

Exhibit Q

Threatened and Endangered Species

**Nolin Hills Wind Power Project
February 2020**



d/b/a Nolin Hills Wind, LLC

Prepared by



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Acronyms and Abbreviations

Applicant	Nolin Hills Wind, LLC
GIS	Geographic Information Systems
MW	megawatt
NOAA Fisheries	National Oceanic and Atmospheric Administration, National Marine Fisheries Service
O&M	operations and maintenance
OAR	Oregon Administrative Rule
ODA	Oregon Department of Agriculture
ODFW	Oregon Department of Fish and Wildlife
ODOE	Oregon Department of Energy
OESA	Oregon Endangered Species Act
ORBIC	Oregon Biodiversity Information Center
ORS	Oregon Revised Statutes
Project	Nolin Hills Wind Power Project
USFWS	U.S. Fish and Wildlife Service
WAGS	Washington ground squirrel

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1.0 Introduction

Nolin Hills Wind, LLC (the Applicant) proposes to construct the Nolin Hills Wind Power Project (Project), a wind energy project with a nominal generating capacity of approximately 350 megawatts (MW) and up to 117 average MW of energy, in Umatilla County, Oregon. The Project comprises up to 116 wind turbine generators, depending on the turbine model selected and the final layout determined during the micrositing process. If larger turbines are selected, fewer turbines will likely be installed. The Project will interconnect to the regional grid via either a transmission line leading from the northern Project substation northwest to Cottonwood Substation in Hermiston, or a transmission line to the proposed Bonneville Power Administration Stanfield Substation, north of the town of Nolin. Other Project components include electrical collection lines, substations, site access roads, one operations and maintenance (O&M) building, meteorological data collection towers, and temporary construction yards. These facilities are all described in greater detail in Exhibit B.

Exhibit Q provides information about state-listed threatened endangered plant and wildlife species that may be affected by the proposed Project as required by Oregon Administrative Rule (OAR) 345-022-0070. In addition, per the Project Order [Section III(q)], the Oregon Department of Energy has requested that state candidate plant species also be listed in Exhibit Q. This exhibit demonstrates that the Project can comply with the Oregon Revised Statutes (ORS) covering threatened and endangered species in the approval standard OAR 345-022-0070:

345-022-0070 Threatened and Endangered Species

To issue a site certificate, the Council, after consultation with appropriate state agencies, must find that:

(1) For plant species that the Oregon Department of Agriculture has listed as threatened or endangered under ORS 564.105(2), the design, construction and operation of the proposed facility, taking into account mitigation:

(a) Are consistent with the protection and conservation program, if any, that the Oregon Department of Agriculture has adopted under ORS 564.105(3); or

(b) If the Oregon Department of Agriculture has not adopted a protection and conservation program, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species; and

(2) For wildlife species that the Oregon Fish and Wildlife Commission has listed as threatened or endangered under ORS 496.172(2), the design, construction and operation of the proposed facility, taking into account mitigation, are not likely to cause a significant reduction in the likelihood of survival or recovery of the species.

2.0 Analysis Area

In accordance with OAR 345-001-0010(58)(a) and as stated in the January 2018 Project Order, the Analysis Area for state threatened and endangered species consists of the area within the Site Boundary and the area within 5 miles from the Site Boundary; except for the transmission lines, where the Analysis Area is the area within the Site Boundary. The Site Boundary is defined in detail in Exhibits B and C. A portion of the area within the Site Boundary is designated as the microsite corridor, where Project components may be located. The Analysis Area and microsite corridor are shown on Figure Q-1.

The Project includes two turbine layout options. Turbine Option 1 utilizes up to 58 Siemens- Gamesa 6.0-MW turbines. Turbine Option 2 utilizes up to 116 General Electric 3.03-MW turbines. Analyzing impacts for two turbine types allows for the representation of a range of turbine technologies and associated impacts that are currently available or forecasted across all turbine vendors. These two turbine options define the minimum and maximum number of turbines and provides boundaries on the size of wind turbines for the Project. The ultimate number of wind turbines, and the specific model and manufacturer used, will be determined near the time of construction.

3.0 Identification of Species – OAR 345-021-0010(1)(q)(A)

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

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

In addition, per the Project Order [Section III(q)], the Oregon Department of Energy has requested that state candidate plant species also be listed in Exhibit Q.

3.1 Desktop Review

The Applicant used a variety of sources to identify state threatened and endangered plant and animal species and candidate plant species that may be affected by the Project. Initial and ongoing desktop-level review has included database inquiry letters to the U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration, National Marine Fisheries Service (NOAA Fisheries), Oregon Department of Fish and Wildlife (ODFW) and Oregon Biodiversity Information Center (ORBIC), and ongoing contact with the USFWS in 2017 and 2018, and ODFW in 2017, 2018, and 2019. Agency consultation records are available in Attachment P-1 of Exhibit P.

