EXHIBIT H

GEOLOGY AND SEISMICITY

OAR 345-021-0010(1)(h)

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H.1 INTRODUCTION

The Council's Structural Standard, OAR 345-022-0020 requires that the Applicant adequately characterize seismic and non-seismic geologic and soil hazards of the Project, and that the Applicant design, engineer and construct the Project to avoid danger to human safety from these hazards. Specifically OAR 345-022-0020 states:

In addition OAR 345-021-0010(1)(h) requires that information be provided to meet the standard, specifically:

The Project will be located on private land in an unincorporated area of Sherman County. It will consist of up to 267 wind turbines. The Project will interconnect with the BPA transmission system at two locations – one near Klondike Schoolhouse Substation (200 MW) and one at the John Day Substation (200 MW). Overhead transmission lines (one approximately 4 miles and one approximately 11 miles) will be built from the project substations to the BPA interconnection points.

Power generation facilities will include wind turbines that have an aggregate nominal nameplate generating capacity of up to 400 MW. The turbines will most likely consist of either a 1.65 MW turbine with hub height of 78 meters and rotor diameter of 82 meters or a 2.5 MW turbine with a hub height of 80 meters and rotor diameter of 96 meters. The turbines will be sited within 900-foot corridors; their precise locations within each corridor will be determined by the Applicant, based on the wind turbine model selected and the various siting criteria.

The Project will also include approximately 50 miles of newly constructed 16- to 20-foot wide access roads and turnaround areas (temporary accessways will be widened to about 36 feet for construction), up to six permanent meteorological towers up to 85 meters in height, a 62 mile long 34.5-kilovolt (kV) power collection system (possibly all underground) linking each turbine to the next and to the project substations, two project substations including a 4 and an 11-mile long overhead transmission line will be constructed to the points of interconnection with BPA, an O&M facility including an approximately 5,000 square foot building and groundwater supply well, and a fully integrated SCADA system. There will also be several principal, temporary laydown areas for the staging of construction equipment, wind turbines and their components, towers, and other parts, facilities, and equipment.

Figure H-1 shows the approximate locations of the wind turbine corridors, new access roads, power collection system corridors, substations, overhead transmission lines, and the temporary laydown areas. Existing state and county roads designated for improvements are also shown.

A detailed geologic study of the project area was performed to fulfill the requirements of OAR 345-021-0010(1)(h). The findings of the geologic and soil stability study (i.e., this Exhibit) demonstrate that the above standards can be met. Characterization of seismic, geologic, and soil hazards of the Project indicate a low potential for risk. The facilities

will be designed and constructed to standards that adequately protect the proposed facilities and the public from seismic, geologic and soil hazards.

H.2 GEOLOGICAL AND TOPOGRAPHIC FEATURES

OAR 345-021-0010(1)(h)(A) A geologic report meeting the guidance in Oregon Department of Geology and Mineral Industries open file report 00-04 "Guidelines for Engineering Geologic reports and Site-Specific Seismic Hazard Reports."

<u>Response:</u> Topographic and geologic conditions/hazards within the Project were evaluated by reviewing available reference materials (including publications and State logs of water wells), reviewing topographic and geologic maps, and aerial photos, and conducting a field reconnaissance of the proposed project area. The findings are described in the following sections. Prior to construction, explorations, testing, and engineering analysis will be conducted for final design purposes.

H.2.1 Topography

The Project is located in Sherman County near the towns of Wasco and Moro, Oregon. Sherman County, located in north-central Oregon. The County is bordered to the north by the Columbia River, the Deschutes River to the west and the John Day River to the east. Much of the south boundary is defined by Buck Hollow Creek, a tributary of the Deschutes River.

The open rolling hills and steeper narrow canyons within the Project range in surface elevation from about 1,100 feet on the northern edge to about 1,900 feet on the rolling hills near the southern edge of the project area. Regionally, the ground surface generally slopes down the north.

Much of the project area ground surface gradient is very flat with a typical range of about 1 to 5 percent in the open rolling hills and near the crest of ridges. There are areas where the slopes approach 10 percent. The gradient with the side slopes of the rolling hills and narrower ridges is generally controlled by near-surface geology (i.e., loess or basalt) and typically ranges from 5 to 10 percent, with some areas approaching 20 to 25 percent and isolated steeper areas (especially where basalt bedrock is exposed at the ground surface).

Existing cut and fill slopes are uncommon within the project area and typically are less than 10 feet high. During the reconnaissance of the project area, some isolated cuts were up to about 30 feet in height.

