibit J). Wetlands and Waters of the State within the fenced solar array area are considered permanently impacted for the purposes of habitat impacts, but will not be disturbed by the Facility.

The Applicant proposes to begin construction as soon as June 2027, and to construct the Facility in phases. The size and construction schedule for each phase will be based on market demand, but the entire Facility, including all phases, will be completed by 2035 unless the Applicant seeks an amendment to extend the construction deadline. Table 2 provides an example phased Facility schedule. The impact analysis presented in the Application for Site Certificate and mitigation outlined in this HMP represents the fully built-out scenario of 800 megawatts (MW).

Table 2. Example Facility Schedule

Year	Activity
2025	Issuance of Yellow Rosebush Energy Center site certificate.
2027	Final engineering and begin construction.
2027 - 2035	Phased construction to operation.
2027 - 2035	Phased construction to operation.
2027 - 2030	Phase 1 construction; approximately 36 months (400 MW).
2027	Mitigation actions commence with the start of Phase 1 construction.
2030	Anticipated Phase 1 construction completion deadline; commence Phase 1 commercial operation.
2032 - 2035	Phase 2 construction; approximately 36 months (400 MW).
2032	Mitigation actions commence with the start of Phase 2 construction.
2035	Anticipated Phase 2 construction completion deadline; commence Phase 2 commercial operation for full buildout.
2030-2075	Facility operating life (anticipated to be 40 years from start of commercial operations).
2075	Facility decommissioning, site restoration, and completion of habitat mitigation requirements.

3.0 Methods for Calculating the Size of the Mitigation Area

The habitat mitigation area was determined based on the Facility design and actual habitat impacts (i.e., Category 2 vs. Category 6 habitat). Before beginning construction of each phase of the Facility, the Applicant will provide ODOE with a map showing the final design configuration for that phase of the Facility and a table showing the estimated acres of permanent and temporary impacts by habitat category (Table 1). A mitigation ratio of 1.02 acres for every 1 acre of Category 2 habitat affected will be used to ensure that the habitat mitigation area will be large enough to achieve "no net loss" of Category 2 habitat quantity or quality. A "net benefit" in habitat quantity or quality for impacts to habitat in Category 2 may be achieved through habitat enhancement actions or by other means approved by ODFW. The Applicant will determine the final mitigation ratio in consultation with ODFW prior to construction. No mitigation will be implemented for impacts on Category 6 habitat (Table 3).

For temporary impacts that require mitigation, the habitat mitigation area will include up to 0.5 acres for every 1 acre of eastside grasslands and shrub-steppe habitat affected. The size of this

portion of the habitat mitigation area assumes that restoration of disturbed eastside grasslands and shrub-steppe habitat is successful, as determined under the Revegetation Plan (Attachment P-3 to Exhibit P).

Table 3. Compensatory Mitigation Ratios

Final Habitat Category[1]	Current Habitat Category[2]	Mitigation Ratio Permanent[3]	Mitigation Ratio Temporary[4]
2	2	1.02:1	0.5: 1 for Shrub Steppe and Eastside Grasslands habitat
	3	1.02: 1	0.5: 1 for Shrub Steppe and Eastside Grasslands habitat
	4	1.02: 1	0.5: 1 for Shrub Steppe and Eastside Grasslands habitat
	5	1.02: 1	None
6	6	None	None

1. Final Category following application of ODFW Designated Mule Deer Winter Range overlay.
2. Current habitat condition and category as mapped by the Applicant prior to construction.
3. Permanent impact areas based on final design and includes the Facility's footprint. No mitigation offered for Category 6 habitat.
4. Compensatory mitigation for temporal habitat loss to current Category 2, 3, or 4 Upland Grassland, Shrub-Steppe and Shrubland – Shrub-Steppe and Eastside grasslands habitat subtypes (see Table 1) due to sagebrush component. Other habitat types will be restored following the methods described in the Revegetation Plan.

4.0 Mitigation

Through coordination with ODFW, the Applicant identified one primary option for addressing the mitigation obligation where habitat protection and enhancement is feasible and consistent with this HMP. This mitigation option is on the Columbia Plateau and "in proximity" to the Facility. If it is determined at final design of any phase of Facility development that additional mitigation is needed, mitigation would be developed in a like manner as the mitigation approach identified in this HMP, subject to ODFW review and approval by ODOE. The final mitigation approach will offer enough suitable habitat to achieve the ODFW goal of no net loss of habitat quantity or quality. A net benefit in habitat quantity could be achieved through an increased ratio and a net benefit in quality could be achieved through appropriate enhancement actions.

As the potential habitat mitigation area is largely within ODFW-mapped Mule Deer Winter Range, acquisition of this area constitutes acquisition of primarily Category 2 habitat regardless of the habitat condition (excluding Category 6 habitat, such as cultivated cropland and developed land), and thus meets the ODFW goal of no net loss of habitat quantity (Figure 1). Any enhancement actions successfully performed (including on a subset of the acquired area or at other in-proximity locations) would result in a net benefit in habitat quality. Prior to operation of the Facility, the Applicant will acquire the legal right to create, maintain, and protect the habitat mitigation area for

the estimated 40-year life of the Facility[2] by means of an outright purchase, conservation easement, or similar conveyance, and will provide a copy of the documentation to ODOE.

4.1 Tygh Ridge Ranch Habitat Mitigation Area

Through coordination with ODFW, the Applicant identified parcels available for establishing conservation easements in-proximity to the Facility. The identified parcels include 5,039 acres (4,931 acres excluding cultivated cropland and developed land) on Tygh Ridge Ranch near the town of Tygh Valley, approximately 15 miles from the Facility. Tygh Ridge Ranch is within the Columbia Plateau ecoregion, provides ample potential acreage, and is composed of similar habitat types suitable for in-kind mitigation. Mitigation would be developed in a like manner as the identified mitigation approach (i.e., at Tygh Ridge Ranch) if additional mitigation is needed based on final Facility design.

The Applicant performed a desktop analysis of the Tygh Ridge Ranch habitat mitigation area. The property contains Flowing Water and Riparian, Grassland, and Sagebrush ODFW Conservation Strategy Habitats (ODFW 2016). The primary habitat type on the property appears to be grassland/herbaceous (i.e., upland grasslands), followed by shrub/scrub (i.e., shrub-steppe) (Table 4; Figure 1). Oregon white oak (*Quercus garryana*) is present in Bonnie Canyon and Big Canyon along Highway 197. The Applicant understands that the majority of the Tygh Ridge Ranch habitat mitigation area is currently enrolled in the Conservation Reserve Program (CRP). The Applicant will work with ODFW to determine how to manage CRP enrollment prior to construction and finalization of the HMP. The presence of these habitats would allow for enhancements beneficial to wildlife in general, and big game, grassland birds, and white-tailed jackrabbits (*Lepus townsendii*) in particular. Tygh Ridge Ranch is adjacent to the White River Wildlife Management Area near Mount Hood and approximately 3.5 miles from the Lower Deschutes Wildlife Management Area. The property is known by ODFW to be used for seasonal elk migration between the Deschutes River and higher elevation forests of the Hood River National Forest. Placing a conservation easement on Tygh Ridge Ranch would provide connectivity to the White River Wildlife Management Area and improve wildlife movement between the White River Wildlife Management Area and Deschutes Wildlife Management Area. The Applicant may partner with a third-party for long-term enhancement and monitoring of the mitigation parcels.

In 2024, the Larch Creek Fire burned the western third of the Tygh Ridge Ranch habitat mitigation area. The fire burned quickly through the area and destroyed an internet tower on the property. The burned area provides an opportunity for uplift, as described in Section 4.2.

The Applicant will continue to work with ODFW to identify opportunities to protect and enhance habitats in this area, and to define the appropriate monitoring of mitigation parcels. A preliminary list of habitat enhancement actions is described below.

[2] As used in this Plan, "life of the facility" means continuously until the Facility site is restored and the site certificate is terminated in accordance with Oregon Administrative Rules 345-027-0110.

Table 4. Land Cover Types within the Tygh Ridge Ranch Habitat Mitigation Area

Land Cover Type	Acres	Percent of Tygh Ridge Ranch Mitigation Area
Cultivated Crops	0.1	0.0
Deciduous Forest	3.4	0.1
Developed, High Intensity	<0.1	0.0
Developed, Low Intensity	1.9	0.0
Developed, Medium Intensity	1.3	0.0
Developed, Open Space	104.9	2.1
Emergent Herbaceous Wetlands	1.6	0.0
Evergreen Forest	80.0	1.6
Grassland/Herbaceous	2842.8	56.4
Mixed Forest	6.7	0.1
Shrub/Scrub	1988.4	39.5
Woody Wetlands	8.3	0.2
Total	5,039.2[1]	100.0

Note: Totals in this table may not be precise due to rounding. <0.1 means greater than zero but less than 0.05 acres.

1. Total excluding cultivated crops and developed land cover types is 4,931.1 acres.

4.2 Habitat Enhancement Actions

The Applicant or a third party will address habitat enhancement as described in this section. The objectives of habitat enhancement are to protect habitat within the habitat mitigation area from degradation and to improve the quality of ODFW-designated Mule Deer Winter Range within the habitat mitigation area. By achieving these objectives, the Applicant can address the permanent and temporary habitat impacts of the Facility and meet the ODFW goals of no net loss of habitat quantity or quality and a net benefit in habitat quantity or quality for impacts to Category 2 habitat. The Applicant may choose one or more of the following enhancement actions based on the biological objectives of the habitat mitigation area, and the actions will be refined in coordination with ODFW and the landowner, to improve habitat conditions, as appropriate and feasible:

1. Shrub Planting. The Applicant would plant sagebrush shrubs in locations within the habitat mitigation area where existing sagebrush is stressed, or where recent wildfires occurred. The Applicant would determine the size of shrub planting areas based on the professional judgment of a qualified biologist after a ground survey. The size of shrub planting areas will depend on the size of the available habitat mitigation area and opportunity for survival of planted shrubs. The shrub survival rate at 4 years after planting is an indicator of successful enhancement of habitat quality to Category 2. The Applicant would complete the initial shrub planting within 1 year after beginning construction of the Facility. Supplementing existing, but disturbed, sagebrush areas with shrub plantings would assist restoration of

this valuable shrub-steppe component. The Applicant would obtain shrubs from a qualified nursery and would identify the area to be planted after consultation with ODFW, subject to final approval by ODOE. The Applicant would mark planted shrub clusters at the time of planting for later monitoring purposes and would keep a record of the number of shrubs planted.

2. Weed Control. The Applicant would implement a weed control program. Under the weed control program, the Applicant would monitor the habitat mitigation area to locate weed infestations, especially invasive annual grasses. The Applicant would continue weed control monitoring, as needed, for the life of the Facility. As needed, the Applicant would use appropriate methods to control weeds. Weed control on the mitigation site will reduce the spread of noxious weeds within the habitat mitigation area and on any nearby grassland, CRP, or cultivated agricultural land. Weed control will promote the growth of desirable native vegetation and planted shrubs. The Applicant may consider weeds to be successfully controlled when weed clusters have been eradicated or reduced to a non-competing level. Weeds may be controlled with herbicides or hand-pulling. The Applicant would notify the landowner of the specific chemicals to be used on the site and when spraying will occur. To protect locations where young desirable forbs may be growing, spot-spraying may be used instead of total area spraying.

3. Fire Control. The Applicant would implement a fire control plan for wildfire minimization when Facility staff are working within the habitat mitigation area. The Applicant would provide a copy of the fire control plan to ODOE before starting habitat enhancement actions. The Applicant would include in the plan appropriate fire prevention measures, methods to detect fires that may occur and a protocol for fire response if a fire were to occur when Facility staff were present. If any part of the habitat mitigation area is damaged by future wildfire, the Applicant would assess the extent of the damage and implement appropriate actions to restore habitat quality in the damaged area.

4. Oregon White Oak Planting. The Applicant would plant Oregon white oak in portions of Big Canyon that were burned in the Larch Creek Fire. Oak woodlands are an Oregon state Strategy Habitat in the adjacent East Cascades ecoregion and provide habitat for many wildlife species (ODFW 2016). The Tygh Ridge Ranch habitat mitigation area is on the eastern edge of the Oregon white oak range and planting seedlings will facilitate expansion of oak woodland habitat.

5. Riparian Planting. The Applicant would plant appropriate riparian species along streams and around wetlands and springs, if present, for the benefit of fish and big game. Riparian plantings will improve access to nutritious woody vegetation for wintering deer, which is essential to over-winter survival during severe winters when annual grasses and native bunchgrasses are covered in snow. Riparian plantings will improve shading of streams, which will improve temperature conditions for fish at the location of plantings, as well as downstream. Riparian plantings would also provide cover for big game and help stabilize soil.

6. Spring Restoration. The Applicant would restore and improve existing springs to benefit wildlife.
7. Wildlife Guzzlers. The Applicant would install wildlife guzzlers to provide water for wildlife in areas of the habitat mitigation area where water resources are scarce.
8. Fence Maintenance and Removal. Fencing will be repaired or improved along the eastern boundary with private landowners to prevent encroachment by grazing cattle. The Applicant would remove unused boundary and internal fencing to promote big game movement through the habitat mitigation area. Fencing would be removed or piled in a selected canyon to create bird habitat.
9. Habitat Protection. The Applicant would restrict uses of the habitat mitigation area that are inconsistent with the goals of no net loss of habitat quantity or quality and a net benefit in Category 2 habitat quantity or quality. The landowner will retain the right to the following uses of the habitat mitigation area:
    a. Family hiking, horseback riding, and driving. Driving would be limited to existing roads except in certain cases for hunting and land management conducted by the landowner.
    b. Family recreation activities, including seasonal hunting. The landowner is open to a seasonal restriction on horseback riding and other recreational activities to avoid impacts to winter habitat.
    c. Existing contracts for internet antenna.
    d. Existing contracts for research and testing. The research and testing area is zoned Industrial/Commercial and is not included in the habitat mitigation area; however, the landowner allows for use of the property for access to the southern part of Tygh Ridge Ranch off of Highway 197, staging trees or shrubs for planting, and parking or storage of equipment, as needed.
    e. Spring/water maintenance and improvement as required for domestic water use.

Table 5 outlines the anticipated benefits of various enhancement actions to Mule Deer Winter Range.

Table 5. Potential Restoration Actions and Benefits to Mule Deer Winter Range

Action	Benefit
Shrub Planting	Provide access to nutritious woody vegetation during winter, especially severe winters when snow covers grass forage, in order to improve over-winter survival. Deer on winter ranges without a shrub component often have high rates of over-winter mortality (ODFW 2011).
Biological, Chemical, or Mechanical Weed treatment	Reduce competition with desirable forage species to improve or maintain mule deer forage quality and quantity.[4] Impacts of invasive species on Oregon's fish and wildlife resources are one of the seven most pressing conservation issues identified in the Oregon Conservation Strategy (ODFW 2016).