In order to identify the list of species for Exhibit Q with the potential to occur within the Analysis Area, the Applicant requested known occurrence locations from ORBIC within the Analysis Area

(ORBIC 2017). This included information within Umatilla County, the county within which the Site Boundary is contained, as well as Morrow County, located approximately 0.5 mile from the Site Boundary. Field survey data were considered a more accurate indicator of species presence and habitat than the ORBIC data and were substituted as they became available.

The ODFW (2019), Oregon Department of Agriculture (ODA; ODA 2017a), ORBIC (2019), USFWS (2017a), and NOAA Fisheries (2017) websites were queried for additional literature on listed species. The StreamNet (2019) and ODFW (2017) databases were searched for listed fish species within the Analysis Area. Finally, a number of botanical resources were reviewed to help identify state threatened, endangered, and candidate plant species that could occur within the Analysis Area (Burke Museum of Natural History and Culture 2019; Oregon Flora Project 2017, 2019; WDNR 2011). The results of these inquiry letters and the literature review were used to generate the list of species for Exhibit Q with the potential to occur in the Analysis Area.

The Applicant conducted a Geographic Information Systems (GIS) habitat analysis to evaluate the quality of habitat for state threatened, endangered, and candidate species in the Analysis Area. This information was gathered to initially guide species-specific and general field survey efforts and inform preliminary desktop siting. Data sources analyzed included aerial photography (Esri 2017), National Wetland Inventory (USFWS 2017b), U.S. Geological Survey National Hydrography Dataset (USGS 2001), and the Northwest Regional Gap Analysis Project data (USGS 2011).

Based on the review of existing data, four species listed as state threatened, endangered, or candidate were identified as having the potential to occur within the Analysis Area (Table Q-1). These included one mammal and three vascular plant species that were either subsequently documented during field surveys (see Section 4.0) or otherwise had potential habitat within the Analysis Area. No state-listed fish have the potential to occur within the Analysis Area.

Several species initially considered for inclusion in Exhibit Q were excluded, as they are not known or expected to occur within the Analysis Area; these species include:

- Northern wormwood (*Artemisia campestris* var. *wormskioldii*; state endangered). No suitable habitat. Grows on banks of Columbia River and believed to be extirpated in Oregon.
- Northern false coolwort (*Bolandra oregana*; state candidate). No suitable habitat. Grows on moist, mossy rocks, usually near waterfalls. Occurs along the lower Columbia River Gorge and along the Snake River and its tributaries in Oregon and Idaho.
- Scalloped moonwort (*Botrychium crenulatum*; state candidate). No suitable habitat. Grows at higher elevation than the Project, in marshy and springy areas at elevations of 3,937 to 8,200 feet (1,200 to 2,500 meters).
- Liverwort monkeyflower (*Erythranthe* (*Mimulus*) *jungermannioides*; state candidate). No suitable habitat. Grows on moss mats on cliffs.
- Columbian yellowcress (*Rorippa columbiae*; state candidate). No suitable habitat. Occurs along Columbia River, seeps, drainage ditches, etc.

- Wolverine (*Gulo*; state threatened). No suitable habitat. Species is limited to high elevations where there is deep, persistent, and reliable spring snow cover (April 15 to May 14).

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

Species ¹	State Status	Occurrence within Analysis Area ²
Mammals		
Washington ground squirrel (WAGS) <i>Urocitellus washingtoni</i>	E	Yes
Vascular Plants		
Laurence's milkvetch <i>Astragalus collinus</i> var. <i>laurentii</i>	T	Yes
Dwarf evening-primrose <i>Eremothera (Camissonia) pygmaea</i>	C	No
Sessile mousetail <i>Myosurus sessilis</i>	C	Yes
1. Species shown include only those that are listed as threatened endangered or candidate species on Oregon lists. Oregon sensitive species are addressed in Exhibit P. 2. Plant and WAGS occurrence is based on documented field surveys combined with ORBIC occurrence data. Oregon Definitions: T = Threatened, E = Endangered, C = Candidate		

3.2 Field Surveys

The Applicant conducted field surveys in 2017, 2018, and 2019 to evaluate the potential presence of state-listed or candidate species. Two separate survey reports detail the methods and findings of Washington ground squirrel (WAGS; *Urocitellus washingtoni*) surveys and botanical surveys, respectively, that are summarized in this exhibit. Field survey reports are included in Attachment P-2 of Exhibit P.

3.2.1 Washington Ground Squirrel Surveys

The Applicant conducted WAGS surveys in 2017, 2018, and 2019. WAGS field surveys involved a team of surveyors walking linear transects spaced 165 to 230 feet apart within the WAGS Survey Area, documenting and mapping WAGS and their sign. The WAGS Survey Area included 1,000-foot buffers on Project infrastructure (i.e., a 2,000-foot corridor encompassing transmission lines, access roads, collector lines, turbines, substations, and O&M facilities) in potential WAGS habitat. Potential habitat included non-agricultural habitats and non-developed lands. WAGS surveys were initiated in 2017, with additional surveys in 2018 and 2019 to cover areas not previously surveyed as well as revised infrastructure locations due in part to avoidance of WAGS colonies documented during previous survey efforts. In 2019, surveys were conducted on private lands with granted access along existing and proposed transmission line corridors that were added to support the Project.