Much of the rolling hills and wider ridgelines above the drainageways and gulleys are cultivated for wheat and other crops.

H.2.2 Geologic Features

All of Sherman County is located within the Deschutes-Columbia River Plateau in north-central Oregon. The project area is located in the Columbia Plateau physiographic province. The province is predominantly a volcanic plateau covering over 63,000 square miles in Oregon, Washington and Idaho. Mountains surround the plateau on all sides; the

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Okanogan Highlands are located to the north, the Cascade Range to the west, and the Blue Mountains in Oregon to the south and east. In Oregon, the province surface gently descends northerly towards the Columbia River.

The bedrock that underlies much of the region began erupting approximately 24 million years ago as immense outpourings of basalt. During this time, the voluminous flows of the Columbia River Basalt Group erupted from volcanic vents located in central and northeast Oregon, southeast Washington and Idaho. These eruptions created a massive "flood basalt" province.

The Grande Ronde Basalt and Frenchman Springs and Priest Rapids members, of the Wanapum Basalt, are all part of the Columbia River Basalt Group (CRBG) that comprises the volcanic bedrock in most of the area. The Grande Ronde Basalt is the oldest of the three basalt types and also has the most extensive surface exposure in this study area. The Grande Ronde Basalt consists of fine-grained basalt with a total thickness up to several thousand feet. Quaternary loess (i.e., wind blown silt) deposits cover most of the bedrock in the Project. In general, basalt bedrock is only exposed at the ground surface in valley walls, road cuts, and rock pits.

Near the end of the last major Ice Age about 15,000 years ago, large lakes formed behind massive ice dams in western Montana. When these dams repeatedly failed (on the order of about 40 times), the torrential "Missoula Floods" repeatedly poured massive amounts of water and debris down the Columbia Plateau. These floods continued for about 2,000 years.

Flood elevations likely reached as high as about 1,100 feet above mean sea level (amsl) in the vicinity of the Project. Where side canyons or tributaries enter the Columbia River, the flood waters flowed back into them. Just north of the Project, the lower elevations of the canyons show topographic evidence suggesting scouring by the ebb and flood of the "Missoula Floods".

The massive outpourings scoured the surface of the Columbia Plateau bedrock and also deposited silt, sand, gravel, and cobbles/boulders. After the Missoula Floods, stream and some wind-related depositional and erosive processes continued to dominate the geology of the Columbia Plateau. Alluvium, alluvial fans, and landslides have formed in incised valleys while deposits of wind blown sand and silt (i.e., loess) have formed on top of the basalt bedrock.

Based on the results of this study, the loess covers the underlying basalt bedrock throughout much of the project area. Topographic maps, geologic maps, logs of water wells, and the site reconnaissance indicates that the loess deposit ranges up to about 40 feet thick (averaging about 15 feet). This deposit overlies the basalt bedock and appears to thin or not exist within the steeper areas along the sides of relatively narrow ridges and within drainageways found throughout the project area (i.e., where basalt bedrock is exposed).

Logs of water wells, native exposures of basalt bedrock, and basalt quarry exposures indicate that the basalt generally is variably fractured, is fresh to slightly weathered,

possesses very close to wide joint spacing, and has a variable hardness (generally ranging from medium hard to hard). Where observed, the contacts between layers of basalt show limited or no signs of a distinct weathered soil horizon.

H.2.3 Soils

A relatively thin veneer of soil exists throughout most of the project study area. The soil principally consists of silty loam formed from weathering of loess (i.e., wind-blown silt and fine sand). Where the loess deposit thins, there are variable amounts of weathered rock fragments derived from basalt bedrock that underlies the loess. Where basalt bedrock is exposed at the ground surface, the soil consists of a very gravelly/cobbly loamy sand with boulders.

Refer to other sections of this Exhibit for additional information pertinent to preparation of a geologic report in accordance with State guidance.

H.3 SITE-SPECIFIC GEOLOGIC AND GEOTECHNICAL WORK

OAR 345-021-0010(1)(h)(B) A description and schedule of site-specific geotechnical work that will be performed before construction for inclusion in the site certificate as conditions.

Response:

H.3.1 Future Work Planned

A detailed design geotechnical investigation will be conducted prior to the start of construction. This design study will include exploratory test drilling at key locations where site improvements are proposed. Where needed to enhance understanding of subsurface soil/rock conditions in some areas and provide details on bulk shear wave velocity and other properties, down-hole and surface geophysical studies will be conducted. As needed, field resistivity and other non-destructive geophysical testing will be conducted to evaluate bulk properties.