Action	Benefit
Oregon White Oak Planting	Provide acorns and foliage for forage by mule deer and other wildlife (ODFW 2016).
Riparian Planting	Provide access to nutritious woody vegetation during winter, especially severe winters when snow covers grass forage, in order to improve over-winter survival. Robust riparian vegetation with a high diversity of woody shrub species along streams are an important component of deer winter habitat (ODFW 2011).
Spring Restoration	Restore and improve existing springs to benefit wildlife.
Wildlife Guzzlers	Provide access to water in areas where water resources are scarce.
Fence Removal	Remove unused boundary and internal fencing to promote big game movement through the habitat mitigation area (ODFW 2016).

5.0 Monitoring

The Applicant will develop a monitoring protocol in coordination with ODFW and ODOE depending on the enhancement actions selected. The monitoring duration will be developed in consultation with ODOE and ODFW and could include an assessment of the following:

- Quantification of habitat types and ODFW habitat categories present at the habitat mitigation area;
- Description of the amount and quality of vegetation at the habitat mitigation area;
- Description of the year-to-date climate data;
- Success of weed control measures through monitoring of infestation extents and recommend remedial action, if needed;
- Success of shrub plantings quantitatively through belt monitoring transects as well as qualitatively through an overall assessment of the treated area;
- Percent survival of riparian plantings;
- Documentation of fence removal;
- Wildlife observed and notes on special status species (wildlife and plants) encountered onsite during routine monitoring;
- Observations of wintering mule deer will be recorded as observed from a distance (so disturbance is kept at a minimum); and
- Record any wildfire that occurs within the habitat mitigation area and any remedial actions taken to restore habitat quality in the damaged area, if applicable.

6.0 Success Criteria

Mitigation of the permanent and temporal habitat impacts of the Facility may be considered successful if the Applicant protects and enhances sufficient habitat to meet the ODFW goals of no net loss of habitat quantity or quality and a net benefit in habitat quantity or quality for impacts to Category 2 habitat, or provides commensurate funding for a third party to perform enhancement and monitoring. The Applicant must ensure protection of the required quantity and quality of habitat within the habitat mitigation area for the life of the Facility, including providing commensurate funding for ODFW or a third party to do so.

The Applicant must protect a sufficient quantity of habitat to meet habitat mitigation area requirements based on the final design configuration of the Facility. The Applicant will determine the actual habitat mitigation area requirements for each phase of the Facility, subject to ODFW review and ODOE approval, before beginning construction. The Applicant, ODFW, or a third party may demonstrate improvement of habitat quality based on evidence of indicators such as survival of planted shrubs, natural recruitment of sagebrush, and successful weed control. However, most of the Category 2 habitat impacted by the Facility was preliminarily identified as Category 3, 4, and 5 habitat based on vegetative characteristics such as presence of non-native species and was only designated as Category 2 habitat based on its value to wintering mule deer. As a result, habitat within the habitat mitigation area will only need to be enhanced to the extent that it provides net benefit over the quality of habitat impacted by the Facility as it falls within ODFW-designated Mule Deer Winter Range. If the Applicant cannot demonstrate that the habitat mitigation area is trending toward habitat quality goals described above within five years after initial shrub plantings, then the Applicant would propose remedial action. ODOE may require supplemental planting or other corrective measures.

7.0 Amendment of the HMP

This HMP may be amended from time to time by agreement of the Applicant and the Oregon Energy Facility Siting Council (EFSC). Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this HMP. ODOE shall notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this HMP agreed to by ODOE.

8.0 References

Oregon Department of Fish and Wildlife (ODFW). 2011. Oregon Mule Deer Initiative. January 7, 2011. https://www.dfw.state.or.us/resources/hunting/big_game/mule_deer/docs/Mule_Deer_Mgmt_Plan_Final.pdf. Accessed October 2023.

ODFW. 2013. ODFW Winter Range for Eastern Oregon. GIS dataset. https://nrimp.dfw.state.or.us/DataClearinghouse/default.aspx?p=202&XMLname=885.xml. Accessed October 2023.

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Figure

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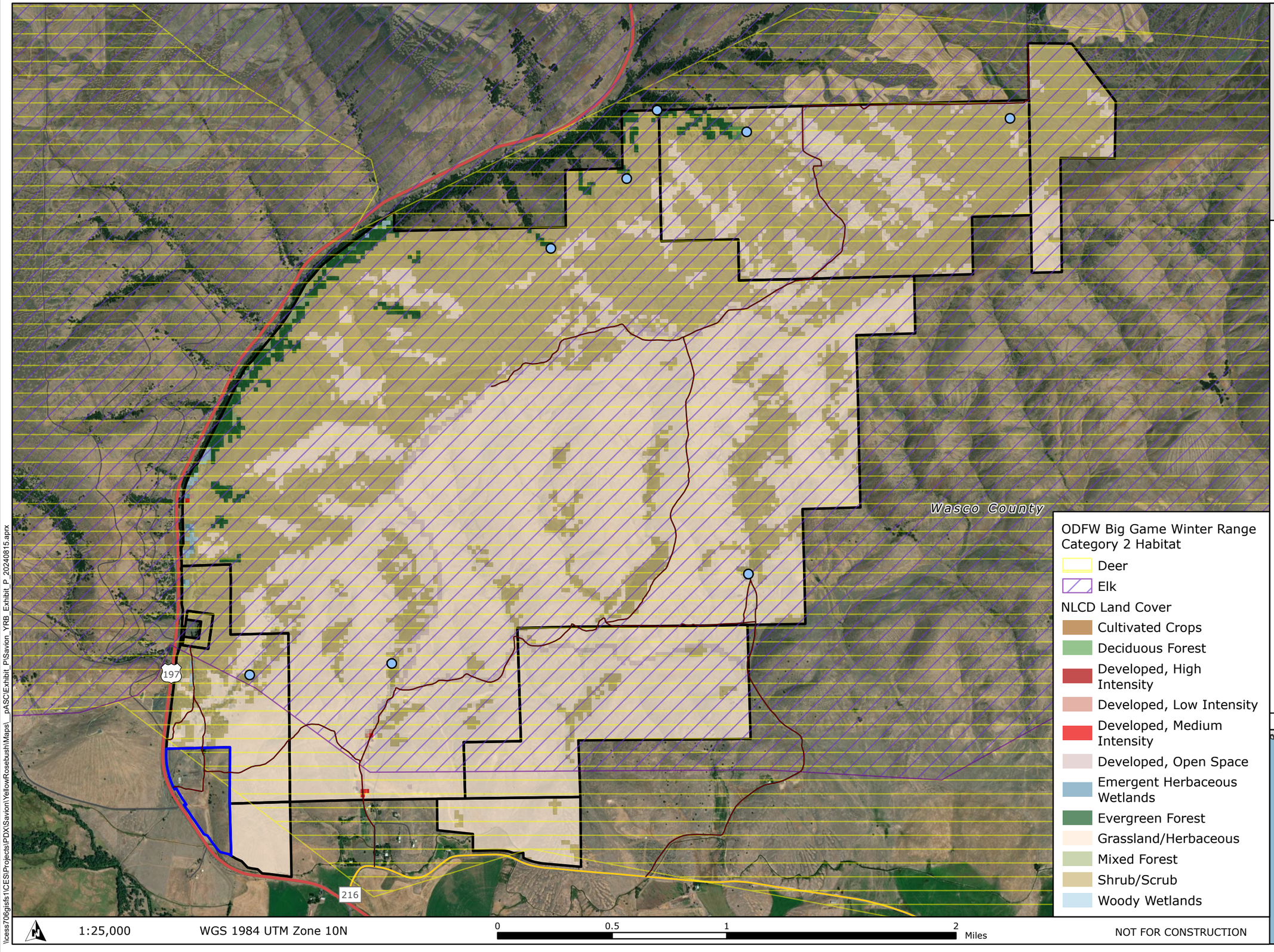
Yellow Rosebush Energy Center

Figure 1
Tygh Ridge Ranch Mitigation Area

WASCO COUNTY, OR



- Tygh Ridge Ranch Mitigation Area
- US Highway
- State Highway
- Local Roads
- County Boundary
- Spring (Location is Approximate)
- Existing Site Access Road (Location is Approximate)
- Potential Mitigation Activity Staging Area*

The potential mitigation activity staging area is not included in the Tygh Ridge Ranch Habitat Mitigation Area.

ODFW Big Game Winter Range Category 2 Habitat
- Deer
- Elk

NLCD Land Cover
- Cultivated Crops
- Deciduous Forest
- Developed, High Intensity
- Developed, Low Intensity
- Developed, Medium Intensity
- Developed, Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Shrub/Scrub
- Woody Wetlands

TETRA TECH SAVION A RENEWABLE ENERGY COMPANY

Reference Map

1:25,000 WGS 1984 UTM Zone 10N

0 0.5 1 2 Miles

NOT FOR CONSTRUCTION

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Attachment P-3. Draft Revegetation and Reclamation Plan

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Draft
Revegetation and Reclamation Plan

Prepared for
Yellow Rosebush Energy Center, LLC

Prepared by

Tetra Tech, Inc.

August 2024

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1.0 Introduction

Yellow Rosebush Energy Center, LLC (Applicant) seeks to develop the Yellow Rosebush Energy Center (Facility), a solar energy generation facility and battery storage project and related or supporting facilities in Wasco and Sherman counties, Oregon. This Draft Revegetation and Reclamation Plan (Plan) describes methods, success criteria, and monitoring and reporting requirements for the restoration and revegetation of areas temporarily disturbed during the construction of the Facility, as well as areas within the solar array fence. This Plan will be updated, as necessary, in coordination with the Oregon Department of Energy (ODOE), the Oregon Department of Fish and Wildlife (ODFW), the Oregon Department of Agriculture (ODA), the Wasco County Weed and Pest Division, and the Sherman County Weed District, and will be updated as needed prior to construction to reflect the final layout of the Facility. The Applicant will additionally work with Oregon State University Extension, as recommended by ODFW in their comments on the Facility Notice of Intent,[1] to update this Plan as needed for revegetation success given the challenges realized within this ecoregion with revegetation projects.

Throughout construction, revegetation, and operation activities, the Applicant will take appropriate actions to prevent the spread of state and county listed noxious weeds as noxious weed control is vital to revegetation success. A stand-alone Draft Noxious Weed Control Plan has also been prepared (see Exhibit P, Attachment P-4), which contains information on state, Wasco, and Sherman County listed noxious weeds, noxious weeds observed during surveys, and treatment and monitoring of noxious weeds.

2.0 Site Description

The Facility site boundary encompasses 8,075 acres approximately 9 miles east of Maupin, Oregon, and approximately 6 miles west of Kent, in unincorporated Wasco County and Sherman County, Oregon (See Exhibit C). The Facility lies within the Columbia Basin Ecoregion at elevations from 1,395 ft to 2,757 feet. The Facility is located on private land, the vast majority of which is primarily used for hunting tours, rangeland/grazing, and some limited areas used for cultivation of agricultural crops.

Habitat mapping and categorization of the site were conducted for the Facility in 2023. Major habitat types included upland grassland, shrub-steppe, and shrubland (with habitat subtypes of eastside grasslands and shrub-steppe), agriculture, pasture, and mixed environs (with habitat subtypes of planted grasslands and orchards, vineyards, wheat fields, or other row crops), cliffs, caves, and talus slopes, urban and mixed environs and several types of wetlands and waters. Additional details regarding the Facility's habitat types, subtypes, and categories can be found in Exhibit P of the Facility's Application for Site Certificate (ASC), especially Attachment P-1 (2023

[1] Oregon Department of Energy, Project Order for Yellow Rosebush Energy Center (January 2024)

Wildlife, Habitat, and Raptor Nest Survey Report). Details on potential impacts to habitat and special-status species from construction and operation of the Facility, as well as avoidance and minimization measures, can be found in the ASC Exhibits P and Q.

3.0 Description of Temporary and Permanent Impacts

Construction of the Facility will result in up to approximately 231 acres of temporary impacts and 5,013 acres of permanent impacts (Table 1, see Exhibits C and P). Although actual impacts may change depending on the final layout, solar panels, and other associated facilities, this value represents the estimated maximum acreage of impact. Temporary impact areas are those that will be disturbed during construction activities, but which will not become permanent parts of the Facility. All temporary impact areas are outside the fenced solar arrays. Permanent impact areas include all areas within the solar array fence and will be mitigated as such in the Habitat Mitigation Plan (HMP; Exhibit P, Attachment P-2). This Plan addresses impact areas that will be revegetated and monitored following construction.

Temporary impacts will occur in association with the improvement of existing roads, as well as during the construction of collector and transmission lines, new roads, staging areas, and fences. The intensity of the construction impact will vary: in some areas, the impact will be relatively light; but in other areas, heavy construction activity will remove all vegetation, remove topsoil, and compact the remaining subsoil. Some areas of temporary disturbance, such as staging areas, will be graveled during construction, and will be reclaimed by removing the gravel surface, regrading to match adjacent contours, and reseeding. The specific extent of each component's temporary impact is detailed in ASC Exhibit C, and is described in terms of a total, worst-case scenario impact for the full duration of phased construction.

All areas within the solar array fence are considered a permanent impact and will be revegetated for the purposes of site stabilization to reduce erosion, dust pollution, and topsoil depletion, and to reduce potential for invasion by noxious and invasive plants. As noted above, this area is considered permanently impacted; however, vegetation within the solar array fence will be retained and/or revegetated, and this area would be reclaimed upon retirement. To the maximum extent practicable, existing vegetation root systems (e.g., crop stubble, fallow vegetation) will be left intact during construction, although construction vehicles driving across the site may affect these existing root systems. Areas where the slope and gradient are within the solar panel and racking tolerances will receive minimal grading, with grading in those areas limited to the roads, inverter, and energy storage footprints only. This preservation of existing root systems will minimize soil erosion, providing both improved compliance with stormwater and dust management requirements, facilitate revegetation success, and preserve soil productivity for future agricultural use. Construction will be coordinated and sequenced with landowners to maintain land in current production and weed control until just prior to construction. This will avoid land being left unmanaged and minimize weed issues that can complicate revegetation.

Table 1 presents the estimated maximum acreage of permanent and temporary impacts to habitat subtypes associated with Facility construction and operation. Table 1 will be updated prior to construction to reflect the final impact acreage by habitat subtype for the final layout. Figures depicting the location of Facility infrastructure are included in Exhibit C, and Exhibit P includes a figure depicting these habitat subtypes within the site boundary (Exhibit P, Figure P-4).