The surveys generally followed methodology developed in the *Status and Habitat Use of the WAGS on State of Oregon Lands* (Morgan and Nugent 1999). Potential habitat was surveyed twice during the survey period; surveys were conducted at least 2 weeks apart. In all years, the second phase of

surveys included transects offset from the first phase transects to increase coverage by traveling in between the transect paths walked during the first phase of surveys. For details on the WAGS survey methods and results, see the 2017-2019 Washington Ground Squirrel Survey Report (Exhibit P, Attachment P-2).

The Applicant conducted a desktop review of WAGS habitat in areas that could not be field surveyed due to access restrictions or because they were added following surveys in 2019, but that are within 1,000 feet of potential ground-disturbing activities. Based on coordination with ODFW, the Applicant reviewed aerial photographs, Natural Resources Conservation Service soil data, and the results of a records query to ORBIC. The Applicant additionally viewed these areas from within accessible adjacent parcels or public roads when possible, to identify the likely habitat type. The results of this review were provided to ODFW as a memo in December 2019 (Exhibit P, Attachment P-1). The Applicant will continue to conduct surveys as needed, including surveys for WAGS in 2020 in areas added to the micrositeing corridor or granted access following WAGS surveys in spring 2019.

3.2.2 Botanical Surveys

The Applicant conducted field surveys for listed and candidate plant species in 2017, 2018, and 2019. Surveyors used an intuitive controlled transect methodology to locate plants. Surveys were conducted within the Botanical Survey Area, which included buffers on Project infrastructure (500-foot buffers on each side of turbine strings and 150-foot buffers on each side of transmission lines, access roads, collector lines, substations, and O&M facilities; i.e., the micrositeing corridor) as proposed prior to surveys, and excluded active agricultural fields because they do not support target species, resulting in a variable 300- to 1,000-foot-wide corridor. When an area with high potential for target plants was encountered, 100 percent of that area was surveyed for target plants.

Field surveys were scheduled to coincide with the best identification period for the three target species with potential to occur within the Botanical Survey Area: Laurence's milkvetch (*Astragalus collinus* var. *laurentii*), dwarf evening-primrose (*Eremothera* [*Camissonia*] *pygmaea*), and sessile mousetail (*Myosurus sessilis*). For details on the plant survey methods and results, see the 2017-2019 Botanical Survey Report (Exhibit P, Attachment P-2).

4.0 Occurrence and Potential Adverse Effects – OAR 345-021-0010(1)(q)(B)

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

4.1 Washington Ground Squirrel

WAGS are listed as a state endangered species under the Oregon Endangered Species Act (OESA). It is a small, diurnal ground squirrel that spends much of the year (on average, July through February) underground (Sherman and Sherman 2005). Occurrence of WAGS is limited primarily to shrub-steppe and grassland habitats in parts of the Columbia Plateau ecoregion; In Oregon, occurrences are limited to the Columbia Basin at elevations up to 984 feet (300 meters) south of the Columbia River, east of the John Day River, and west of Milton-Freewater (Morgan and Nugent 1999). More information on the life history of WAGS is provided in Attachment P-2 of Exhibit P.

Current and potential threats to the continued survival of the species include habitat loss from the conversion of habitat to agricultural use, residential use, infrastructure project development and other forms of development; as well as habitat fragmentation, recreational shooting, genetic isolation and drift, predation, disease, drought and invasive weeds on forage quality and quantity (USFWS 2010).

4.1.1 Occurrence

The desktop review identified four element occurrence records for WAGS within the Analysis Area, including two partially within the Site Boundary (ORBIC 2017). ORBIC occurrences are buffered to protect the location of the rare plant or animal, so the exact location and extent of the colonies are unknown. One of these occurrences was located in the northern edge of the Site Boundary and last observed in 1987 and the second extended into the southwestern edge of the Site Boundary and was last observed in 2012 (ORBIC 2017). Neither of these occurrences overlapped with colonies documented during field surveys.

During the 2017 and 2018 surveys, 29 active WAGS colonies were documented, primarily located within eastside grassland habitat in the central portion of the Site Boundary (Exhibit P, Attachment P-2; Figures Q-2 and Q-3). No new colonies were detected in 2019. Colony acreages ranged from less than 0.01 acres to up to approximately 9 acres and totaled approximately 50 acres within the WAGS Survey Area. The majority of colonies were confirmed active by the detection of alarm calls associated with burrows and identification of scat characteristic of this species. Colonies consisted of two to 309 burrows, with an average of 62 burrows. Most of the recorded colonies were located in native bunchgrass habitats, with a few located in annual grassland habitat. Common grass species recorded at active colonies included Sandberg bluegrass (*Poa secunda*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and bulbous bluegrass (*Poa bulbosa*). Cheatgrass (*Bromus tectorum*), an invasive annual grass, was listed as a dominant species in all but three colonies. If a colony had a shrub component, rubber rabbitbrush (*Ericameria nauseosa*) and green rabbitbrush (*Chrysothamnus viscidiflorus*) were the dominant shrub species recorded. The two most dominant forbs recorded throughout the colonies were common yarrow (*Achillea millefolium*) and redstem stork's bill (*Erodium cicutarium*).