Soil and rock samples obtained during explorations will be utilized to evaluate soil and rock characteristics in a laboratory. Such testing will include an array of tests including some or all of the following: index tests to identify general characteristics, shear and compressive tests, soil modulus tests for pavement design, thermal conductivity, and a series of tests to evaluate corrosion potential.

Geotechnical engineering analysis of the field and laboratory data will be conducted. Design recommendations will be prepared to address a myriad of design and construction considerations including geotechnical aspects related to foundations, site grading, utilities, roadways, and improvements to existing infrastructure (e.g., roads, culverts, bridges).

It is anticipated that this design study will be conducted during the third quarter of 2007.

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H.3.2 Work Performed to Prepare This Exhibit

To prepare this Exhibit, GeoEngineers conducted a detailed office study and geologic field reconnaissance along the proposed wind turbine corridors, underground connector corridors, equipment lay down areas, transmission line alignments, project substations, crane paths, and new permanent access roads. Areas of proposed improvements to existing County road improvements were also included in the combined office/field effort.

The findings of this work were used to preliminarily evaluate seismic and non-seismic related hazards. The nature and extent of the work to date is presented in the following paragraphs.

Review of Soils/Geologic and Other Publications

Topographic maps, aerial photos, geologic maps, professional publications, and soil surveys were reviewed to identify potential subsurface soil and bedrock conditions, bedrock depth and lithology, and structural attitude of faults within the Project. A list of publications is presented in Section H.3.2.

Field Reconnaissance

A field reconnaissance of the Project was completed along the proposed wind turbine corridors, new access road alignments, power collection system corridors, substations, overhead transmission lines, temporary laydown areas, and existing state and county roads designated for improvements. The field reconnaissance concentrated on identifying geologic hazards, particularly in areas of concern identified during the review of geologic literature.

The site reconnaissance focused on identifying and mapping features associated with slope stability and landslides and other hazards including hummocky topography, ground cracks, scarps, and vegetative indicators of instability. In addition, subsurface conditions along the alignments were interpreted by observing exposures in road cuts, stream channels and borrow pits. The information collected during the reconnaissance was used to qualitatively assess the stability of slopes and landslides where these features were found to be mapped during the geologic literature review, and for use in the seismic hazards assessment of the Project.

Seismic Hazard Analyses

The Oregon Structural Specialty Code (OSSC), 2007 Edition will be used to design equipment shelters and structures included in the proposed project. The OSSC uses the International Building Code (IBC), 2006 edition, with current amendments by the state of Oregon and local agencies. These standards are appropriate protection measures for human safety of the proposed facilities.

A detailed seismic hazard analysis was conducted to establish earthquake ground motion parameters suitable for use in design of the proposed facilities. Amplification factors at the Project were based on a review of existing geologic information and information collected during the site reconnaissance. Refer to Section H.7 of this Exhibit.

References

- Beeson, M.H., T.L. Tolan, and J.L Anderson. 1989. The Columbia River Basalt Group in western Oregon; geologic structures and other factors that controlled flow emplacement patterns. In: Reidel, S.P., and P.R. Hooper, eds. Volcanism and Tectonism in the Columbia River Flood-Basalt Province. Geological Society of America Special Paper 239.
- Bela, J.L. 1982. Geologic and Neotectonic Evaluation of North-Central Oregon: The Dalles 1° by 2° Quadrangle. Oregon Department of Geology and Mineral Resources Geologic Map Series GMS-27, Portland, Oregon.
- Boore, D.M., Joyner, W.B., and Fumal, T.E.. 1997. Equations for Estimating Horizontal Response Spectra and Peak Acceleration from Western North American Earthquakes: A Summary of recent Work, Seismological Research Letters, Vol. 68, No. 1, 128-153.
- Building Seismic Safety Council. 2003. 2003 Edition NEHRP Recommended Provisions for Seismic Regulations for New Buildings and Other Structures, Part 1 Provisions. Federal Emergency Management Agency report FEMA 450. Washington D.C.
- CH2M. 2005. Oregon Energy Facility Siting Council (EFSC) Site Certificate Application, Biglow Canyon Wind Farm (Exhibit H).
- Crouse, C.B.. 1991. Ground-Motion Attenuation Equations for Earthquakes on the Cascadia Subduction Zone (from Earthquake Spectra -- May 1991 -- Volume 7, Issue 2, pp. 201-236).
- Geomatrix Consultants. 1995. Seismic Design Mapping,. State of Oregon. Prepared for Oregon Department of Transportation. Facility No. 2442.
- Geolmatrix Consultants. 1996. Probabilistic Seismic Hazard Analysis. DOE Hanford Site, Washington. Prepared for Westinghouse Hanford Company. Facility No. 2169. WHC-SD-W23A-TI-OO2, Rev. 1A. February.
- International Code Council. 2006. International Building Code: Building Officials and Code Administrators International, Inc., International Conference of Building Officials, Southern Building Code Congress International.
- Macdonald, Gerald D., James M. Lamkin, and Roger H. Borine. 1999. Soil Survey of Sherman County Oregon. Natural Resources Conservation Service, U.S. Department of Agriculture.
- Madin, Ian P. 1994. Earthquake Database for Oregon 1833-10/25/93. Open File Report 0-94-4, Oregon Department of Geology and Mineral Industries.
- Oregon Department of Geology and Mineral Industries. 2000. Guidelines for Engineering Geologic reports and Site-Specific Seismic Hazard Reports. Open File Report 00-04