Table 1. Potential Permanent and Temporary Impacts by Habitat Category, Type and Subtype

Habitat Type	Habitat Subtype	Potential Impacts (Acres)	
		Permanent	Temporary
Category 2			
Agriculture, Pasture, and Mixed Environs	Planted Grasslands	1,152.8	19.7
Cliffs, Caves, and Talus	Cliffs, Caves, and Talus	0.1	3.7
Open Water – Lakes, Rivers, Streams	Intermittent or Ephemeral Streams	0.3*	0.2*
Open Water – Lakes, Rivers, Streams	Perennial Streams	-	<0.1*
Open Water – Lakes, Rivers, Streams	Seasonal Ponds	-	0.4*
Upland Grassland, Shrub-steppe and Shrubland	Eastside Grasslands	2,211.6	91.3
Upland Grassland, Shrub-steppe and Shrubland	Shrub-steppe	1,325.5	86.8
Wetlands	Emergent Wetlands	0.4*	-
Wetlands	Scrub-shrub Wetlands	-	<0.1*
	Category 2 Total	**4,690.7**	**202.2**
Category 6			
Agriculture, Pasture, and Mixed Environs	Orchards, Vineyards, Wheat Fields, Other Row Crops	291.9	15.2
Urban and Mixed Environs	Urban and Mixed Environs	30.3	13.3
	Category 6 Total	**322.2**	**28.5**
Grand Total		**5,012.9**	**230.7**

Note: Totals in this table may not be precise due to rounding.. "-" means no acres while"<0.1" means greater than zero but less than 0.05 acres.

* Impacts to wetlands and Waters of the State will be avoided during final design (see Exhibit J). Wetlands and Waters of the State within the fenced solar array area are considered permanently impacted for the purposes of habitat impacts, but will not be disturbed by the Facility.

4.0 Reclamation and Revegetation Methods

This Plan addresses revegetation methods for temporary impacts to agricultural lands and wildlife habitat, as well as revegetation and management of lands within the solar array fence. Revegetation will begin as soon as feasible following completion of construction. The Applicant will restore temporarily disturbed areas by preparing the soil, followed by seeding using common application methods, as described in Section 4.4 of this Plan. Seeding and planting will be done in timely manner and in the appropriate season to facilitate germination and establishment of seeded species. The Applicant will restore temporarily disturbed areas by re-establishing slope, surface stability, and drainage features, as needed, followed by soil preparation, and seeding. Soil reclamation, site preparation and seeding techniques are described in the sections below.

The Applicant will seed all temporarily impacted lands within non-agriculture (i.e., Orchards, Vineyards, Wheat Fields, Other Row Crops habitat subtype) and non-developed (i.e., Urban and Mixed Environs habitat subtype) habitat types. Restoration of temporarily disturbed developed habitat (i.e., Urban and Mixed Environs habitat subtype) will be determined on a case-by-case basis and is not covered further in this Plan. Temporary disturbances to agricultural habitat (i.e., Orchards, Vineyards, Wheat Fields, Other Row Crops habitat subtype) will be restored with the landowner's direction, as described in Section 4.4.1.

4.1 Soil Reclamation

Soil scientists use a soil penetrometer to field measure subsurface compaction in soil. This tool measures resistance (pressure) to the advance of a cone-tipped rod with a T-handle, vertically through the soil column. The metric intends to measure soil compaction that can inhibit the ability of plants to penetrate the soil. An operator pushes the penetrometer rod with a cone base into the ground with consistent force. A pressure gauge records pressure in pounds per square inch, equaling levels of resistance at differing soil layers. Resistance is measured at 3-inch intervals until the meter goes above 300 psi, which is a level of soil compaction most roots cannot penetrate. For this test compaction would be measured at 3, 6, 9, and 12 inches if the soils allowed. Baseline soil compaction measurements will be taken prior to construction. Baseline soil compaction sample locations and baseline compaction results will be submitted to ODOE prior to construction.

1. Baseline and post-construction soil compaction measurements and testing must be done in conditions favorable to soil testing (e.g. non-saturated or frozen soils).
2. Baseline soil compaction measurements will be documented and established by using the above protocol, or other protocol as approved by ODOE, to establish baseline soil conditions within temporary impact areas.
3. Recordation of the baseline soil plots must be represented on a map based on final Facility design.

4. Prior to construction completion at the Facility site and prior to the initiation of revegetation activities, soil compaction testing following the above protocols must be completed.
5. If soil measurements demonstrate that the soils within the work areas are more than 10 percent compacted than the baseline plot, then remediation activities must be completed prior to initiation of revegetation activities. See Section 7.4 below, the Facility National Pollutant Discharge Elimination System (NPDES) 1200-C permit, and applicable site certificate conditions.

In addition, in areas where soil is removed during construction, the following measures will be taken where appropriate:

- During construction, excavated soils will be stockpiled by soil horizon, so that they can be replaced in proper order with the topsoil on the surface, preventing mixing of topsoil and subsoils and maintaining soil productivity. The conserved soil will be put back in place as topsoil prior to revegetation activities.
- Soil preparation will involve standard, commonly used methods (i.e. tracking, decompaction, and tilling), and will consider all relevant site-specific factors, including slope, size of area, and erosion potential.
- Topsoil and other soils from noxious weed infested areas will not be moved outside of the infested areas and will be returned to their previous location during reclamation activities to eliminate the transport of weed seeds, roots, or rhizomes.
- Soils from weed-infested areas will be treated with a non-persistent, pre-emergent herbicide prior to initiation of revegetation efforts, depending on site-specific conditions.
- Prior to final regrade and revegetation efforts, any weeds that have grown during periods of construction dormancy should be removed mechanically or treated with an herbicide in consultation with the Wasco County Weed Department or Sherman County Weed District.
- The construction contractor will use appropriate erosion and sediment control practices (i.e., unseeded hydromulch, tackifier, weed-free erosion control blankets, weed-free or locally sourced straw mulch) to maintain topsoil during construction in both temporary and permanent impact areas.

4.2 Site Preparation

When preparing the site for revegetation, the soil will be optimized for seed growth. This soil preparation will involve standard, commonly used methods, and will take into account relevant site-specific factors, including topography, size of area, soil type, plant communities, and erosion potential. As noted above, existing vegetation root systems (e.g., crop stubble, fallow vegetation) will be left intact during construction to the maximum extent practicable. Areas where the slope and gradient are within the solar panel and racking tolerances will receive minimal grading, with grading in those areas limited to the roads, inverter, and energy storage footprints only. In areas

where soil is removed during construction, the following measures will be taken where appropriate:

- Excavated soils will be stockpiled by soil horizon, so that they can be replaced in proper order with the topsoil on the surface, preventing the mixing of topsoil and subsoils and maintaining soil productivity. The conserved soil will be returned as topsoil prior to revegetation activities.
- Topsoil and other soils from noxious weed infested areas will not be moved outside of the infested areas and will be returned to their previous location during reclamation activities.
- Movement of topsoil and other soils from non-infested areas will be limited to eliminate the transport of hidden weed seeds, roots, or rhizomes.
- Areas of severe machine or vehicle tracking that would hinder seeding success and are unnecessary for soil stabilization will be regraded.
- Where applicable, soils will be mechanically scarified (e.g., tilling or ripping the soil) to an appropriate depth to reduce the potential effects of compaction, to maintain soil productivity, and reduce the potential for erosion on compacted soils.
- The Applicant or a designated construction contractor will use mulching and other appropriate practices, as required by the anticipated NPDES 1200-C permit, to control erosion and sediment during construction and revegetation work.
- Soils will be prepared into a firm, fine-textured seedbed that is relatively free of debris before seeding or planting. Shallow tilling with a disc, followed by a harrow or drag if necessary, can typically achieve this. If replaced soil is too soft, then seeds may be buried too deep to properly germinate; a roller or culti-packer should be used to pack down the soil.

In non-cropland areas, site complexity will be considered during soil preparation. For instance, it may be desirable to purposely create an uneven, patchy site that allows for depressions and other microsites that result in small variations in aspect and moisture holding to promote complexity. Soil preparation, as well as seeding techniques described in the following section, will be determined in consultation with a qualified contractor.

4.3 Revegetation of Permanent Impact Areas

During construction, the Applicant will implement site stabilization measures, including seeding of all disturbed areas according to the Applicant's anticipated NPDES 1200-C permit. Approximately six months prior to commercial operation of each phase of construction, the Applicant will meet with ODFW, ODOE, and Wasco County Weed Department and Sherman County Weed District personnel to review the actual extent and conditions of impacted areas and confirm the revegetation methods to be implemented.

After the site has been prepared for installation of facility components (i.e., grading is complete), but prior to installation, all areas with less than 70 percent vegetative cover should be seeded with a non-invasive, non-persistent cover crop (e.g., triticale). Establishment of a cover crop at this stage of construction will stabilize soils and suppress noxious weed infestations to reduce erosion and facilitate revegetation of desired plant species.

Following completion of each construction phase, permanent impact areas will be reseeded with a mix of native or non-invasive, non-native grasses and forbs as appropriate based on disturbance level and actual site conditions. Seed will be obtained from a reputable supplier in compliance with the Oregon Seed Law (OAR 603-056). The final seed mix for areas within the solar array fence will include low growing grasses and pollinator-friendly forbs compatible with desired vegetation conditions under the solar arrays (i.e., species whose mature height would not interfere with or shade the solar array).

4.4 Restoration of Temporary Disturbance Areas

4.4.1 Agricultural Lands

Temporarily disturbed agricultural lands will be reseeded with the appropriate crop or maintained as fallow in consultation with the landowner or farm operator. The Applicant will also consult with the landowner or farm operator to determine seed mix, application methods, and rates for seed and fertilizer. Success of cropland revegetation will have been achieved when production of the revegetated area is comparable to that of adjacent, non-disturbed croplands of the same type. Success determination will involve consultation with the landowner or farm operator, and the Applicant will report to ODOE on the success of cropland restoration efforts. Noxious weed control is necessary for successful revegetation of croplands and will be implemented per the methods described in the Draft Noxious Weed Control Plan (Exhibit P, Attachment P-4).

4.4.2 Wildlife Habitat

During construction, the Applicant will implement site stabilization measures, including seeding of temporarily disturbed areas according to the Applicant's anticipated NPDES 1200-C permit. Approximately 6 months prior to commercial operation of each phase of construction, the Applicant will meet with ODFW, ODOE, ODA, Wasco County Weed Department Supervisor, and the Sherman County Weed District Supervisor, as applicable, to review the actual extent and conditions of temporarily impacted areas and confirm the revegetation methods to be implemented.

4.5 Seeding Techniques

Following each construction phase, all impact areas, with the exception of temporarily disturbed developed and agricultural lands, will be reseeded with a mix of native or non-invasive, non-native grasses and forbs (see Section 4.6). Seed mixes will be obtained from a reputable supplier in compliance with ODA's Oregon Seed Laws (Oregon Administrative Rule 603-056).

The seeding methods and timing of planting will be appropriate to the seed mixes, weather conditions (e.g., precipitation, wind speed, temperature, etc.), and site conditions (including area size, slope, and erosion potential) based upon consultation with ODFW, Oregon State University Extension, and the seed supplier. Seeding between late-fall and late-winter/early-spring is typically recommended; however, the Applicant will consult with ODFW, Wasco and Sherman County Weed Supervisors, Oregon State University Extension, and/or the seed supplier to determine the optimal timing for seed application based on climatic conditions of the particular year when construction and revegetation efforts are implemented. Three common seed application methods that may be used are broadcast seeding, drill seeding, and hydroseeding; each of these are discussed further below. Other seeding methods may be proposed for review and approval prior to revegetation efforts.

4.5.1 Broadcast Seeding

Broadcast seeding is the manual or mechanical application of seed directly on the ground surface. This method may be chosen for areas with shallow and rocky soils, and the type of broadcast spreader will depend on the size of the area to be seeded and the terrain.

In this method, the seed mix would be applied using at least the application rate specified by the seed supplier for broadcast seeding. Where feasible, half of the total mix would be applied in one direction and the remaining half in a direction perpendicular to the first to ensure a more uniform spread of seeds across the target area. A tracking dye may be added to facilitate uniform seed application. Broadcasting will not be used if winds exceed 5 miles per hour.

Unsuccessful broadcast seeding is often due to lack of seed-to-soil contact. Therefore, broadcast seeding will be applied to the surface of the soil and then covered by 0.5 to 1 inch of soil by raking or harrowing to ensure soil-to-seed contact and improve success (Pyke et al. 2018).

4.5.2 Drill Seeding

Drill seeding will be used on areas of sufficient size and moderate or favorable terrain to accommodate mechanical equipment. This method, which is more successful in areas with deeper soils, provides the advantage of planting the seed at a uniform depth and may provide better soil to seed contact.

Using a range seed drill, seeds will be sown according to the rates recommended by the seed supplier for drill seeding. Where feasible, half of the total mix will be applied in one direction and the second half of mix in the direction perpendicular to first half. If mulch has been applied before, it is acceptable to use a drill to plant the seeds through the mulch, as long as the drill can effectively penetrate the straw and create adequate seed-to-soil contact for germination. Drill seeding will be difficult after Facility components have been installed, so it will primarily be used if seeding occurs after grading is complete but before components are installed or in areas that were temporarily disturbed during construction that do not have any permanent infrastructure (e.g., temporary access roads, laydown areas).

4.5.3 Hydroseeding

Hydroseeding is most applicable for areas where drill or broadcast seeding machinery cannot access; this usually includes steeper sloped or narrow terrain, but can be used in all terrains. Soil bed preparation is also crucial for growth success and frequently includes tracking perpendicular to the slope to create micro conditions for seed. Flat grading and compaction are not recommended. Seeding rates increase by 30 to 50 percent of broadcast seeding rates or single applications per consultation with the seed supplier and ODFW. Prior to hydroseeding the tackifier and fertilizer, if included, will be reviewed and approved in consultation with ODFW.

4.6 Seed Mix and Shrub Plantings

One seed mix is proposed for revegetation efforts as shown in Table 2. All temporarily disturbed land will be revegetated with either: 1) a mix of native grasses and forbs; 2) a mix of native grasses, forbs, and shrubs; or 3) a mix of seeds designed by the Natural Resources Conservation Service (NRCS) for areas enrolled in the Conservation Reserve Program (CRP), as appropriate. Composition of the final seed mix will be determined following pre-construction baseline surveys (see Section 7.2.2) and in consultation with ODOE and ODFW.

The Applicant will make all attempts to procure the approved seed mix. However, if the species included in the seed mix are not available at the time of procurement, the Applicant will obtain approval from ODOE prior to making substitutions to the approved seed mix.

The proposed Grass and Forb Seed Mix presented in Table 2 will be used for revegetation of all temporarily disturbed areas, except for areas enrolled in the CRP that have specific seeding requirements, if present at the time of revegetation. Those areas, if applicable, will be seeded with a seed mix that meets the requirements of the CRP contract and be paired with an appropriate reference site (see Section 7.2.1). The seed mixes will be planted in late fall to early spring unless an alternate timing is approved in consultation with ODOE.

In addition to the Grass and Forb Seed Mix, basin big sagebrush (*Artemisia tridentata* ssp. *tridentata*) shrubs are proposed for planting during revegetation of temporarily disturbed shrub-steppe habitat. ODFW has indicated a preference for planting of shrub seedlings instead of including them in seed mixes; therefore, the Applicant will prioritize planting container or bare root basin big sagebrush shrubs in temporarily disturbed areas of shrub-steppe habitat. In general, shrubs will be planted using approximately 12 foot spacing. However, shrubs can be planted "in random patterns or in clusters or islands, using mixtures of species to create natural-appearing stands" (Shaw et al. 2015). If plantings are not feasible due to availability of plant stock or cost, the Applicant will notify ODOE, and basin big sagebrush seeds will be added to the Grass and Forb Seed Mix at a rate of 0.1 to 0.2 pounds of pure live seed (PLS) per acre.