4.1.2 Potential Adverse Effects

Vehicles and equipment used during construction activities, as well as O&M vehicles, could cause direct mortality of WAGS by collision on roadways as many of the colonies are located near existing primary or secondary dirt roads. No other direct adverse effects are expected, as all ground-disturbing activities will avoid active WAGS colonies and the 785-foot buffer around colonies in potentially suitable WAGS habitat (Figures Q-2 and Q-3). Secondary roads and stream channels have been removed from the 785-foot buffer, as depicted on Figures Q-2 and Q-3, because they are not considered suitable WAGS habitat. Also, the permanent impacts associated with the transmission/overhead collector line poles are not shown on Exhibit Q figures because the final engineered layout has not been completed, although representative impacts from these poles are included in the permanent impacts calculations. No poles will be placed in active WAGS colonies or in the 785-foot buffer in potentially suitable habitat.

Potential indirect adverse effects from construction outside of active WAGS colonies and buffers, but within potentially suitable WAGS habitat, includes temporary and permanent loss and modification of unoccupied habitat that could result in decreased cover, food availability, and dispersal opportunities should WAGS move into these areas. This indirect impact is primarily reflected in impacts to Category 2 WAGS habitat because Project development in these areas could limit movement and dispersal for existing colonies. Category 2 WAGS habitat is identified as an additional 4,921-foot buffer of suitable ground squirrel habitat on Category 1 WAGS habitat, except where there are habitat barriers to dispersal.

Project dirt and gravel roads are not anticipated to result in barriers to dispersal, as ground squirrels cross dirt and gravel roads, thus limiting Project-related habitat fragmentation. Category 1 and 2 WAGS habitat does not include select Conservation Reserve Program lands recently converted from wheat cultivation to planted grasslands or fallow fields; refer to Exhibit P, Sections 6.1.1 and 6.1.2 for details on this rationale and the Applicant's associated request that EFSC apply the statutory "balancing" process to find compliance with EFSC Standards. There are limited permanent impacts to Category 2 WAGS habitat, including approximately 5 acres of permanent habitat loss associated with Turbine Option 1 and approximately 8 acres associated with Turbine Option 2 (Table Q-2). Permanent impacts will be minimal and mitigated for as described in the Draft Habitat Mitigation Plan (Exhibit P, Attachment P-3). The temporary impacts to Category 2 habitat (159 acres with Turbine Option 1 and 219 acres with Turbine Option 2) will be minimal and short term due to the revegetation and noxious weed control measures described in the Draft Revegetation Plan (Exhibit P, Attachment P-4). Additionally, temporal impacts to Category 2 Shrub-steppe habitat initially field delineated as Category 3 will be mitigated for as these areas are anticipated to take longer than 5 years to recover as described in Exhibit P and the Draft Habitat Mitigation Plan (Exhibit P, Attachment P-3).

Table Q-2. Temporary and Permanent Impacts to Category 2 WAGS Habitat

Turbine Option	Habitat Sub-type	Temporary Impacts (Acres)¹	Permanent Impacts (Acres)¹
Turbine Option 1	Irrigated Pastures and Hay Meadows	<1	-
	Planted Grasslands	21	2
	Eastside Grasslands	133	3
	Shrub-steppe	3	<1
	TOTAL	157	5
Turbine Option 2	Irrigated Pastures and Hay Meadows	<1	-
	Planted Grasslands	21	2
	Eastside Grasslands	192	6
	Shrub-steppe	3	<1
	TOTAL	217	8
Note: numbers may not sum correctly due to rounding. "-" means no impact while <1 means greater than zero but less than 0.5 acres impact.			

This species may experience slightly increased raptor predation pressure as a result of increased perching and nesting structures supplied by the Project transmission line, located less than 0.25 mile from two active colonies and approximately 300 feet from one colony. However, this effect does not appear to be large enough to cause long-term effects resulting in abandonment of colonies as thriving colonies have been found adjacent to existing transmission lines (Tetra Tech 2011, 2014).

4.2 Plants

Three plant species that are state-listed or state candidates for listing were found to have the potential to occur within the Analysis Area based on desktop analysis. Two of these species, Laurence's milkvetch (state threatened species) and sessile mousetail (state candidate species), were found to occur within the Analysis Area during Project surveys (Table Q-3).