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Oregon Department of Transportation. 1987. Soil and Rock Classification Manual.

Walker, G.W., and N.S. Macleod. 1991. Geologic Map of Oregon: U.S. Geological Survey, scale 1:500,000, 2 sheets.

Project Personnel

Exhibit H was prepared for the Applicant by GeoEngineers. The table below summarizes GeoEngineers' professional employees who had primary involvement during this study and these individuals will be engaged in the site-specific work required for final design before construction. A bio sketch for each of the primary investigators is also provided.

Employee	Title	Project Role	
David K. Rankin, RG, CEG	Principal	Principal in Charge Engineering Geologic and Geotechnical Reconnaissance Exhibit H Composition	
Andrew P. Bauer	Staff Geologist	Geologic Reconnaissance Exhibit H Composition	
Brent Nielsen, EIT	Staff Geotechnical Engineer	Seismic Analysis Exhibit H Composition	
Catalena Cabrera	GIS Analyst	GIS and GPS Data Analysis Cartography	

David K. Rankin, RG, CEG, LEG, LHG, Principal. David has served as a Principal and Project Manager, providing management and technical support, on numerous regional and site-specific engineering geologic, geotechnical, and environmental projects, including those related to energy facility siting/design/construction, commercial development, government infrastructure, ports, industrial sites, and waterfront properties. His geotechnical experience includes preliminary design/feasibility, hazard mitigation planning for the State of Oregon and municipal agencies in Oregon (per FEMA requirements), seismic risk evaluations (for FERC relicensing), landslide evaluation/mitigation, deep and shallow foundations, excavation support, large embankments, bridges, forensic evaluations of foundation/roadway damage, and most other aspects of geotechnical exploration, analysis and design. David has over 27 years of consulting experience principally in the Pacific Northwest, especially Oregon and southwest Washington. He has a Master's Degree in Geology with all applicable geologic licenses in the states of Washington and Oregon. He is a Certified Engineering Geologist and Registered Geologist in Oregon. He also has similar licenses in Washington.

Andrew P. Bauer, Staff Geologist. Andy has seven years professional experience providing consulting services to public and private clients. He Graduated from Western Oregon University in 2000 with a Bachelors degree in Geology. His geologic and geotechnical experience includes numerous geotechnical design investigations, construction materials testing, and special inspection of construction. His experience includes field inspection and/or laboratory testing of reinforced concrete, structural masonry, structural steel and welding, proprietary anchors, soils and aggregates, and asphaltic concrete. Andy is highly knowledgeable of special inspection requirements including communicating with the owner, contractor, engineer, architect, and building official to assure that relevant codes, specifications, and recommendations are being observed. Andy has worked on large diameter pipelines, roadways, healthcare facilities, and commercial, industrial, and residential developments.

Brent Nielsen, EIT, Staff Geotechnical Engineer. Brent is an Engineer-in-Training (EIT) working towards Professional Engineering Registration. While at Montana State University, Brent studied civil engineering. He was graduate fellow teachers assistant for several courses. Brent has performed geotechnical work in the following fields of geotechnical engineering: subsurface investigations, shallow and deep foundations, retaining walls, forensic evaluations, slope stability, seismic ground response, laboratory soil testing, and construction monitoring.

Catalena Cabrera, GIS Analyst. Catalena has six years experience in the field of GIS. Her experience includes designing, creating, maintaining, and analyzing client data. She has extensive GIS analysis and local government planning and permitting software integration. Catalena has conducted GIS training for public agencies and at state conferences. She has comprehensive working experience with ESRI software products including ArcView, ArcInfo Workstation and ArcGIS, and she is well versed with GPS Trimble products.