Table 2. Grass and Forb Seed Mix

Scientific Name	Common Name	Type	Percent Composition[1]
Festuca idahoensis	Idaho fescue	Grass	25
Pseudoroegneria spicata	Bluebunch wheatgrass	Grass	20
Elymus elymoides	Squirreltail	Grass	20
Poa secunda	Sandberg bluegrass	Grass	20
Achillea millefolium	Common yarrow	Forb	5
Eriogonum heracleoides	Parsnipflower buckwheat; Wyeth buckwheat	Forb	5
Linum lewisii var. *lewisii*	Wild blue flax	Forb	5

1. If planting of sagebrush seedlings within areas of temporarily disturbed shrub-steppe habitat is not feasible, basin big sagebrush seed will be added to the seed mix at the rate of 0.1 5 to 0.2 pounds of PLS per acre.

5.0 Noxious Weed Prevention and Control

The Applicant will implement weed prevention and control measures during construction and revegetation efforts, as described in the Noxious Weed Control Plan developed for the Facility (Attachment P-4).

6.0 Revegetation Documentation

The Applicant will maintain documentation of revegetation work conducted at the Facility. Documentation will include:

- Date that construction was completed;
- Acreage of each disturbance level;
- Description and photos of the affected area prior to revegetation efforts;
- Date revegetation work was initiated;
- Description of the work implemented within the revegetation area, including methods and timing;
- Supporting figures representing the location, acres affected, and pre-disturbance condition of the revegetation area; and
- Confirmation from the landowner that temporary disturbances in cropland have been satisfactorily restored.

The Applicant will meet with ODOE at least 14 days prior to initiation of revegetation efforts. The Applicant will update ODOE with these records monthly as revegetation work occurs, and will

provide ODOE with copies of these records along with submission of the monitoring report that is required by the anticipated site certificate.

7.0 Monitoring

7.1 Monitoring of Permanent Impact Areas

In accordance with the Applicant's anticipated NPDES 1200-C permit, areas within the solar array fence will be revegetated to stabilize soils for the purposes of erosion and dust pollution control. Pursuant to OAR 345-022-0022, construction and operation of the Facility must not result in significant adverse impacts to soils, including but not limited to, erosion. In addition, the Wasco County Land Use Development Ordinance (WCLUDO) 19.030(C)(14) requires a weed plan be developed in consultation with the Wasco County Weed Department and implemented during construction and operation of the Facility.

Monitoring is required to demonstrate compliance with the above site stabilization and weed control requirements. The Applicant will conduct monitoring within permanent impact areas to assess the following:

- Dominant species composition;
- Relative cover of desirable and undesirable forbs and grasses;
- Percent cover of bare soil;
- Degree of erosion;
- Presence of noxious weeds; and
- Qualitative assessment of overall vigor of vegetation within revegetated areas.

Monitoring methods will be determined in consultation with ODOE prior to construction and will be incorporated as an amendment to this plan upon ODOE approval. Monitoring will be conducted by a qualified botanist or revegetation specialist and will begin within 60 days of completion of the initial site restoration effort. Monitoring will be conducted annually for five years, with the first monitoring period to occur the first growing season following initial seeding. After five years of monitoring, the Applicant will design a long-term monitoring plan in consultation with ODOE.

7.1.1 Success Criteria

The success criterion outlined below will demonstrate compliance with the soil protection standard (OAR 345-022-0022) and NPDES 1200-C permit requirements:

- Establish uniform (i.e., evenly distributed, without large bare areas) perennial, non-invasive vegetation that provides 70 percent or more cover on all exposed areas.

Requirements of the soil protection standard apply to the construction and operation of the Facility. Therefore, the Applicant shall maintain compliance with revegetation success criteria for all areas within the solar array fence for the life of the Facility. In each monitoring report, the Applicant will include an assessment of whether the area within the solar array fence is meeting or trending toward meeting the revegetation success criteria. Final determination of whether the Applicant is in compliance with revegetation obligations will be made by ODOE. Remedial actions and/or additional monitoring may be required in areas that are determined by ODOE not to meet the success criteria.

7.1.2 Reporting

Monitoring reports will be prepared and submitted annually to ODOE for the first five years. The first monitoring report will include a detailed description and timeline of site restoration methods that were implemented including species, amounts, and locations of the seed applications and dates restoration work was performed. Each monitoring report will include:

- GIS maps of revegetation areas and disturbance levels;
- Monitoring methods;
- Local climatic data (i.e., precipitation, temperature) for the monitoring month and year and percent deviation from the historical average;
- The results of the monitoring efforts;
- The investigator's assessment of whether the revegetated areas are trending toward meeting the success criteria;
- Assessments of factors impacting the ability of the revegetated area to trend towards meeting the success criteria; and
- Recommendations of remedial actions, if any.

7.2 Monitoring of Temporary Disturbance Areas

Following implementation of revegetation efforts, the Applicant will monitor the revegetation areas as described in this section, unless the landowner has converted the area to a use that precludes meeting revegetation success criteria. Revegetation areas will be monitored by a qualified investigator annually for five years, with the first monitoring period to occur the first growing season following initial seeding.

Based on the fifth annual assessment, a long-term monitoring plan will be developed in coordination with ODOE and ODFW. This may include remedial actions, additional monitoring, and/or additional mitigation for areas that have been determined by ODOE, in consultation with ODFW, not to have met the success criteria. If it is determined, in consultation with ODOE and ODFW, that revegetated areas have met the success criteria prior to the fifth annual assessment,

annual monitoring will be deemed complete, and a long-term monitoring plan will be developed in coordination with ODOE and ODFW.

7.2.1 Reference and Monitoring Sites

To determine if revegetation efforts are meeting the success criteria outlined in Section 7.2.5, paired monitoring (i.e., treatment) and reference (i.e., control) sites will be established in each of the habitat subtypes that will be temporarily disturbed by construction, with the exception of agricultural lands (i.e., habitat subtype Orchards, Vineyards, Wheat Fields, Other Row Crops), cliffs/talus habitat (i.e., habitat subtype: Cliffs, Caves, and Talus), and habitat/category combinations with less than 1 acre of temporary disturbance. Reference sites are intended to represent target conditions for the revegetation effort. Vegetation within monitoring sites in revegetation areas will be compared with those in the associated reference sites to measure success of the revegetation activities.

Fifteen monitoring and seven reference sites (22 total sites) will be established and monitored. Table 3 presents the number of monitoring and reference sites that will be established within each habitat subtype anticipated to be temporarily disturbed. The number of monitoring sites was based on the extent of anticipated temporary disturbance as follows:

- Less than 1 acre of temporary disturbance = 0 sites
- 1 to 10 acres of temporary disturbance = 1 site
- 11 to 35 acres of temporary disturbance = 2 sites
- For each additional 25 acres of impacts, one additional site will be added (e.g., 36-60 acres of impact = 3 sites, 61-85 acres = 4 sites, etc.)

One reference site per habitat subtype and preliminary habitat category anticipated to be temporarily disturbed will be established. Locations will be randomly selected using existing habitat mapping.

Table 3. Number of Monitoring Sites to be Established within Each Habitat Subtype

Preliminary Habitat Category	Habitat Subtype[1]	Acres of Temporary Disturbance	Number of Monitoring Sites	Number of Reference Sites
2	Shrub-steppe	4.2	1	1
3	Eastside Grasslands	33.2	2	1
	Shrub-steppe	66.5	4	1
4	Eastside Grasslands	47.6	3	1
	Shrub-steppe	16.1	2	1
	Planted Grasslands	19.7	2	1
5	Eastside Grasslands	10.5	1	1
		Total	15	7

1. No monitoring is proposed for the 3.7 acres of Cliffs, Caves, and Talus habitat anticipated to be impacted because these areas consist of cliffs and talus slopes that are not vegetated.

7.2.2 Pre-Construction Baseline Surveys

Prior to the start of construction, surveys will be conducted to evaluate baseline conditions within the proposed monitoring and reference sites. Both quantitative and qualitative data will be collected during the pre-construction baseline surveys as described in Section 7.2.3. Selection of appropriate sites and collection of pre-construction data will ensure that monitoring and reference sites are located in areas of similar habitat type and quality prior to disturbance. This will help ensure that comparison between monitoring and reference sites is appropriate for determining successful revegetation.

7.2.3 Monitoring Methods

7.2.3.1 Data Collection

Both quantitative and qualitative data will be collected during pre-construction baseline surveys and post-construction annual monitoring. Quantitative data will be collected along one 150-foot long transect located within each selected monitoring and reference site. During pre-construction baseline surveys, the exact locations of these transects will be established and the ends of each transect line will be recorded using a global positioning system unit capable of submeter accuracy. During post-construction monitoring, the transect locations within the monitoring sites may need to be adjusted if the actual disturbance footprint is smaller than the anticipated construction footprint and does not accommodate a transect. These detailed considerations for monitoring methods will be determined in consultation with ODOE and ODFW prior to implementation of monitoring.

A modified version of the Daubenmire method (NRCS and BLM 1999) tailored to address the Facility's monitoring goals will be used to assess vegetative cover and species composition along each transect. A 1.5-foot by 3-foot quadrat will be placed every 15 feet along the transect, and the percent cover of each plant species, as well as bare soil, litter, and biotic crust within each quadrat, will be recorded using Daubenmire cover classes. Site characteristics including slope, aspect, elevation, soil type, and habitat type will also be recorded. The datasheet for recording data is provided in Appendix A. In addition, photographs will also be taken at the end of each transect, and the compass bearing will be recorded for each photograph taken.

Qualitative monitoring will supplement quantitative data and help to describe overall site conditions and assess the need for remedial actions to ensure sites are progressing toward the success criteria outlined in Section 7.2.5. Qualitative data that will be collected during pre-construction baseline surveys and annual monitoring will include the following:

- Evidence of ongoing, recent, or past disturbance;
- Evidence of wildlife use;
- Degree of erosion (high, moderate, or low); and
- Overall plant vigor.

7.2.3.2 Data Analysis

Based on data collected, the following parameters will be assessed for each reference and monitoring site:

- Total vegetative cover;
- Cover of native and desirable grass and forb species;
- Cover of shrubs;
- Percent cover of invasive species and state and county-designated noxious weeds;
- Proportion of native and desirable plant species; and
- Species richness (number of plant species observed).

These results will then be compared for each monitoring site and paired reference site to determine if the revegetated areas are trending toward meeting or have met the success criteria as described in Section 7.2.5.

7.2.4 Reporting

Monitoring reports will be prepared and submitted to ODFW and ODOE annually for the first five years. The first monitoring report will include a detailed description and timeline of site restoration methods that were implemented including species, amounts, and locations of the seed applications and dates restoration work was performed. Each monitoring report will include:

- GIS maps of revegetation areas and disturbance levels;
- Monitoring methods;
- Local climatic data (i.e., precipitation, temperature) for the monitoring month and year and percent deviation from the historical average;
- The results of the monitoring efforts;
- The investigator's assessment of whether the revegetated areas are trending toward meeting the success criteria;
- Assessments of factors impacting the ability of the revegetated area to trend towards meeting the success criteria; and
- Recommendations of remedial actions, if any.

Findings from the annual revegetation monitoring report for temporary disturbance areas will be included as part of the Applicant's annual report to ODOE and ODFW.

7.2.5 Success Criteria

Each monitoring report will include an assessment of whether the temporarily disturbed revegetated areas are meeting or trending toward meeting the success criteria. An area will be deemed successfully revegetated when the following success criteria are met:

- **Native Forbs:** The average percent cover of desirable forbs (i.e., species included in seed mixes and/or native species that have naturally colonized) will be a minimum of 75 percent of the reference site within 5 years. Richness of native and desirable forbs on a reclaimed site will be at least equal to the richness measured on the reference site within 5 years (applicable to all revegetation areas).
- **Native Shrubs:** The average cover of the shrub component will be at least 50 percent of the reference site within 5 years. At least 15 percent of the shrub density will be the dominant species found on the reference site. The richness of shrub species and the shrub density within the revegetated areas will be at least equal to the shrub species richness and density measured on the reference site (only applicable to shrub-steppe revegetation areas).
- **Native and Desirable Grasses:** Cover and richness of native and desirable (i.e., species included in seed mixes and/or native species that have naturally colonized) grass species is at least 85 percent similar to reference sites. Native and/or desirable grasses are to be seeded at rates sufficient to achieve abundance and richness characteristics of the grass component at the reference site (applicable to all revegetation areas).
- **Noxious Weeds:** Presence and cover of noxious weeds is 75 percent or less than that of the reference site (applicable to all revegetation areas).

Final determination of whether the Certificate Holder has met the revegetation obligations will be made by ODOE, in consultation with ODFW.

7.3 Remedial Action

After each monitoring visit, the Applicant's qualified investigator will report to the Applicant regarding the revegetation progress of each revegetation area. If applicable, the investigator will make recommendations to the Applicant for reseeding, weed control, or other remedial measures for areas that are not showing progress toward achieving revegetation success. The investigator will provide a description of factors that may be contributing to the lack of revegetation success. The Applicant will include the investigator's recommendations for remedial actions and the measures taken in that year's monitoring report. ODOE may require reseeding, weed control, or other remedial measures in cases where success criteria have not been met.

If a revegetation area is damaged by wildfire during the first 5 years following initial seeding, the Applicant will work to restore the damaged area. The Applicant will continue to report on revegetation progress during the remainder of the 5-year period. The Applicant will report to ODOE and ODFW the area impacted by the fire (with a map or figure).

7.4 Soil Reclamation Monitoring

Soil measurements conducted per Section 4.1 shall be evaluated to determine whether soils within disturbance areas are more than 10 percent compacted than the baseline plot. If results show soils are more than 10 percent compacted than the baseline plot, then remediation activities must be completed before revegetation activities can begin. Prior to initiation of revegetation, the Applicant will provide the results of soil compaction testing to ODOE. ODOE will authorize revegetation to begin when soils are 10 percent or less compacted than the baseline plot.

8.0 Roles and Responsibilities

The Applicant is responsible for the construction and operations of the Facility and implementation of the revegetation and reclamation plan activities described in this document. However, the Applicant may use contractors to complete tasks associated with their revegetation goals and monitoring needs. Example responsible parties and their roles may include:

The Applicant's Site Manager

- Communicate findings and recommendations from Monitoring Contractor to ODOE and ODFW.
- Maintain landowner communications and provide guidance to Monitoring Contractor and Restoration and Seeding Contractor regarding landowner restrictions/requests for accessing, monitoring, and seeding on their properties.
- Attend quarterly calls with Monitoring Contractor and Restoration and Seeding Contractor.
- Attend calls with ODOE and ODFW as needed.