Table Q-3. Plant Blooming Period, Occurrence, and Likelihood of Adverse Effects

Species	Identification Period¹	Potential for Occurrence within Analysis Area¹				Potential Adverse Effects²
		Habitat	Elevational Range	ORBIC Records	Observed during Surveys?	
Laurence's milkvetch	Late May - August	Yes	Yes	Yes	Yes	Yes
Dwarf evening-primrose	June - August	Yes	Yes	No	No	No
Sessile mousetail	March - May	Yes	Yes	No	Yes	Yes
1. Identification period includes blooming and/or fruiting periods as needed for identification. Sources: Burke Museum of Natural History and Culture 2019; ODA 2017a; ORBIC 2019; ORBIC 2017; Oregon Flora Project 2017; Oregon Flora Project 2019; USFWS 2017a; WDNR 2011.						
2. Potential for adverse effects not considering avoidance, minimization, and mitigation measures.						

4.2.1 Laurence's Milkvetch

Laurence's milkvetch is listed as a state threatened species under OESA. This 4- to 20-inch-tall taprooted perennial is in the pea (*Fabaceae*) family and occupies sandy or rocky soils overlying basalt on dry slopes of the Columbia Plateau in northern Oregon (ODA 2017b). Laurence's milkvetch blooms from May through July and develops pendulant seed pods from late May to August that are required for identification (ODA 2017b). Threats to Laurence's milkvetch include habitat loss due to agricultural development, grazing, road maintenance activities, competition from exotic weeds, and seed predation by insects (ODA 2017b).

4.2.1.1 Occurrence

The desktop review identified nine element occurrence records for Laurence's milkvetch within the Analysis Area, including two partially within the Site Boundary. Twelve populations (i.e., groupings of one or more individuals) were documented during surveys, ranging from 1 to 250 plants and occupying less than 0.01 acre up to approximately 43 acres each. All populations were located within perennial eastside grassland in the southern half of the Site Boundary, on open, dry sites.

Twelve Laurence's milkvetch populations were documented throughout the late June to July survey periods, and all populations had fruits present, which are required to differentiate this variety from similar species and varieties that occur in the area (Exhibit P, Attachment P-2: Figures Q-4 and Q-5). Plants were found to occur on slopes facing all compass directions (i.e., aspects) and on slight to moderate slopes (0-45 degrees). Frequently associated species included the perennial grasses bluebunch wheatgrass, Idaho fescue (*Festuca idahoensis*), bulbous bluegrass, and Sandberg bluegrass; the annual grasses cheatgrass, soft brome (*Bromus hordeaceus*), and rattail fescue (*Vulpia myuros*); the forbs common yarrow, Spalding's milkvetch (*Astragalus spaldingii*), woolly plantain (*Plantago patagonica*), and yellow salsify (*Tragopogon dubius*); and the shrubs gray rabbitbrush and green rabbitbrush.

Plants were found in loamy soils ranging from rocky and gravelly loam to sandy loam, all underlain by basalt. Most plants were found in relatively high quality native perennial grassland habitat dominated by native species. However, a few plants were located in highly disturbed habitat, including an area heavily infested with the noxious weed yellow star-thistle (*Centaurea solstitialis*) adjacent to a gravel pit and gravel road, although this area is not within the current Site Boundary and therefore not presented in figures. Additionally, a few plants were located in planted grassland habitat. However, often plants were notably absent from planted grassland habitat, even where populations directly abutted or surrounded high quality planted grassland habitat.

4.2.1.2 Potential Adverse Effects

There is a small subpopulation of four Laurence's milkvetch plants located within the temporary impact area associated with the access road between turbines T42 and T44 in Turbine Option 1 (Figure Q-4.8). Direct impacts to these plants could result if this road alignment is followed. The Applicant's Project design has avoided impacts to all other populations documented during surveys.

Potential indirect adverse effects include loss of potentially suitable but currently unoccupied habitat.

4.2.2 Dwarf Evening-Primrose

Dwarf evening-primrose is a state candidate species and therefore receives no formal protection under the State of Oregon. It is a branched, glandular-hairy annual that grows to approximately 16 inches tall (Oregon Flora Project 2017). This plant flowers and fruits between June and August and has a white to pink inflorescence composed of several flower spikes. Dwarf evening-primrose can be found on talus slopes and erosional areas between approximately 500 and 2,000 feet in elevation, from eastern Washington to eastern California and Nevada (Oregon Flora Project 2017). The primary threats to this species include resource extraction and development, roadside herbicide application and drift, and invasion by exotic plant species.

4.2.2.1 Occurrence

No dwarf evening-primrose plants were documented during surveys at the Project, and no populations are known to occur within the Analysis Area (Exhibit P, Attachment P-2; ORBIC 2017).

4.2.2.2 Potential Adverse Effects

As this species was not observed during Project surveys and is not known to occur within the Analysis Area, no potential adverse effects to this species are anticipated as a result of the Project.

4.2.3 Sessile Mousetail

Sessile mousetail is also a state candidate species and therefore receives no formal protection under the State of Oregon. Sessile mousetail is a tiny annual herb less than 4 inches tall that occurs in vernal pools, wetlands, and alkali flats in Oregon and California (Hitchcock and Cronquist 1973; Oregon Flora Project 2019). It blooms from March to May, and is found in Jefferson, Umatilla, and Gilliam Counties in Oregon (ORBIC 2019). Vernal pools are threatened by residential, industrial, and agricultural pressures (NatureServe 2018).