H.4 EVIDENCE OF CONSULTATION

OAR 345-021-0010(1)(h)(C) Evidence of consultation with the Oregon Department of Geology and Mineral Industries regarding the appropriate site-specific geotechnical work that must be performed before submitting the application for the Department to determine that the application is complete.

Response:

While preparing this Exhibit, GeoEngineers consulted Oregon Department of Geology and Mineral Industries (DOGAMI) publications and other publications/guidance.

A summary of the site-specific work planned for the Project is presented in Section H.3.1. During the next phase of the Project, GeoEngineers will consult with DOGAMI regarding the details for the site-specific geotechnical work needed for design in advance of construction.

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H.5 TRANSMISSION LINES

OAR 345-021-0010(1)(h)(D) For all transmission lines, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends, corners, and portions of the proposed route where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.

Response:

The results of work conducted to date suggest that cuts in the loess soils exceeding about 50% slope are potentially unstable. Steeper cuts into basalt bedrock are subject to rock falls and potentially larger scale mass instability, especially if bedrock joint geometry is not conducive to maintaining cut stability.

The work conducted to date suggests that project transmission lines do not cross (nor are near) areas that show gross indicators of landslide (recent, historic, and ancient) activity or marginal stability.

The power collectors for the Project follow existing roads in some areas and most likely will be placed underground. During the geologic and soils study, these existing roads were observed to cross dry creek beds. At these culvert crossings, some stream erosion (including over-steepened banks) was observed, principally near the culvert crossings.

Native soil and bedrock stability concerns at cuts, fills and culvert crossings will be addressed during future, site-specific geotechnical studies planned during the design phase of the Project. This future work will include development of design and construction recommendations that minimize the potential for destabilizing marginally stable slopes and minimize the potential for stream erosion at stream crossings.

Future detailed site-specific geotechnical investigation of the proposed transmission line and power collection alignments will likely be conducted in the third quarter of 2007 (prior to the planned start of construction in 2008).

H.6 PIPELINES

OAR 345-021-0010(1)(h)(E) For all pipelines that would carry explosive, flammable or hazardous materials, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, and portions of the proposed alignment where geologic reconnaissance and other site specific studies provide evidence of existing landslides or marginally stable slopes that could be made unstable by the planned construction.

Response:

No pipelines carrying explosive, flammable or hazardous materials are planned for the Project.

H.7 SEISMIC HAZARD ASSESSMENT

OAR 345-021-0010(1)(h)(F) An assessment of seismic hazards. For the purposes of this assessment, the maximum probable earthquake (MPE) is the maximum earthquake that could occur under the known tectonic framework with a 10 percent chance of being exceeded in a 50 year period. If seismic sources are not mapped sufficiently to identify the ground motions above, the applicant shall provide a probabilistic seismic hazard analysis to identify the peak ground accelerations expected at the site for a 500 year recurrence interval and a 5000 year recurrence interval. In the assessment, the applicant shall include:

- (i) Identification of the Maximum Considered Earthquake Ground Motion shown at International Building Code (2003 edition) Section 1615 for the site.
- (ii) Identification and characterization of all earthquake sources capable of generating median peak ground accelerations greater than 0.05g on rock at the site. For each earthquake source, the applicant shall assess the magnitude and minimum epicentral distance of the maximum credible earthquake (MCE);
- (iii) A description of any recorded earthquakes within 50 miles of the site and of recorded earthquakes greater than 50 miles from the site that caused ground shaking at the site more intense than the Modified Mercalli III intensity. The applicant shall include the date of occurrence and a description of the earthquake that includes its magnitude and highest intensity and its epicenter location of region or highest intensity.
- (iv) Assessment of the median ground response spectrum from the MCE and the MPE and identification of the spectral accelerations greater that the design spectrum provided in the Oregon Structural Specialty Code (2004 edition). The applicant shall include a description of the probable behavior of the subsurface materials and amplification by subsurface materials and any topographic or subsurface conditions that could result in expected ground motions greater than those characteristic of the Maximum Considered Earthquake Ground Motion identified above
- (v) An assessment of seismic hazards expected to result from reasonably probable seismic events. As used in this rule "seismic hazard" includes ground shaking, ground failure, landslide, lateral spreading, liquefaction, tsunami inundation, fault displacement and subsidence.