Monitoring Contractor

- Communicate directly with Restoration and Seeding Contractor. Provide maps and photos of reference and monitoring sites.
- Ensure that seeding efforts completed by the Restoration and Seeding Contractor are occurring at an appropriate seasonal time, according to site-specific weather windows, and when soil moisture is at the appropriate level to support seedling growth.
- Perform site visits (annually and as needed) to document revegetation progress.
- Provide summary memo after each visit to the Applicant's Site Manager and Restoration and Seeding Contractor outlining findings, recommendations, and progress on success criteria (see Sections 7.1.1 and 7.2.5).
- Communicate and attend calls with ODOE and ODFW about revegetation success as needed.
- Prepare annual report for the Facility describing revegetation progress, as outlined in Sections 7.1.2 and 7.2.4.
- Organize and attend quarterly calls with the Applicant's Site Manager and Restoration and Seeding Contractor.

Restoration and Seeding Contractor

- Communicate seeding plan to Applicant's Site Manager, notifying the Applicant's Site Manager of any changes to seed availability prior to seeding.
- Maintain records of when, where, how, and what type of seeds are being planted, and provide a copy of these records to the Applicant's Site Manager and the Monitoring Contractor.
- Review summary memos prepared by Monitoring Contractor following site visits and implement supplemental seeding recommendations, as applicable.
- Attend quarterly calls with Monitoring Contractor and Applicant's Site Manager.

9.0 Plan Amendment

This Plan may be amended by agreement of the Applicant and the Energy Facility Siting Council (EFSC). Such amendments may be made without amendment of the site certificate. EFSC authorizes ODOE to agree to amendments to this Plan. ODOE shall notify EFSC of all amendments, and EFSC retains the authority to approve, reject, or modify any amendment of this Plan agreed to by ODOE.

10.0 References

NRCS and BLM (Natural Resources Conservation Service and Bureau of Land Management). 1996. Revised in 1997 and 1999. Sampling Vegetation Attributes. Interagency Technical Reference 1734-4. Denver, CO.

Pyke, D., J. Chambers, M. Pellant, R. Miller, J. Beck, P. Doescher, and B. Roundy. 2018. Restoration Handbook for Sagebrush Steppe Ecosystems with Emphasis on Greater Sage-Grouse Habitat—Part 1. Concepts for Understanding and Applying Restoration. Circular 1416. Prepared in Cooperation with U.S. Joint Fire Science Program and National Interagency Fire Center, Bureau of Land Management, Great Northern Landscape Conservation, and Western Association of Fish and Wildlife Agencies. U.S. Geological Survey. http://dx.doi.org/10.3133/cir1416.

Shaw, N., A. Halford, and J.K. McAdoo. 2015. Great Basin Factsheet Series: Information and tools to conserve and restore Great Basin ecosystems. Sage Grouse Initiative, USDA-Natural Resources Conservation Service. http://www.sagegrouseinitiative.com/wp-content/uploads/2015/07/8_GBFS_transplanting-seedlings.pdf. Accessed November 2023.

Tetra Tech (Tetra Tech, Inc). 2023. Wildlife, Habitat, and Raptor Nest Survey Report. Yellow Rosebush Energy Center. Prepared for Yellow Rosebush Energy Center, LLC. November.

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Appendix A. Revegetation Monitoring Datasheet

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Date:			Surveyor(s):							
Site #:			Soil Type:					Elevation:		
Transect Bearing:			Slope:		Aspect:			Habitat Type:		
	Quadrat Number (enter "Cover Class" for each species, as well as bare ground, litter, and biotic crust observed in each quadrat)									
Plant Species	1	2	3	4	5	6	7	8	9	10
Bare Ground										
Litter										
Biotic Crust										

Daubenmire Cover Classes

Cover Class	Range of Coverage	Midpoint of Range
1	0 - 5%	2.5%
2	6 - 25%	15.0%
3	25 - 50%	37.5%
4	50 - 75%	62.5%
5	75 - 95%	85.0%
6	95 - 100%	97.5%

Degree of Erosion (high, moderate, low):

Evidence of Wildlife Use:

Disturbances noted (past, ongoing, or recent):

Overall plant vigor:

Notes:

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Attachment P-4. Draft Noxious Weed Control Plan

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Draft
Noxious Weed Control Plan

Yellow Rosebush Energy Center
August 2024

Prepared for
Yellow Rosebush Energy Center, LLC

Prepared by

Tetra Tech, Inc.

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Acronyms and Abbreviations

Applicant	Yellow Rosebush Energy Center, LLC
BMP	best management practices
EPA	U.S. Environmental Protection Agency
Facility	Yellow Rosebush Energy Center
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
ORS	Oregon Revised Statutes
OSWB	Oregon State Weed Board

1.0 Introduction

Yellow Rosebush Energy Center, LLC (Applicant) seeks to develop the Yellow Rosebush Energy Center (Facility) in Wasco and Sherman counties, near Maupin, Oregon. This Draft Noxious Weed Control Plan was prepared to comply with Oregon Administrative Rule 660-033-0130 (38)(h)(D) and describes the noxious weed control measures that will be implemented during construction and operation of the Facility. The intent of this plan is to provide clear methods to minimize the introduction and spread of designated noxious weeds from construction and operation of the Facility, control existing populations of noxious weeds within construction areas, and monitor the success of efforts to prevent and control noxious weeds. The Applicant and its contractors will be responsible for implementing the methods detailed in this plan.

2.0 Regulatory Framework

The Oregon Department of Agriculture (ODA) lists 46 Class A noxious weed species and 98 Class B noxious weed species within the state of Oregon, 47 of which are T-designated (Appendix A). Wasco County lists 45 species of noxious weeds (Appendix B) and Sherman County lists 54 weed species (Appendix C). Many of the weed species listed in Sherman County are also listed in Wasco County. Although not all of the listed noxious weeds in Wasco and Sherman counties and noted in Appendices A and B occur in the vicinity of the Facility, the Applicant and its contractors should be aware of the entire list while monitoring and controlling weeds. Noxious weeds known to occur in the vicinity of the site boundary are discussed in Section 3.0.

2.1 State of Oregon

In Oregon, a noxious weed is defined under Oregon Revised Statutes (ORS) 569.175 as "a terrestrial, aquatic, or marine plant designated by the State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs." Noxious weeds have been declared by ORS 569.350 as a menace to public welfare, and control of these plants is the responsibility of private landowners and operators, as well as county, state, and federal governments.

The Oregon State Weed Board (OSWB) was created by ODA under ORS 569.600. OSWB provides recommendations for noxious weed control at the state level and is responsible for updating the State Noxious Weed List. The OSWB and the ODA classify noxious weeds in Oregon in accordance with the ODA Noxious Weed Classification System; there are three designations under the State's system (Appendix A):

- **A Listed Weed:** A weed of known economic importance that occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent.

    - **Recommended Action:** Infestations are subject to eradication or intensive control when found.

- **B Listed Weed:** A weed of economic importance that is regionally abundant, but may have limited distribution in some counties.
    - **Recommended Action:** Limited to intensive control at the state, county, or regional level as determined on a site-specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.
- **T-Designated Weed:** A designated group of weed species selected from either the A or B list as a focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T-designated noxious weeds are determined by the OSWB, which directs ODA to develop and implement a statewide management plan.

Additionally, Oregon sometimes implements biological control, or "biocontrol", as part of its integrated pest management approach to managing noxious weeds. This is the practice of using host-specific natural enemies such as insects or pathogens to control noxious weeds. The ODA Noxious Weed Program has adopted the International Code of Best Practices for biological control of weeds, and several species found at the Facility may be subject to biocontrol (Appendix A). These biocontrol species are noted below (Section 3).

2.2 Wasco County

In Wasco County, control of noxious weeds is overseen by the Wasco County Weed and Pest Department. Wasco County has its own weed classification system that differs from the state, defining four classifications of weeds (Appendix B):

- **A Pests:** A weed of known economic importance known to occur in the county in small enough infestations to make eradication practical.
- **B Pests:** A weed of known economic importance and of limited distribution within the county and is subject to intensive control or eradication, where feasible, at the county level.
- **C Pests:** A weed that also has economic importance but is more widely spread. Control of these weeds will be limited by conditions that warrant special attention.
- **Q Pests:** A weed that exists in the county, but is of little, no, or undetermined economic importance. However, they are to be monitored and subject to control if they begin to appear threatening.

2.3 Sherman County

The vast majority of the proposed Facility falls within Wasco County; however, the northern section of the gen-tie line extends into Sherman County, Oregon. Sherman County follows a different noxious weed list and protocol, developed by the Sherman County Weed District. Sherman County has developed six weed classes to define weeds of significance (Appendix C):

- **A Class:** High priority. Any noxious weed which greatly endangers the overall economic well-being of the County and has a small enough distribution where eradication is possible.
- **B Class:** Moderate priority. A noxious weed which is well established in the County and has known negative impacts, but due to its distribution, eradication is not feasible.
- **C Class:** Low priority. A noxious weed which is widespread throughout the County and has known economic impacts.
- **Q Class:** Questionable list. A newly detected weed which may have some importance, but more information is needed to determine its impact on agriculture. There is only one Q Class weed currently (*Epilobium hirsutum*).
- **T Class:** Targeted list. A noxious weed from any Class that the Weed Advisory Board wishes to focus efforts and resources on. This List is reviewed annually.
- **W Class:** Watch list. Any noxious weed that may occur in neighboring counties, the State or similar environments as the County, and could potentially endanger the overall economic well-being of the County. Once detected, these weeds shall be moved to the appropriate List.

3.0 Noxious Weeds Identified at the Facility

Based on botanical surveys conducted by Tetra Tech biologists in June 2023, seven listed noxious weed species were observed within the Facility micrositing corridor[1] (Table 1). Although these seven species will specifically be targeted for control, if any additional listed target weeds are identified in the treatment areas, they will also be flagged and treated. Table 1 lists the noxious weed species observed, their prevalence within the Facility, and their noxious weed designation (i.e., status). Locations of these noxious weeds documented during surveys are included in the Facility's Botanical Survey Report, included in Attachment P-1 of the Application for Site Certificate. Six of the seven species observed were ODA "B" listed weeds, and all seven species were listed in at least one of the two counties (Table 1; Appendices A, B, and C).

Table 1. Noxious Weeds Identified within the Facility Micrositing Corridor

Scientific Name	Common Name	ODA Status	Wasco County Status	Sherman County Status	Prevalence
Centaurea diffusa[1]	Diffuse knapweed	B*	B	A/B (depending on county region)	Two observed patches, one of which is expansive.
Cirsium arvense	Canada thistle	B	B/C [2]	A/B (depending on county region)	Infrequent small patches observed.
Cirsium vulgare	Bull thistle	B[3]	Not listed	C	Infrequent small patches observed.

[1] The micrositing corridor is where solar arrays and all other related and supporting facilities may be located; see Exhibit P of the Facility's Application for Site Certificate.

Scientific Name	Common Name	ODA Status	Wasco County Status	Sherman County Status	Prevalence
Convolvulus arvensis	Field bindweed	B[3]	C	B	Infrequently found along two-track roads within the Survey Area.
Onopordum acanthium	Scotch thistle	B	Not listed	B/T	Rare; occurrences consisted of small to medium patches.
Teaniatherum caput-medusae	Medusahead	B	Not listed	C	Dominant ground cover. Near ubiquitous throughout Survey Area. Extremely common.
Verbascum thapsus	Common mullein	Not listed	Q	Not listed	Common alongside Hauser Canyon and in the westernmost Survey Area.

1. Per the Wasco County Weed List, the Bakeoven/Maupin area is a knapweed control zone and control efforts are mandatory under ORS 570.510 and 570.515. The entire Facility on the Wasco County side lies within the knapweed control zone.
2. Canada thistle is listed as "B" pest outside of forests and a "C" pest inside forests in Wasco County. The Facility lies outside the forest; therefore, this species is considered a "B" listed weed within the Facility.
3. Weeds which could be targeted for biocontrol as part of their integrated pest management.

Diffuse knapweed (*Centaura diffusa*), designated as a "B" Listed Weed in Wasco County, is present within the Facility. The broader area of the Facility is classified as a knapweed control zone according to the Wasco County Weed List, necessitating mandatory control measures under ORS 570.510 and 570.515 (Appendix B). The entire Wasco County section of the Facility falls within this control zone. Diffuse knapweed was predominately found on a two-track road alongside an agricultural field in the center of the site. Only two patches were observed, though one extended several hundred feet along the road.

Canada thistle (*Cirsium arvense*) and bull thistle (*Cirsium vulgare*) were both found in small, infrequent patches. Field bindweed (*Convolvulus arvensis*) was found in small populations in highly disturbed areas with bare ground, typically along two-track roads running throughout the Survey Area. Scotch thistle (*Onopordum acanthium*) is rare site-wide, with only three small to medium-sized populations observed. Common mullein (*Verbascum thapsus*) was common within the Survey Area, particularly on the slopes of Hauser Canyon and on the western boundary of the Survey Area. Common mullein was also very common along Bakeoven Road outside of the Survey Area, suggesting that it has high potential for additional spread within the Facility. Lastly, medusahead (*Taeniatherum caput-medusae*) was ubiquitous throughout the Survey Area. Medusahead is a dominant ground cover species site-wide and its eradication is unlikely at this site. Species treatment recommendations are summarized in Appendix D.

The Applicant may conduct an additional pre-construction noxious weed surveys and coordinate with landowners to identify noxious weeds present at the Facility at the time of construction to better inform subsequent management actions.

4.0 Noxious Weed Management

This section describes the steps the Applicant will take to prevent, minimize, and control the establishment and spread of noxious weed species during both construction and operation of the Facility. The management of noxious weeds will be considered throughout all stages of construction and operation of the Facility and will include the following:

- **Prevention:** Implementing measures to prevent the spread of noxious weeds during construction, operation, and maintenance activities.
- **Treatment:** Treating noxious weed populations with their appropriate control methods, at appropriate time intervals.
- **Monitoring:** Assessing noxious weed changes within the Facility site boundary over time and ensuring that legacy as well as new weed populations are not increasing their distributions.

The Applicant's primary goal is to prevent the introduction of new noxious weed populations and the spread of existing noxious weed populations. Early detection and management of small weed populations are crucial for successful control efforts. New noxious weeds detected during post-construction revegetation will be considered a result of construction activities and will be controlled accordingly. If it is determined that noxious weeds have invaded areas immediately adjacent to the Facility (e.g., areas visible just beyond the outer limits of construction disturbances associated with the Facility or along access roads) as a result of construction, the Applicant will contact the landowner and seek approval to treat those noxious weed populations.

Long-term weed control methods will be described in a long-term monitoring plan as described in Section 5. Long-term weed control will be accomplished in conjunction with successful revegetation with non-weedy species as described in the Draft Revegetation Plan (see Exhibit P, Attachment P-3). Initial short-term weed control will be achieved either through mechanical methods (Section 4.2.1) or herbicide use (Section 4.2.2). However, it is crucial to ensure that short-term herbicide use does not impede the establishment of native perennial grass cover, which will help provide long-term control at the Facility.

4.1 Prevention

Prior to the start of construction, all personnel will be instructed on the importance of noxious weed control. The Applicant or their construction contractor will provide information and training to all construction personnel regarding noxious weed identification and prevention strategies. Operations and maintenance personnel will be similarly informed.