4.2.3.1 Occurrence

No element occurrence records for sessile mousetail were documented through the desktop review within the Analysis Area (ORBIC 2017). One population of 500 sessile mousetail plants within two adjacent vernal pools was documented within the Botanical Survey Area during wildlife surveys; plants were also observed within four additional vernal pools 1.2 miles to the southeast, outside the Botanical Survey Area (Exhibit P, Attachment P-2; Figures Q-4 and Q-5). The sessile mousetail plants were located in rocky vernal pools adjacent to a dirt road, planted grasslands, and an active agricultural field. In total, approximately 1,000 sessile mousetail plants were documented within approximately 0.4 acre within the six vernal pools (including two vernal pools within and four vernal pools outside the Botanical Survey Area). Associated species included needleleaf navarretia (*Navarretia intertexta*), prostrate knotweed (*Polygonum aviculare*), meadow woollyheads (*Psilocarphus elatior*), as well as least mousetail (*Myosurus minimus*). Some plants appeared to be

hybrids between sessile mouseltail and least mouseltail, showing intermediate characteristics between the two species.

4.2.3.2 Potential Adverse Effects

Potential adverse effects to sessile mouseltail include direct mortality of plants during construction and loss of potentially suitable but currently unoccupied habitat. However, as the Applicant will avoid impacts to vernal pools, no direct or indirect potential adverse effects are anticipated as a result of the Project.

5.0 Avoidance and Minimization – OAR 345-021-0010(1)(q)(C)

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

5.1 Wildlife

Based on the results of the 2017-2019 WAGS surveys, the Applicant has revised the location of Project infrastructure in order to avoid active WAGS colonies and their associated 785-foot buffers in suitable habitat (i.e., Category 1 habitat), and minimized impacts to Category 2 habitat where feasible. Many of these Category 1 WAGS buffers overlap with current primary and secondary roads within the Site Boundary. The Applicant will conduct pre-construction surveys for WAGS, and flag areas that overlap existing roads during construction as feasible to ensure no vehicles or construction equipment inadvertently travel off those roads and damage Category 1 habitat.

The Applicant will also enforce speed limits for Project personnel and contractors to minimize the risk of vehicle collisions with WAGS during construction and through O&M activities near Category 1 habitat. The Applicant will flag Category 1 habitat near proposed temporary and permanent impacts to ensure avoidance. The Applicant will employ a construction monitor(s) familiar with WAGS to ensure appropriate measures such as the flagging and speed limits discussed above are implemented to avoid disturbance to WAGS and Category 1 WAGS habitat. In addition, the Applicant has implemented during design and will continue to implement during construction and operation fire risk minimization measures as described in Exhibit U that will minimize impacts to WAGS and suitable WAGS habitat.

5.2 Plants

Based on the results of the 2017-2019 botanical surveys, the Applicant revised the location of Project infrastructure in order to avoid listed and candidate plant species locations in all but one small area associated with Turbine Option 1. If this turbine option is chosen and the road alignment cannot be redesigned to avoid this small group of Laurence's milkvetch, the Applicant will flag this group of plants and install temporary construction mats as feasible over soils in an attempt to protect seed banks and root structures where vehicles and equipment will be driving during

construction. This minimization measure may not be appropriate or effective if this specific area must be graded and the topsoil removed; if that is the case based on final design and other construction constraints, these plants would be destroyed.

In addition, to minimize potential impacts to other known Laurence's milkvetch and sessile mousetail populations, the Applicant will conduct pre-construction surveys and flag the boundaries of the Laurence's milkvetch populations prior to construction in areas located near proposed disturbance and access roads to reduce impacts during construction. Project speed limits will also be in place in these areas (and throughout the Site Boundary) to minimize the effects of dust on adjacent plant populations and water trucks will be used during construction to limit the amount of fugitive dust. Fugitive dust can negatively affect photosynthesis, respiration, transpiration, and reproduction in plants (Farmer 1993; Trombulak and Frissell 2000).

The Applicant will conduct additional surveys prior to construction for listed and candidate plants within the appropriate survey season in potential habitat proposed to be impacted where access was not previously granted. In the event that infrastructure changes or new Laurence's milkvetch and sessile mousetail locations are discovered, the same minimization measures described above will be implemented. Additionally, if total avoidance of plant populations is not practical in areas of temporary disturbance, the Applicant will install temporary construction mats over soils where Laurence's milkvetch and sessile mousetail individuals have been documented to help protect seed banks and root structures where construction vehicles will drive. Site-specific revegetation, noxious weed control, topsoil salvaging, and soil stabilization methods will be implemented for all areas disturbed by construction or maintenance activities, as further described in the Draft Revegetation Plan (Exhibit P, Attachment P-4). Finally, prior to construction, the Applicant will have a fire control plan, approved by Umatilla County, in place that will be implemented throughout the life of the Project that will minimize impacts to rare plants and their associated habitats.