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Response:

The findings of this assessment are detailed in this Section. Conclusions about seismic hazard mitigation are presented in Section H.9 of this Exhibit.

Oregon recognizes the 2006 International Building Code, with Oregon Structural Specialty Code addenda. The site soil is classified per IBC and OSSC guidelines as site class B.

The site soils generally consist of a relatively thin skin of wind-blown loess silt overlying Columbia River basalt bedrock. The bedrock depth ranges from at the ground surface to about 40 feet below ground surface, with an average soil depth of about 15 feet. Consequently, a soil profile of class C is appropriate for the design of the wind turbine towers and equipment within the project boundaries. The following table presents the design parameters provided by IBC for the project soil profile.

Seismic Design Parameters (2006 IBC)						
Site Class	В					
Spectral Response Acceleration (Short Period), S _s	0.46g					
Spectral Response Acceleration (1-Second Period), S ₁	0.16g					
Site Coefficient, Fa	1.0					
Site Coefficient, F _v	1.0					
Damped Response Acceleration (Short Period), S_{DS}	0.31g					
Damped Response Acceleration (1-Second Period), $S_{\rm D1}$	0.11g					

H.7.1 Earthquake Sources

The current understanding of seismicity in Oregon considers three main seismic sources. Two of the possible earthquake sources are associated with the Cascadia subduction zone (CSZ), and the third source is comprised of shallow earthquakes that occur within the North American crust. Since these possible seismic events are anticipated to have different ground shaking effects on the Project, each earthquake scenario should be considered individually as the maximum credible earthquake (MCE). The three earthquake scenarios are discussed in the following paragraphs.

The CSZ is the region where the Juan de Fuca Plate is being subducted beneath the North American Plate. The present body of evidence suggests that this subduction zone has generated eight large earthquakes in the last 4,000 years, with the most recent event occurring about 300 years ago. Two MCE subduction zone earthquake scenarios were considered in this study: (1) an earthquake on the seismogenic part of the interface between the Juan de Fuca Plate and the North American Plate on the CSZ with a moment magnitude (Mw) of 9.0 (interplate event), and (2) a deep earthquake with a Mw of 7.5 on the seismogenic part of the subducting plate of the CSZ (intraplate event). These magnitudes are the generally accepted maximum credible events for the CSZ, given the current level of information regarding subduction zone earthquakes in the Pacific Northwest.

Local crustal faults near the Project generally include small thrust faults located just beyond the southwest corner of the Project. There are also several thrust faults located many tens of kilometers away from the project area as schematically shown MPE deaggregation maps (Figures H-5 and H-7).

The thrust fault near the southwest corner of the Project is defined as a non-Quaternary fault (i.e., shown no signs of disturbing geologic units less than about 1.8 million years old). The loess that mantles the basalt is about 13,000 to 15,000 years old. The basalt is between about 15 and 35 million years old.

None of the nearby faults have well-defined slip rates, and one fault near the Project has a recorded earthquake of unknown magnitude.

It is difficult to select a deterministic model of crustal seismicity without making unsupportable assumptions regarding fault activity, slip rate, and fracture length. We represent local crustal seismicity by modeling a magnitude 5 earthquake located 2 miles from the center of the Project. The selected magnitude of this event exceeds the magnitude of recorded earthquakes for the nearby faults.

The maximum probable event (MPE) is defined by EFSC as the maximum earthquake that could occur under the known tectonic framework with a 10 percent chance of being exceeded in a 50-year period (475-year event). The USGS National Seismic Mapping Project (2002) reports that the MPE is equivalent to an earthquake that has a magnitude, Mw of 6.4 and an epicentral distance of 46 miles from the Project.

The maximum credible event (MCE) is defined by EFSC as the maximum earthquake that could occur under the known tectonic framework with a 2 percent chance of being exceeded in a 50-year period (2475-year event). The USGS National Seismic Mapping Project (2002) reports that the MCE is equivalent to an earthquake that has a magnitude, Mw of 6.2 and an epicentral distance of 22 miles from the Project.

The USGS's National Seismic Mapping Project also provides probabilistic response spectra for the 500- and 2500-year return period events based on latitude and longitude. Figures H-5 through H-8 show the probabilistic and geographic seismic hazard deaggregations for the 500-year and 2500-year return period earthquake events.

The table below summarizes the computed horizontal peak ground accelerations (PGA) for the three design earthquakes and the maximum probable earthquake (MPE). The attenuation equation of Crouse (1991) was used to compute the site response for the two postulated CSZ events. We used the attenuation equation of Boore (1997) to compute the site response for the local crustal event.