The Applicant will also implement preventative best management practices (BMPs) during Facility construction and operation to help minimize invasion and spread of noxious weeds onsite. These BMPs include, but are not limited to:

- Flagging areas of noxious weed infestations prior to construction to alert construction personnel;
- Limiting vehicle access to designated routes, whether existing roads or newly constructed roads, and the outer limits of construction disturbances per the final design for the Facility;
- Limiting vehicle traffic in noxious weed-infested areas;
- Cleaning construction vehicles at a wash station located at an onsite location prior to entering the Facility for the first time and upon completion of work at the Facility, or at a public car wash in the vicinity of the Facility;
- Where feasible, not moving topsoil and other soils from noxious weed-infested areas outside of the infested areas and returning them to their previous location during reclamation activities;
- Conducting ongoing inspections of areas of temporary and permanent disturbance for noxious weeds during and after construction (See Section 5);
- Displaying fact sheets describing target noxious weed species at the operations and maintenance building;
- Ensuring that seed and straw mulch used for site rehabilitation and revegetation are certified free of weed seeds and propagules;
- Preventing conditions that favor noxious weed establishment by revegetating temporarily disturbed areas as soon as possible following construction;
- Completing revegetation using native seed and/or native plants. In instances where these are unavailable, non-invasive and non-persistent non-native species will be utilized instead.

4.2 Treatment

Noxious weeds will be controlled using herbicides or mechanical methods. The Applicant will be responsible for hiring a qualified contractor to implement the treatment of noxious weeds. The Applicant will ensure that noxious weed management actions will be conducted by specialists with the following qualifications:

- Experience in native plant, non-native and invasive plants, and noxious weed identification;
- Experience in noxious weed mapping;
- If chemical control is used, specialists must possess a Commercial or Public Pesticide Applicator License from the ODA or possess an Immediately Supervised Pesticide Trainee License and be supervised by a licensed applicator;
- Training in noxious weed management or Integrated Pest Management with an emphasis in noxious weeds; and
- Experience in coordination with agencies and private landowners.

Recommended treatment methods for each noxious weed species identified at the Facility are provided in Appendix D.

4.2.1 Mechanical Treatment

Mechanical treatment will be the primary method of treatment for existing noxious weed populations within the boundaries of the Facility. Mechanical methods are effective for addressing smaller, isolated populations of noxious weeds or in areas with sensitive habitats, although they often require more labor. These control methods involve the removal of plants, seed heads, or cutting roots using tools or equipment such as shovels, mowers, or other hand tools or equipment that can be used to remove, mow, or disc noxious weed populations. Hand removal of plants is also part of this method. Hand removal can minimize soil disturbance, preserving desirable species and limiting conditions favorable for noxious weed establishment and spread.

Some rhizomatous plants found within the Facility, such as field bindweed and Canada thistle, can be spread through discing or tillage; therefore, the use of these method will be species-specific. If discing is employed in areas slated for revegetation, subsequent seeding will be conducted to re-establish desirable vegetative cover. This will help stabilize the soil and mitigate for the potential re-invasion of noxious weeds.

4.2.2 Chemical Treatment

Chemical control can effectively remove noxious weeds through use of selective herbicides. The herbicides used and the timing of application will differ depending on whether the species are (1) perennial, broad-leaved, or dicot weeds (e.g., thistles and knapweeds, field bindweed) or (2) annual grasses or monocots (e.g., medusahead), as appropriate herbicides differ substantially between dicots and monocots. Recommended treatment methods and treatment timings for the seven noxious weeds identified within the Facility micrositing corridor are provided in Appendix D.

Only herbicides approved by the U.S. Environmental Protection Agency (EPA) and ODA will be applied, and appropriate BMPs will be implemented during application. The status of herbicide approval (e.g., confirming herbicides are approved for use by the EPA and ODA) will be checked annually. In addition, prior to construction and every fall season during facility operation, the Applicant or its contractor will consult with the Wasco County Weed Department and Sherman County Weed District on timing, method, and application rates for each identified weed species of concern, to allow for adaptive weed management given changes in weed control effectiveness from noxious weed species tolerance to herbicide treatment over time. Results of the consultation shall be reported in the Applicant's annual monitoring report. Any alternative control methods can be proposed by the Applicant or its contractors after consulting with the Wasco County Weed Department and Sherman County Weed District and included in the Applicant's annual monitoring report.

Herbicides will be applied to identified, treatable, noxious weed infestations. The Applicant or their contractors will coordinate with the Wasco County Weed Department and Sherman County Weed

District to determine which populations are treatable and will notify landowners of proposed herbicide use on their lands prior to application. If a noxious weed population is deemed to be untreatable (e.g., too widespread and established in an area to successfully control), the Applicant will implement the applicable prevention measures discussed in Section 4.1, except for treatment with herbicides.

4.2.2.1 Herbicide Application and Handling

Herbicide application will adhere to EPA and ODA standards. In general, application of herbicides will not occur when the following conditions exists:

- Wind velocity exceeds 15 miles per hour for granular application, or exceeds 10 miles per hour for liquid applications;
- Snow or ice covers the foliage of target species; or
- Adverse weather conditions are forecasted within the next few days.

Hand application methods (e.g., backpack spraying) may be used in roadless areas or in rough terrain. Vehicle-mounted sprayers (e.g., handgun, boom, and injector) will be used mainly in open areas that are readily accessible by vehicle. Calibration checks of equipment will be conducted prior to spraying activities, as well as periodically throughout use, to ensure that appropriate application rates are achieved.

Herbicides will be transported to the Facility daily with the following stipulations:

- Only the quantity needed for that day's work will be transported.
- Concentrate will be transported in approved containers only, and in a manner that will prevent spilling, stored separately from food, clothing, and safety equipment.
- Mixing will be done off site and at a distance greater than 200 feet from open or flowing water, wetlands, or other sensitive species' habitat. No herbicides will be applied at these areas unless authorized by the appropriate regulatory agencies.
- All herbicide equipment and containers will be inspected daily for leaks.

Herbicides use will be in accordance with all manufacturer's label recommendations and warnings.

4.2.2.2 Herbicide Spills and Cleanups

All appropriate precautions will be taken to avoid herbicide spills. In the event of a spill, cleanup will be immediate. Contractors will keep spill kits in their vehicles and in an appropriate storage shed to allow for quick and effective response to spills. Items included in the spill kit will be:

- Protective clothing and gloves;
- Adsorptive clay, "kitty litter," or other commercial adsorbent;
- Plastic bags and a bucket;
- A shovel;

- A fiber brush and screw-in handle;
- A dustpan;
- Caution tape;
- Highway flares (use on existing hard-top roads only); and
- Detergent.

Response to an herbicide spill will vary with the size and location of the spill, but general procedures include:

- Stopping the leak;
- Containing the spilled material;
- Traffic control;
- Dressing the clean-up team in protective clothing;
- Cleaning up and removing the spilled herbicide, as well as the contaminated adsorptive material and soil; and
- Transporting the spilled herbicide and contaminated material to an authorized disposal site.

4.2.2.3 Herbicide Spill Reporting

All herbicide contractors will have readily available copies of the appropriate material safety data sheets for the herbicides used at their disposal and will keep copies of the material safety data sheets in the application vehicle. All herbicide spills will be reported in accordance with applicable laws and requirements. If a spill occurs, the appropriate agency and spill coordinators will be notified promptly. In case of a spill into wetlands and waterbodies, the appropriate federal, state, and county agencies will be notified immediately.

4.2.2.4 Special Considerations

Special consideration will be provided to perennial, intermittent, and ephemeral streams/draws during treatment activities. No herbicide will be sprayed where the drift can enter standing water or saturated soil. It will be the herbicide applicators' responsibility to ensure that no herbicide or drift enters standing water, regardless of the season when the herbicide is applied. Similar considerations will be made when in proximity to agricultural fields.

5.0 Monitoring

Monitoring for noxious weeds will be conducted for the first five years following construction to assess weed growth and inform noxious weed control measures. Monitoring for noxious weed infestations will also enable the Applicant to respond to new noxious weeds infestations in a timely manner and ensure the success of the site's revegetation. Noxious weed inspections will occur

across the entire Facility through visual inspection of the site while driving or walking. These inspections will be used to inform ongoing noxious weed control efforts.

Monitoring will assess the success of noxious weed treatments and document any new noxious weed infestations observed. These results will be summarized in annual monitoring reports that describe the noxious weeds identified, treatments implemented, and treatment success (e.g., weed frequency trending towards reduction), and will make recommendations to improve treatment success (if necessary), and note any new noxious weed species or emergence. Reports will be submitted to the Oregon Department of Energy (ODOE), ODA, Oregon Department of Fish and Wildlife (ODFW), Wasco County, and Sherman County annually. If the Applicant contracts with the Wasco County Weed Department Supervisor or Sherman County Weed District to perform weed control at the Facility, then no monitoring report will be provided except for a statement that the county agency performed the work.

Based on the success of control efforts after the fifth year of annual monitoring, the Applicant will consult with ODOE and ODFW to design a long-term weed control plan. The Applicant will maintain ongoing communication with individual landowners, the Wasco County Weed Department, and the Sherman County Weed District regarding noxious weeds at the Facility. Landowners may also contact the Applicant to report the presence of noxious weeds. The Applicant will control the reported noxious weeds on a case-by-case basis and prepare a summary of measures taken for that landowner. Otherwise, during the operational period of the Facility, the Applicant will control noxious weeds as described in the long-term weed control plan.

An example noxious weed monitoring schedule is presented in Table 2. This monitoring schedule will be revised, as applicable, based on conditions observed on site (e.g., if noxious weeds are being successfully controlled, monitoring frequency will be reduced).

Table 2. Example Noxious Weed Monitoring Schedule

Monitoring Site Visits	Frequency	Focus
March-April	Once	Conduct a full site-wide noxious weed survey to identify areas for treatment. Work with Weed Management Contractor on a post-emergent chemical treatment, mechanical, or other treatment plan to manage small populations. Report on previous treatments' effectiveness, as applicable.
April-August	Monthly, or as needed	Monitor treated areas for effectiveness, identify new noxious weed populations, make recommendations for chemical retreatment or mechanical or other controls to manage new or existing small noxious weed populations.
July-August	Once	Monitor and collect data on noxious weed populations in revegetated areas.
September-October	Once	Conduct a full site-wide noxious weed survey to monitor treated areas, identify new noxious weed populations, make recommendations for chemical retreatment or mechanical or other controls and plan for pre-emergent chemical applications.

6.0 Roles and Responsibilities

The Applicant is the overall responsible party for construction and operation of the Facility repower and implementation of the noxious weed management activities described in this document. However, the Applicant may use contractors to complete tasks associated with noxious weed management and monitoring. Example responsible parties and their roles may include the following:

Monitoring Contractor

- Perform site visits (annually as needed) to document noxious weed occurrences.
- Provide summary memo after each visit to the Applicant's operations manager outlining findings and treatment recommendations.
- Communicate directly with Weed Management Contractor and provide maps and photos of noxious weed species locations to Weed Management Contractor.
- Communicate with ODA, Wasco County, and Sherman County about noxious weed survey findings and treatment plans.
- Prepare annual report for the Facility describing noxious weed monitoring findings and treatments.
- Organize and attend quarterly calls with the Applicant and Weed Management Contractor.
- Attend calls with ODA and Wasco and Sherman counties as needed.

Facility Site Manager

- Communicate findings and recommendations from Monitoring Contractor to the Weed Management Contractor.
- Review annual reports to ensure all treatments performed by Weed Management Contractor are documented.
- Maintain landowner communications, providing guidance to Monitoring Contractor and Weed Management Contractor regarding landowner restrictions/requests for performing noxious weed monitoring and treatment on their properties.
- Attend quarterly calls with Monitoring Contractor and Weed Management Contractor.
- Attend calls with ODA and Wasco and Sherman counties as needed.

Weed Management Contractor

- Review Monitoring Contractor memos describing noxious weed occurrences and recommendations and plan appropriate treatment to address those issues.
- Communicate treatment plan to Applicant.

- Maintain records of when, where, and what type of noxious weed treatments are being performed and provides documentation of work being performed to the Facility Site Manager.
- Maintain all appropriate documentation of chemicals applied. Share documentation during quarterly calls with the Applicant and Monitoring Contractor, and prior to annual report preparation. Documentation should include type and quantity of herbicides applied, dates applied, and any associated EPA/Oregon Department of Environmental Quality licensing/documentation of chemicals used.
- Attend quarterly calls with the Monitoring Contractor and the Applicant.

7.0 County Weed Department Review

Merle Keys, Weed Department Supervisor for Wasco County, and Rod Asher, Weed District Supervisor for Sherman County, will be provided with a copy of this plan for review. This plan will be updated, as necessary, based on comments from Mr. Keys and Mr. Asher.

The following contact information for the Wasco County Weed Department and Sherman County Weed District will be used and updated as needed:

Merle A. Keys, Weed Department Supervisor

Wasco County Public Works Building

2705 E. 2nd Street

The Dalles, OR 97058

(541) 506-2653

merlek@co.wasco.or.us

Similarly, Rod Asher will be contacted for Sherman County.

Rod Asher, Weed District Supervisor

66143 Lone Rock Road

Moro, OR 97039

(541) 565-3655

Appendix A. 2022 Oregon Department of Agriculture Noxious Weed List

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OREGON
DEPARTMENT OF
AGRICULTURE

Noxious Weed Policy and Classification System 2022

Noxious Weed Control Program

Address: 635 Capitol Street NE, Salem, Oregon 97301

Phone: (503) 986-4621 **Fax:** (503) 986-4786

www.oregon.gov/ODA/programs/Weeds/Pages/AboutWeeds.aspx

Mission Statement

To protect Oregon's natural resources and agricultural economy from the invasion and proliferation of invasive noxious weeds.

Program Overview

The Oregon Department of Agriculture (ODA) Noxious Weed Control Program provides statewide leadership for coordination and management of state listed noxious weeds. The state program focuses on noxious weed control efforts by implementing early detection and rapid response projects for new invasive noxious weeds, implementing biological control, implementing statewide inventory and survey, assisting the public and cooperators through technology transfer and noxious weed education, maintaining noxious weed data and maps for priority listed noxious weeds, and assisting land managers and cooperators with integrated weed management projects. The Noxious Weed Control Program also supports the Oregon State Weed Board (OSWB) with administration of the OSWB Grant Program, developing statewide management objectives, developing weed risk assessments, and maintaining the state noxious weed list.

Tim Butler
Program Manager
tbutler@oda.state.or.us
(503) 986-4621

Table of Contents

Noxious Weed Control Policy and Classification System

Definition

"Noxious weed" means a terrestrial, aquatic or marine plant designated by the Oregon State Weed Board under ORS 569.615 as among those representing the greatest public menace and as a top priority for action by weed control programs.

Noxious weeds have become so thoroughly established and are spreading so rapidly on private, state, county, and federally owned lands, that they have been declared by ORS 569.350 to be a menace to public welfare. Steps leading to eradication, where possible, and intensive control are necessary. It is further recognized that the responsibility for eradication and intensive control rests not only on the private landowner and operator, but also on the county, state, and federal governments.