6.0 Protection and Conservation Program

Compliance/Impacts – OAR 345-021-0010(1)(q)(D)

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

The ODA establishes protection and conservation programs for selected species listed as threatened or endangered under the OESA. Because no such programs apply to any species with the potential to occur within the Analysis Area, no additional information is required under this provision.

7.0 Potential Impacts to Plants, Including Mitigation Measures – OAR 345-021-0010(1)(q)(E)

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

After avoidance and minimization measures have been implemented, some potential impacts to state threatened and candidate plant species will remain. Potentially suitable, but currently unoccupied, habitat will be impacted. Temporary and permanent habitat loss will be mitigated for according to ODFW Habitat Mitigation Policy goals and standards, as described in the Draft Habitat Mitigation Plan (Exhibit P, Attachment P-3). Prior to construction, the Applicant will finalize the Habitat Mitigation Plan pursuant to the ODFW Habitat Mitigation Policy. Compensatory mitigation actions would occur prior to or in conjunction with habitat-disturbing activities and provide the intended benefits for the duration of the Project.

7.1 Species Unlikely to Occur

One species listed in Table Q-1 is not known to occur within the Analysis Area: dwarf evening-primrose. Based on distribution information reviewed during the desktop analysis and in preparation for field work, this species was considered to have the potential to occur; however, this species was not observed during surveys for the Project. As no populations of dwarf evening-primrose were observed during surveys and it is not known to occur within the Analysis Area, the Project is not likely to cause a significant reduction in the likelihood of survival or recovery of this species.

7.2 Species Found and Previously Known to Occur

Two species listed in Table Q-1, Laurence's milkvetch and sessile mousetail, are known to occur within the Analysis Area.

There is a small subpopulation of four Laurence's milkvetch plants located directly within the temporary impact area associated with the access road between turbines T42 and T44 in Turbine Option 1; the 20-foot buffer associated with this occurrence, applied to account for indirect impacts, also overlaps with the permanent impact layer (Figure Q-4.8). This small subpopulation was mapped in 2019 and determined to be a disjunct segment of the larger Population #2 mapped in 2017 (75 plants within approximately 13 acres). Direct impacts to these plants will result if this road alignment is required, as these plants are located approximately 3 feet from the permanent impact layer. Although this species is locally abundant, the final design will attempt to avoid impacting this plant subpopulation to the extent practicable; however, to be conservative, this is

shown as a potential impact in the Application for Site Certificate. The Applicant designed the Project infrastructure to avoid all other locations of this species mapped during 2017-2019 field surveys.

Sessile mousetail is not expected to be adversely affected by the Project because the Applicant will avoid disturbing plants through avoidance of known locations as well as vernal pools, which are suitable habitat for this species.

Based on the analysis provided above, including mitigation measures, the proposed Project is not likely to cause a significant reduction in the likelihood of survival or recovery of these species.

8.0 Potential Impacts to Animals, Including Mitigation Measures – OAR 345-021-0010(1)(q)(F)

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

The Applicant will avoid impacts to WAGS colonies and associated Category 1 habitat identified during 2017-2019 field surveys, as well as any additional colonies identified prior to construction, as previously described in Section 5.1. As a result, construction, operation, and maintenance of the Project is not expected to result in a significant reduction in the likelihood of survival or recovery of WAGS.

9.0 Monitoring – OAR 345-021-0010(1)(q)(G)

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

9.1 Wildlife

The Applicant will conduct pre-construction surveys to determine the current boundaries of colonies mapped during surveys conducted in 2017 and 2018 where still in the vicinity of proposed Project disturbance. Where surveys are greater than 3 years old, protocol-level surveys will be conducted; where surveys are less than 3 years old, the Applicant will conduct spot-checks to update colony boundaries and the associated Category 1 and 2 buffers. In addition, the Applicant will implement a WAGS post-construction monitoring program as described in the Draft Wildlife Monitoring Plan (Exhibit P, Attachment P-5). Monitoring will include returning to known colonies in the vicinity of Project impact areas to determine occupancy and the extent of each colony over time (see Exhibit P, Attachment P-5).

9.2 Plants

No post-construction monitoring is currently proposed for listed plant species.

10.0 Conclusion

Based on the information provided above, the Energy Facility Siting Council may conclude that the Project will not cause a significant reduction in the likelihood of survival or recovery of listed threatened or endangered plant and animal species and therefore meets the Threatened and Endangered Species standard under OAR 345-022-0070.