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Earthquake Event	Moment Magnitude	Focal Depth (miles)	Epicentral Distance (miles)	PGA(g)
CSZ Interplate	9.0	15	175	0.12
CSZ Intraplate	7.5	30	120	0.08
MCE	6.2		22	0.19
MPE	6.4		46	0.09

Notes:

PGA=peak ground acceleration

g=equals acceleration of gravity=32.2 ft/sec²

H.7.2 Recorded Earthquakes

Tables H-1 and H-2 provide a list of recorded earthquakes within 50 miles of the Project and greater than 50 miles from the Project that caused ground shaking at the Project, respectively, more intense than the Modified Mercalli (MM) III intensity. Table H-1 shows that recorded earthquakes within 50 miles of the Project generally consist of small events with no apparent pattern or regular recurrence interval.

H.7.3 Median Ground Response Spectrum

Figure H-9 shows a plot of the response spectra for the earthquakes from each of the three mechanisms capable of causing ground shaking at the Project. The response spectra were computed for the ground surface and include the effects of amplification from the project soils. Figure H-9 shows that the IBC design response spectra for a Class B soil profile envelopes the spectra for the MPE, local crust fault earthquake, and deep Cascadia subduction earthquake. At response periods longer than about 0.5 seconds, the response spectra for the magnitude 9 shallow Cascadia subduction earthquake exceeds the IBC response spectra. We recommend that the proposed wind turbine facilities be designed for the response spectra shown in Figure H-9.

H.7.4 Seismic Hazards Expected to Result from Seismic Events

The Project is categorized as IBC Seismic Design Category "B" for a type B soil profile with respect to the design spectral response. Structures designed for this seismic load coefficient should experience only minor damage, and pose a minimal risk to human safety, in the event of a 2,500-year return period earthquake.

An earthquake exceeding the 2,500-year event may cause ground shaking accelerations exceeding the structures' resisting capacity. In this case, the structures may experience significant damage and could lead to enhanced risk to human safety. If the structures are expected to experience only minor damage in the event of an earthquake exceeding the 2,500-year return period should be designed for the maximum ground motion response spectra resulting from the IBC design spectra for short periods, and CSZ earthquake spectra for longer periods, shown in Figure H-9.

The site topography generally consists of rolling hills, with shallow bedrock depths and a deep groundwater table. Therefore, the risks of landslides, lateral spreading, liquefaction settlement, and subsidence at the Project are relatively low. The site is located well above the nearby Columbia River, so there is essentially no risk for damage from flooding or tsunami.

H.8 NON-SEISMIC GEOLOGIC HAZARDS

OAR 345-021-0010(1)(h)(G) An assessment of soil-related hazards such as landslides, flooding and erosion which could, in the absence of a seismic event, adversely affect or be aggravated by the construction or operation of the facility.

Response:

The assessment of the potential for non-seismic geologic hazards at the Project was based on review of geologic maps and literature, aerial photos, and a detailed site reconnaissance, as described in Section H.3.2.

Based on work conducted to date, no gross indicators of significant existing, historic, and ancient geologic or /soil stability hazards were observed during the review and site reconnaissance of the project area.

Most slopes within the Project boundaries are gentle rolling hills consisting of basalt with a relatively thin veneer of wind blown silts, which are generally not susceptible slope stability failures at native slope angles. Steeper and near vertical slopes within the project area are basalt outcrops that show no signs of instability other than rock falls. Road cuts in the surficial loess deposits show signs of minor erosion at slopes greater than about 50% and minor sloughing at slopes greater than about 100%. Cuts in basalt bedrock were normally very steep (i.e., near or greater than about 100%) and only show minor to moderate rock falls.

With thick basalt bedrock at very shallow depths throughout the Project, the likelihood of deep seated slope failures is also very low.

The proposed wind turbine sites are not located on or near unstable slopes that would pose a significant risk of ground movement or other geologic hazards. In addition the wind turbine corridors and major structures will be constructed with sufficient setbacks from all steeper slopes to minimize the potential for creating marginally stable conditions.

Based on the work conducted to date, the proposed Project can be constructed without adversely affecting slope stability provided that the geotechnical design study addresses site grading, cut/fill slope stability, surface water drainage, erosion control, and other measures that mitigate potential impacts derived from development of the Project. The geotechnical design study will occur prior to final design and construction.