Weed Control Policy

Therefore, it shall be the policy of ODA to:

1. Assess non-native plants through risk assessment processes and make recommendations to the Oregon State Weed Board for potential listing.
2. Rate and classify weeds at the state level.
3. Prevent the establishment and spread of listed noxious weeds.
4. Encourage and implement the control or containment of infestations of listed noxious weed species and, if possible, eradicate them.
5. Develop and manage a biological weed control program.
6. Increase awareness of potential economic losses and other undesirable effects of existing and newly invading noxious weeds, and to act as a resource center for the dissemination of information.
7. Encourage and assist in the organization and operation of noxious weed control programs with government agencies and other weed management entities.
8. Develop partnerships with county weed control districts, universities, and other cooperators in the development of control methods.
9. Conduct statewide noxious weed surveys and weed control efficacy studies.

Weed Classification System

The purpose of this Classification System is to:

1. Act as the ODA's official guideline for prioritizing and implementing noxious weed control projects.
2. Assist the ODA in the distribution of available funds through the Oregon State Weed Board to assist county weed programs, cooperative weed management groups, private landowners, and other weed management entities.
3. Serve as a model for private and public sectors in developing noxious weed classification systems that aid in setting effective noxious weed control strategies.

Criteria for Determining Economic and Environmental Significance

Detrimental Effects

1. A plant species that causes or has the potential to cause severe negative impacts to Oregon's agricultural economy and natural resources.
2. A plant species that has the potential to or does endanger native flora and fauna by its encroachment into forest, range, aquatic and conservation areas.
3. A plant species that has the potential or does hamper the full utilization and enjoyment of recreational areas.
4. A plant species that is poisonous, injurious, or otherwise harmful to humans and/or animals.

Plant Reproduction

1. A plant that reproduces by seed capable of being dispersed over wide areas or that is long-lived, or produced in large numbers.
2. A plant species that reproduces and spreads by tubers, creeping roots, stolons, rhizomes, or other natural vegetative means.

Distribution

1. A weed of known economic importance which occurs in Oregon in small enough infestations to make eradication/containment possible; or not known to occur, but its presence in neighboring states makes future occurrence seem imminent.
2. A weed of economic or ecological importance and of limited distribution in Oregon.
3. A weed that has not infested the full extent of its potential habitat in Oregon.

Difficulty of Control

A plant species that is not easily controlled with current management practices such as chemical, cultural, biological, and physical methods.

Noxious Weed Control Classification Definitions

Noxious weeds, for the purpose of this system, shall be listed as either A or B, and may also be designated as T, which are priority targets for control, as directed by the Oregon State Weed Board.

- **A Listed Weed**:
  A weed of known economic importance which occurs in the state in small enough infestations to make eradication or containment possible; or is not known to occur, but its presence in neighboring states make future occurrence in Oregon seem imminent (Table I).
  Recommended action: Infestations are subject to eradication or intensive control when and where found.
- **B Listed Weed**:
  A weed of economic importance which is regionally abundant, but which may have limited distribution in some counties (Table II).
  Recommended action: Limited to intensive control at the state, county or regional level as determined on a site specific, case-by-case basis. Where implementation of a fully integrated statewide management plan is not feasible, biological control (when available) shall be the primary control method.
- **T-Designated Weed (T)**:
  A designated group of weed species selected from either the A or B list as a focus for prevention and control by the Noxious Weed Control Program. Action against these weeds will receive priority. T-designated noxious weeds are determined by the Oregon State Weed Board and directs ODA to develop and implement a statewide management plan.

Weed Biological Control

Oregon implements biological control, or “biocontrol” as part of its integrated pest management approach to managing noxious weeds. This is the practice of using host-specific natural enemies such as insects or pathogens to control noxious weeds. The Oregon Department of Agriculture Noxious Weed Program has adopted the International Code of Best Practices for biological control of weeds. Only safe, effective, and federally- approved natural enemies will be used for biocontrol.

Table I: A Listed Weeds

Common Name	Scientific Name
African rue (T)	*Peganum harmala*
Camelthorn	*Alhagi pseudalhagi*
Cape-ivy (T)*	*Delairea odorata*
Coltsfoot	*Tussilago farfara*
Common frogbit	*Hydrocharis morsus-ranae*
Cordgrass	
Common	*Spartina anglica*
Dense-flowered (T)	*Spartina densiflora*
Saltmeadow (T)	*Spartina patens*
Smooth (T)	*Spartina alterniflora*
Delta arrowhead (T)	*Sagittaria platyphyla*
European water chestnut	*Trapa natans*
Flowering rush (T)	*Butomus umbellatus*
Garden yellow loosestrife (T)	*Lysimachia vulgaris*
Giant hogweed (T)	*Heracleum mantegazzianum*
Goatgrass	
Barbed (T)	*Aegilops triuncialis*
Ovate	*Aegilops ovata*
Goatsrue (T)	*Galega officinalis*
Hawkweed	
King-devil*	*Hieracium piloselloides*
Mouse-ear (T)*	*Hieracium pilosella*
Orange (T)*	*Hieracium aurantiacum*
Yellow (T)	*Hieracium floribundum*
Hoary alyssum (T)	*Berteroa incana*
Hydrilla	*Hydrilla verticillata*
Japanese dodder	*Cuscuta japonica*
Kudzu (T)	*Pueraria lobata*
Matgrass (T)	*Nardus stricta*
Oblong spurge (T)	*Euphorbia oblongata*
Paterson's curse (T)	*Echium plantagineum*
Purple nutsedge	*Cyperus rotundus*
Ravennagrass (T)	*Saccharum ravennae*
Silverleaf nightshade	*Solanum elaeagnifolium*
Squarrose knapweed (T)	*Centaurea virgata*

(T) T-Designated Weed (See page 4)

(Continued) **Table I: A Listed Weeds**

Common Name	Scientific Name
Starthistle	
Iberian (T)	*Centaurea iberica*
Purple (T)	*Centaurea calcitrapa*
Syrian bean-caper	*Zygophyllum fabago*
Thistle	
Plumeless (T)	*Carduus acanthoides*
Smooth distaff	*Carthamus baeticus*
Taurian (T)	*Onopordum tauricum*
Turkish (T)	*Carduus cinereus*
Welted (curly plumeless) (T)	*Carduus crispus*
Woolly distaff (T)	*Carthamus lanatus*
Water soldiers	*Stratiotes aloides*
West Indian spongeplant	*Limnobium laevigatum*
White bryonia	*Bryonia alba*
Yellow floating heart (T)	*Nymphoides peltata*
Yellowtuft (T)	*Alyssum murale, A. corsicum*

(T) T-Designated Weed (See page 4)

Table II: B Listed Weeds

Common Name	Scientific Name
Armenian (Himalayan) blackberry	*Rubus armeniacus (R. procerus, R. discolor)*
Biddy-biddy	*Acaena novae-zelandiae*
Broom	
French*	*Genista monspessulana*
Portuguese (T)	*Cytisus striatus*
Scotch*	*Cytisus scoparius*
Spanish	*Spartium junceum*
Buffalobur	*Solanum rostratum*
Butterfly bush	*Buddleja davidii (B. variabilis)*
Common bugloss (T)	*Anchusa officinalis*
Common crupina*	*Crupina vulgaris*
Common reed	*Phragmities australis ssp. australis*
Common viper's bugloss	*Echium vulgare*
Creeping yellow cress	*Rorippa sylvestris*
Cutleaf teasel	*Dipsacus laciniatus*
Dodder	
Smoothseed alfalfa	*Cuscuta approximata*
Five-angled	*Cuscuta pentagona*
Bigseed	*Cuscuta indecora*
Dyer's woad	*Isatis tinctoria*
English hawthorn	*Crataegus monogyna*
Eurasian watermilfoil*	*Myriophyllum spicatum*
False brome	*Brachypodium sylvaticum*
Field bindweed*	*Convolvulus arvensis*
Garlic mustard (T)	*Alliaria petiolata*
Geranium	
Herb Robert	*Geranium robertianum*
Shiny leaf	*Geranium lucidum*
Giant reed (T)*	*Arundo donax*
Gorse* (T)	*Ulex europaeus*
Halogeton	*Halogeton glomeratus*
Houndstongue	*Cynoglossum officinale*

* Biocontrol (See page 4) (T) T-Designated Weed (See page 4)

(Continued) Table II: B Listed Weeds

Common Name	Scientific Name
Indigo bush	*Amorpha fruticosa*
Ivy	
Atlantic	*Hedera hibernica*
English	*Hedera helix*
Johnsongrass	*Sorghum halepense*
Jointed goatgrass	*Aegilops cylindrica*
Jubata grass	*Cortaderia jubata*
Knapweed	
Diffuse*	*Centaurea diffusa*
Meadow*	*Centaurea pratensis*
Russian*	*Acroptilon repens*
Spotted* (T)	*Centaurea stoebe (C. maculosa)*
Knotweed	
Bohemian*	*Fallopia x bohemica*
Giant*	*Fallopia sachalinensis (Polygonum)*
Himalayan	*Polygonum polystachyum*
Japanese*	*Fallopia japonica (Polygonum)*
Kochia	*Kochia scoparia*
Lesser celandine	*Ranunculus ficaria*
Meadow hawkweed (T)	*Pilosella caespitosum (Hieracium)*
Mediterranean sage*	*Salvia aethiopis*
Medusahead rye	*Taeniatherum caput-medusae*
Old man's beard	*Clematis vitalba*
Parrot feather	*Myriophyllum aquaticum*
Perennial peavine	*Lathyrus latifolius*
Perennial pepperweed (T)	*Lepidium latifolium*
Pheasant's eye	*Adonis aestivalis*
Pine echium	*Echium pininana*
Poison hemlock*	*Conium maculatum*
Policeman's helmet	*Impatiens glandulifera*
Primrose-willow	
Large-flower (T)	*Ludwigia grandiflora*
Water primrose (T)	*Ludwigia hexapetala*
Floating (T)	*Ludwigia peploides*

*Biocontrol (See page 4) (T) T-Designated Weed (See page 4)

(Continued) Table II: B Listed Weeds

Common Name	Scientific Name
Punctureveine*	*Tribulus terrestris*
Purple loosestrife*	*Lythrum salicaria*
Ragweed	*Ambrosia artemisiifolia*
Ribbongrass (T)	*Phalaris arundinacea var. Picta*
Rose	
Dog	*Rosa canina*
Sweetbriar	*Rosa rubiginosa*
Rush skeletonweed* (T)	*Chondrilla juncea*
Saltcedar* (T)	*Tamarix ramosissima*
Small broomrape	*Orabanche minor*
South American waterweed	*Egeria densa (Elodea)*
Spanish heath	*Erica lusitanica*
Spikeweed	*Hemizonia pungens*
Spiny cocklebur	*Xanthium spinosum*
Spurge laurel	*Daphne laureola*
Spurge	
Leafy* (T)	*Euphorbia esula*
Myrtle	*Euphorbia myrsinites*
St. Johnswort*	*Hypericum perforatum*
Sulfur cinquefoil	*Potentilla recta*
Swainsonpea	*Sphaerophysa salsula*
Tansy ragwort* (T)	*Senecio jacobaea (Jacobaea vulgaris)*
Thistle	
Bull*	*Cirsium vulgare*
Canada*	*Cirsium arvense*
Italian*	*Carduus pycnocephalus*
Milk*	*Silybum marianum*
Musk*	*Carduus nutans*
Scotch	*Onopordum acanthium*
Slender-flowered*	*Carduus tenuiflorus*
Toadflax	
Dalmatian* (T)	*Linaria dalmatica*
Yellow*	*Linaria vulgaris*
Tree of heaven	*Ailanthus altissima*

*Biocontrol (See page 4) (T) T-Designated Weed (See page 4)

(Continued) Table II: B Listed Weeds

Common Name	Scientific Name
Velvetleaf	*Abutilon theophrasti*
Ventenata grass	*Ventenata dubia*
Whitetop	
Hairy	*Lepidium pubescens*
Lens-podded	*Lepidium chalepensis*
Whitetop (hoary cress)*	*Lepidium draba*
Yellow archangel	*Lamiastrum galeobdolon*
Yellow flag iris	*Iris pseudacorus*
Yellow nutsedge	*Cyperus esculentus*
Yellow starthistle*	*Centaurea solstitialis*

*Biocontrol (See page 4) (T) T-Designated Weed (See page 4)

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Appendix B. 2008 Wasco County Noxious Weed List

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MERLE A. KEYS, Superintendent
2705 E. 2nd Street
The Dalles, OR 97058-2676
(541)506-2650
Fax (541)506-2651

WEED LIST AND CLASSIFICATIONS

A PESTS

Dyers Woad
Houndstongue
Kudzu
Leafy Spurge
Meadow Knapweed
Mediterranean Sage
Musk Thistle
Purple Loosestrife
Spotted Knapweed
Tansy Ragwort
Western Water Hemlock
Yellow Flag Iris

B PESTS

Canada Thistle (outside Forest)
Dalmation Toadflax
Diffuse Knapweed*
Kochia
Russian Knapweed
Rush Skeletonweed
Scotch Broom
Whitetop
Yellow Starthistle (outside lower 15-Mile)

C PESTS

Buffalobur
California Spikeweed
Canada Thistle (inside Forest)
Dogbane
Field Bindweed
Goatgrass
Horned-head Buttercup
Horsetail Rush
Jimsonweed
Knapweed Complex
Perennial Pepperweed
Perennial Sowthistle
Poison Hemlock
Puncturevine
Quackgrass
Russian Thistle
St. Johnswort
Sandbur
Showy Milkweed
Spiney Cocklebur
Wild Oats
Yellow Starthistle (Inside 15-Mile)

Q PESTS

Common Mullein
Horseweed

*** Within Bakoeven / Maupin area is a knapweed control zone. Control efforts are mandatory under ORS 570.510 and 570.515.**

A Pests: A weed of known economic importance known to occur in the county in small enough infestations to make eradication practical.

B Pests: A weed of known economic importance and of limited distribution within the county and is subject to intensive control or eradication, where feasible, at the county level.

C Pests: A weed that also has economic importance but is more widely spread. Control of these weeds will be limited by conditions that warrant special attention.

Q Pests: A weed that exists in the county, but is of little, no, or undetermined economic importance. However, they are to be monitored and subject to control if they begin to appear threatening.

Appendix C. Sherman County Noxious Weed List

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Sherman County Noxious Weed List

"A" CLASS – **HIGH PRIORITY.** Any noxious weed which greatly endangers the overall economic well – being of the County and has a small enough distribution where eradication is possible.