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Figures

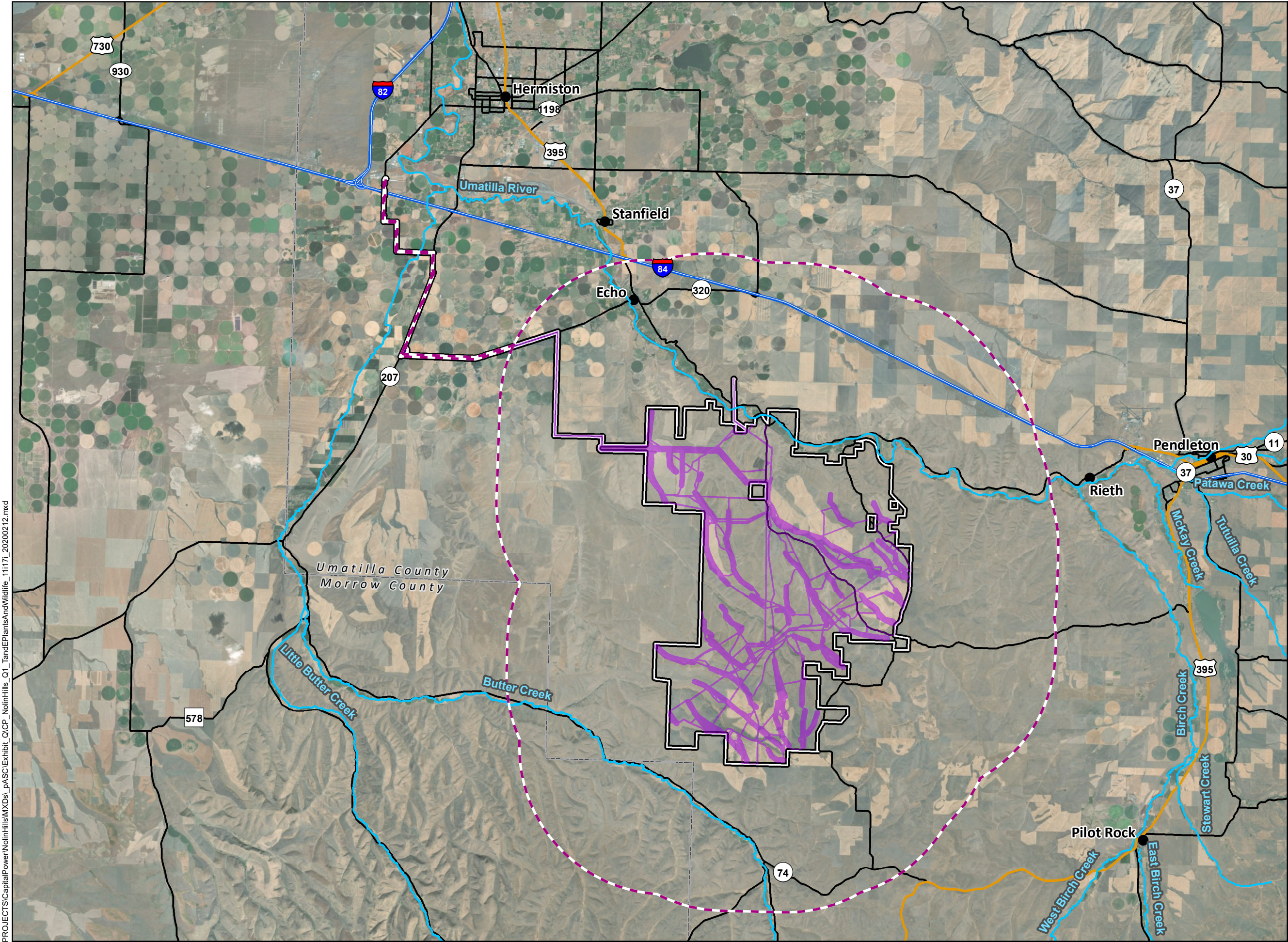
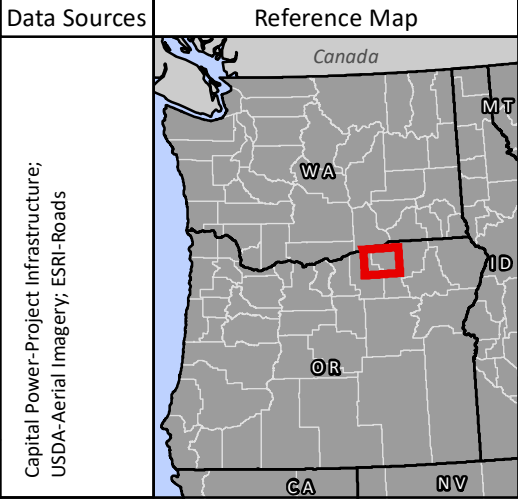
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Nolin Hills
Wind Power Project

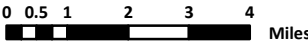
Figure Q-1
State Threatened and
Endangered Species
Analysis Area

UMATILLA COUNTY, OREGON

- Proposed Site Boundary
- Analysis Area (5-mile Buffer)
- Micrositing Corridor
- River/Creek
- City/Town
- Interstate Highway
- Secondary Highway
- Secondary Road
- County Boundary



1:200,000 WGS 1984 UTM Zone 11N



NOT FOR CONSTRUCTION

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*Figures Q-2 through Q-5 are confidential and have been provided under separate cover pursuant to
ORS 192.501(13)*