Canada Thistle *	*Cirsium arvense*
Houndstounge	*Cynoglossum officinale L.*
Jimsonweed	*Datura stramonium*
Kochia	*Kochia scoparia*
Leafy Spurge	*Euphorbia esula*
Knapweed Complex**	*Centaurea Species*
Rush Skeletonweed	*Chondrilla juncea*
Spikeweed	*Hemizonia pungens*
Yellow Starthistle***	*Centaurea solstitialis*

* "A" Class south of Township 2S to the County line, including the Deschutes and John Day Rivers.
** "A" Class south of Township 1S to the County line including the Deschutes and John Day Rivers.
***"A" Class south of the Biggs – Rufus frontage Road, outside the orchards and residential areas, West of Scott Canyon Road to the Deschutes River.

ACTION: A registered letter will be sent to the operator informing them that they are in violation of State and County Noxious Weed Laws and have fourteen (14) days to take corrective actions.

If no action is taken in the fourteen (14) days following the letter, the District may post a quarantine and will implement steps toward eradication.

The property owner is responsible for all costs incurred during the quarantine and control of "A" Class Noxious Weeds. All past due accounts will be placed on the property owner's current property tax rolls.

Sherman County Noxious Weed List
(Continued)

"B" CLASS – **MODERATE PRIOEITY.** A noxious weed which is well established in the County and has known negative impacts, but due to its distribution, eradication is not feasible.

Canada Thistle	*Cirsium arvense*
Dalmation Toadflax	*Linaria genistifolia-dalmatica*
Field Bindweed (Morningglory)	*Convolvulus arvensis*
Knapweed Complex****	*Centaurea (s)*
Perennial Sowthistle	*Sonchus arvensis*
Scotch Thistle	*Onopordum acanthium*
Scouring Rush	*Equisetum laevigatum*
Showy Milkweed	*Asclepias speciose*
White Top (Hoary Cress)	*Cardaria draba*
Wild Oat	*Avena fayua*
Yellow Starthistle**	*Centaurea solstitialis*

** "B" Class east of Scott Canyon to the John Day River.
**** "B" Class north of Township 1S including the Deschutes and John Day Rivers.

ACTION: The same procedure will be used for "B" Class noxious weeds as in step 1 for "A" Class noxious weeds.

When a majority of adjacent property owners and/or operators file complaints against a particular "B" Class noxious weed(s) infestations, the owner of said property will be required to prevent seed production within a minimum of 200 feet of any adjacent property, including private, County, State and Federally owned property.

Under some circumstances, the District may require that the total area infested with "B" Class noxious weeds be prevented from going to seed. This decision will be made upon the discretion of the Supervisor and the plant's growth habits. Fines may be issued for non-compliance with any noxious weed species and for Weed Law violations where the above criteria have been met.

Sherman County Noxious Weed List
(Continued)

"C" CLASS – **LOW PRIORITY.** A noxious weed which is wide spread throughout the County and has known economic impacts.

Bull Thistle	*Cirsium vulgare*
Common Rye	*Secale cereale*
Field Dodder	*Cuscuta campestris*
Jointed Goatgrass	*Aegilops cylindrical*
Klamath Weed (St. Johnswort)	*Hypericum perforatum*
Little Bur (Bur Buttercup)	*Ranunculus testiculatus*
Marestail	*Contza Canadensis*
Medusahead Rye	*Taeniatherum caput-medusae*
Perennial Pepperweed	*Lepidium latifolium*
Poison Hemlock	*Conium macalatum*
Prickly Lettuce	*Lactuca serriola*
Puncturevine	*Triulus terrestris*
Quackgrass	*Elytrigia repens*
Russian Thistle	*Salsola iberica*
Spiny Cockelbur	*Xanthium spinosum*
Waterhemlock, Western	*Cicuta douglasii*
Wavyleaf Thistle	*Cirsium undulatum*

"Q" CLASS - **QUESTIONABLE LIST.** A newly detected weed which may have some importance, but more information is needed to determine its impact on agriculture.

Hairy Willow-Herb	*Epilobium hirsutum*

ACTION: Weeds in this Class will be reviewed periodically by local and State weed personnel for new data.

"T" CLASS - **TARGETED LIST.** A noxious weed from any Class that the Weed Advisory Board wishes to focus efforts and resources on. This List will be reviewed annually.

Canada Thistle
Dalmation Toadflax
Jimsonweed
Knapweed Complex

Sherman County Noxious Weed List
("T" LIST Continued)

kochia
Leafy Spurge
Rush Skeletonweed
Scotch Thistle
Spikeweed
White top
Yellow Starthistle

"W" CLASS - **WATCH LIST.** Any noxious weed that may occur in neighboring counties, the State or similar environments as the County, and could potentially endanger the overall economic well – being of the County. Once detected, these weeds shall be moved to the appropriate List.

Blessed Milkthistle	*Silybum marianum*
Camelthorn	*Alhagi pseudalhagi*
Common Crupina	*Crupina vulgaris*
Gorse	*Ulex europaeus*
Halogeton	*Halogeton glomeratus*
Iberian Starthistle	*Centaurea iberica*
Italian Thistle	*Carduus pycnocephalus*
Mediterranean sage	*Salvia aethiopis*
Musk Thistle	*Carduus nutans*
Scotch Broom	*Cytisus scoparius*
Tansy Ragwort	*Senecio jacobaea*
Wild – Prosso Millet	*Panicum miliaceum*

ACTION: Weeds in this Class will be reviewed annually by the County Weed Board.

Appendix D. Recommended Treatment and Timing for Noxious Weeds Observed within the Project Area

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Recommended Treatment and Timing for Noxious Weeds Observed within the Project Area

Noxious Weed: Diffuse knapweed (*Centaurea diffusa*)

Recommended Treatment: Post-emergent spot application with species-specific herbicide once per year for several years. Control of regrowth and of new seedlings is much better if a competitive crop or sod is established (WSNWCB).

Chemical Methods, Timing, and Application Rate:

2,4-D: Apply at the early stage of flower stem elongation (late April to early May). Application rate: 1 to 2 lb ae/A

aminocyclopyrachlor + chlorsulfuron (Perspective): Apply to actively growing plants in spring. Application rate: 1.8 to 3.2 oz/A aminocyclopyrachlor + 0.7 to 1.3 oz/A chlorsulfuron (4.5 to 8 oz/A of product)

aminopyralid (Milestone): Consult label for opintsimum timing. Diffuse and spotted knapweed: apply to actively growing plants in fall or in spring from rosette to bolting growth stages. Russian knapweed: apply in spring and summer to plants from bud to flowering stage; in fall, to dormant plants. Application rate: 1 to 1.75 oz ae/A (4 to 7 fl oz/A Milestone).

clopyralid (Stinger or Transline): Up to the bud stage of knapweeds. Results are best if applied to actively growing weeds. Application rate: 0.25 to 0.5 lb ae/A (0.66 to 1.33 pints/A).

clopyralid + 2,4-D amine (Curtail): Apply after most rosettes emerge but before flower stem elongates. Application rate: 2 to 4 quarts/A Curtail

diflufenzopyr + dicamba (Overdrive): Apply to rosettes. Application rate: 0.26 to 0.35 lb ae/A (6 to 8 oz/A)

Glyphosate: Apply to actively growing knapweed when most plants are at bud stage. Not recommended because can kill neighboring native perennial herbs (Prather and Peachey, 2022). Application rate: 3 lb ae/A

imazapic (Plateau): Apply in fall or early winter after Russian knapweed has grown old. Application rate: See label.

picloram (Tordon): Apply in late spring before or during flower stem elongation. Application rate: 0.25 to 0.5 lb ae/A

triclopyr + clopyralid (Redeem R&P): Apply from rosette to early bolt stage when weeds are actively growing. Application rate: 1.5 to 2 pints/A

Noxious Weed: Canada thistle (*Cirsium arvense*)

Recommended Treatment: Post-emergent spot application with species-specific herbicide once per year.

Chemical Methods, Timing, and Application Rate:

2,4-D: Spring or fall. Application rate: 1.5 to 2 lb ae/A

aminocyclopyrachlor + chlorsulfuron (Perspective): Apply to actively growing plants in spring. Application rate: 1.8 to 3.2 oz/A aminocyclopyrachlor + 0.7 to 1.3 oz/A chlorsulfuron (4.5 to 8 oz/A of product)

aminopyralid (Milestone): Apply in spring or early summer to rosettes or bolting plants or in fall to seedlings and rosettes. Application rate: 0.75 to 1.25 oz ae/A (3 to 5 fl oz/A Milestone)

chlorsulfuron (Telar): Apply to young, actively growing weeds. Application rate: 0.75 oz ai/A (1 oz/A)

clopyralid + 2,4-D amine (Curtail): Apply to actively growing thistle after most basal leaves emerge but before bud stage. Application rate: 1 to 5 quarts/A Curtail

clopyralid (Stinger or Transline): Up to the bud stage of thistles. Application rate: 0.09 to 0.375 lb ae/A (0.25 to 1 pint/A). Labeled rates vary with crops.

dicamba (Clarity): Apply before flower stalk lengthens on established plants and for seedling control. Spray fall applications to control rosettes. Application rate: 0.5 to 1 lb ae/A

diflufenzopyr + dicamba (Overdrive): Apply to the rosettes. Application rate: 0.175 to 0.35 lb ae/A (4 to 8 oz/A)

glyphosate + 2,4-D (Campaign): Apply to thistles in rosette stage of growth in spring or before freeze-up in fall. Application rate: Broadcast: 16 to 32 fl oz/A. Spot treatment: 1 to 2% solution.

metsulfuron (Escort and others): Apply postemergence to actively growing plants. Application rate: Escort: 0.6 oz ai/A (1 oz/A)

picloram (Tordon): Apply in the fall before thistle bolts. Application rate: 0.25 lb ae/A

triclopyr + clopyralid (Quali-Pro 2,D Herbicide): Apply to actively growing thistle from rosette to early bolt stage. Application rate: 1.5 to 2 pints/A

Noxious Weed: Bull thistle (*Cirsium vulgare*)

Recommended Treatment: Post-emergent spot application with species-specific herbicide once per year.

Chemical Methods, Timing, and Application Rate: Follow same protocol as Canada thistle (*Cirsium arvense*).

Noxious Weed: Field bindweed (*Convolvulus arvensis*)

Recommended Treatment: Post-emergent spot application with species-specific herbicide. Tilling, repeatedly over 1 to 5 years. Herbicide timings vary; mechanical control (tilling) most effective 8-12 days after emergence (Ditomaso et al., 2013).

Chemical Methods, Timing, and Application Rate:

2,4-D (for suppression) amine: Apply at bud growth stage or at summer fallow in early August. Application rate: Broadcast treatment: 2 to 3 lb ae/A

aminocyclopyrachlor + chlorsulfuron (Perspective): Apply to broadleaf weeds in spring. Application rate: 1.8 to 3.2 oz/A aminocyclopyrachlor + 0.7 to 1.3 oz/A chlorsulfuron (4.5 to 8 oz/A of product)

dicamba (Rifle or Clarity) or dicamba + 2,4-D (for suppression): Apply during fallow, before planting and when weeds are actively growing. Application rate: 0.5 to 1 lb ae/A dicamba; or 0.5 to 1 lb ae/A dicamba + 1 to 2 lb ae/A 2,4-D

dicamba (Rifle or Clarity) or dicamba + 2,4-D (for control): Apply in late summer or fall before killing frost. Application rate: 1 to 2 lb ae/A dicamba; or 1 to 2 lb ae/A dicamba + 1 to 2 lb ae/A 2,4-D

Glyphosate: Apply at full bloom to early seed stage of maturity. Application on fall regrowth may provide some control. Application rate: 3 to 3.75 lb ae/A

glyphosate + 2,4-D (Landmaster BW): Apply in fallow or postharvest to bindweed runners at least 10 inches long. Use 1% solution to spot treat with high-volume, spray-to-wet applications. Tilling after treatment may improve control. Application rate: 0.378 to 0.67 lb ae/A (54 oz/A Landmaster)

glyphosate + dicamba (Rifle or Clarity): Apply mid- to late-bloom but before seed matures. Applying to fall regrowth may give some control. Application rate: 1.5 lb ae/A glyphosate + 0.5 lb ae/A dicamba

imazapic (Plateau): Apply after 25% bloom through fall to actively growing bindweed. Application rate: 0.125 to 0.188 lb ai/A

metsulfuron (Escort): Apply to actively growing bindweed in bloom stage. Application rate: 0.6 to 1.2 oz ai/A (1 to 2 oz/A)

picloram (Tordon): Apply in the growing season on non-cropland when bindweed is visible. Timing is not critical, but results are most consistent if bindweed is in early bud to full bloom. Application rate: 1 lb ae/A

quinclorac (Paramount): Apply in fall before frost to actively growing bindweed with stems at least 4 inches long. Application rate: 6 oz ai/A (8 oz/A)

Noxious Weed: Scotch thistle (*Onopordum acanthium*)

Recommended Treatment: Post-emergent spot application with species-specific herbicide once per year.

Chemical Methods, Timing, and Application Rate: Follow same protocol as Canada thistle (*Cirsium arvense*).

Noxious Weed: Medusahead (*Teaniatherum caput-medusae*)

Recommended Treatment: Revegetation site-wide and herbicide application in dominant areas. Species likely too widespread to be eradicated.

Chemical Methods, Timing, and Application Rate:

Glyphosphate: Apply postemergence in spring after all seedlings are up and before heading; the tilling stage is ideal. For late-season, non-selective control, apply to rapidly growing plants before seeds are produced. Application rate: 0.75 to 1 pt product (41% glyphosate)/a (4.5 to 6 oz a.e./a) for early season selective control in shrubland or other perennial systems; 1 to 2 qt product/a (0.75 to 1.5 lb a.e./a) for late-season, non-selective control.

imazapic (Plateau): Fall applications may be most effective in warm-winter areas. Spring applications after snowmelt are preferred in colder-climate areas. Application rate: 4 to 12 fluid oz product/a (1 to 3 oz a.e./a)

rimsulfuron (Matrix): Preemergence (fall) to postemergence (early spring). Application rate: 4 oz product/a (1 oz active ingredient (a.i.)/a)

sulfometuron (Oust): Preemergence (fall) to early postemergence (early spring). Preemergence applications are generally more preferred.

sulfometuron + chlorosulfuron (Landmark): Preemergence, in fall or after soil thaws in spring. Application rate: 1.5 to 2.25 oz product/acre

clethodim (Arrow): Early postemergence. Application rate: 4 to 8 fluid oz product/a (1 to 2 oz a.e./a)

fluazifop (Fusilade): Early postemergence. Application rate: 24 fluid oz product/a (6 oz a.e./a)

aminocyclopyrachlor + chlorosulfuron (Perspective): Preemergence to early postemergence. Application rate: 5 oz product/a (2 oz aninocyclopyrachlor + 0.8 oz chlorosulfuron/a)

aminopyralid (Milestone): Preemergence in fall. Application rate: 7 to 14 fluid oz product/a (1.75 to 3.5 oz a.e./a

Noxious Weed: Common mullein (*Verbascum thapsus*)

Recommended Treatment: Hand-pulling recommended; wooly leaves do not absorb herbicide easily such that mechanical treatments become more efficient. Complete prior to seed production (control in May-June)(UNL 2021).

Chemical Methods, Timing, and Application Rate: Not recommended.

References

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