The project site is situated above regional flood elevation for the area. Consequently, flooding is not considered a potential hazard. However, localized flooding and erosion,

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derived from flash floods during extreme rainfall events, may be an isolated hazard in drainageways.

H.9 SEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(H) An explanation of how the applicant will design, engineer and construct the facility to avoid dangers to human safety from the seismic hazards identified in paragraph (F). The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring for seismic hazards.

Response:

The OSSC uses the 2006 IBC, with current amendments by the state of Oregon and local agencies. Pertinent design codes as they relate to geology, seismicity, and near-surface soil are contained in IBC Section 1613, with slight modifications by the current amendments of the state of Oregon and local agencies. The Project will be designed to meet or exceed these minimum standards. Additionally, a detailed geologic hazard assessment has been performed for the Project. Although there are no known active, historic, or ancient landslides within the project area, the proposed wind turbines and other major project improvements appear to have been sited to avoid potential geologic hazard areas that could become destabilized by a seismic event. Additionally, the information collected during the geotechnical design investigation (including explorations) of the Project will be used to design and construct proposed project improvements to mitigate potential hazards that could be created during a seismic event.

H.10 NON-SEISMIC HAZARD MITIGATION

OAR 345-021-0010(1)(h)(I) An explanation of how the applicant will design, engineer and construct the facility to adequately avoid dangers to human safety presented by the hazards identified in paragraph (G).

Response:

A detailed geologic hazards evaluation has been performed. Although there are no known active, historic, or ancient landslides within the project area, the proposed wind turbines and other major project improvements appear to have been sited to avoid potential geologic hazard areas. In addition, most of the turbine corridors, transmission line alignment, and major structures will be located atop ridges where no significant site grading will be required. Also, the results of the geotechnical design investigation will include recommendations for properly engineered temporary and permanent fill and cut slopes.

The Project will be subject to a Stormwater General Permit 1200-C, issued by the Oregon Department of Environmental Quality, and its Erosion and Sediment Control Plan. Surface water drainage provisions, including gravel-lined drainage ditches, culverts, and waterbars will also be included for short- and long-term surface water control.

Erosion control measures to be employed during construction include:

- Installing sediment fence/straw bale barriers at downslope sides of excavations and disturbed areas.
- Straw mulching and discing at locations adjacent to roads that could be affected.
- Providing temporary sediment traps downstream of intermittent stream crossings.
- Planting designated seed mixes at affected areas adjacent to roads.

Areas that are affected by construction will be seeded when there is adequate soil moisture. They will be reseeded in the spring if a healthy cover crop does not grow. The sediment fences and check dams will remain in place until the affected areas are well vegetated.

Whenever feasible, roadways will be constructed so that surface drainage coincides with natural drainage patterns, so diversions through ditches and culverts are minimized. Surface water will be diverted into natural drainage paths via drainage ditches. Regular maintenance of drainage facilities will ensure continued proper operation.

Project facilities will be located to avoid potential landslide hazards, and new slopes will be designed with adequate safety factors against failure. All structures will be constructed with sufficient setbacks from slopes to mitigate any landslide hazards related to their construction.

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Year Month Day Latitude Longitude Magnitude 1872 12 15 47.90 -120.30 7 1873 11 23 42.00 -124.00 6.7 1891 3 8 47.50 -121.50 5 1892 2 4 45.50 -122.70 5 1893 3 7 45.90 -119.30 4.7 1896 4 2 45.20 -123.20 5 1906 4 23 41.00 -124.00 6.4 1909 1 11 49.00 -122.70 6 1915 8 18 48.50 -121.40 5.6 1932 7 18 47.75 -121.83 5.2 1936 7 16 45.97 -118.21 5.7 1939 11 13 47.50 -122.50 5.7 1944 7 12 44.41 <	4 4 4 4 4 4 4 4 4
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Year	Month	Day	Latitude	Longitude	Magnitude	Estimated MM Intensity at Site
1989	12	24	46.65	-122.12	5.1	4
1989	12	24	46.65	-122.12	5.1	4
1989	9	15	45.37	-121.71	3.5	4
1990	10	19	45.34	-121.69	3.5	4
1991	4	20	45.35	-120.14	2.8	4
1991	7	13	42.18	-125.64	6.9	4
1991	8	17	41.82	-125.40	7.1	4
1992	8	7	45.86	-119.59	3.9	4
1993	12	18	45.25	-120.11	3.1	4
1993	3	25	45.03	-122.61	5.7	4
1993	9	21	42.36	-122.04	6	4
1993	9	21	42.31	-122.01	6	4
1994	11	17	45.70	-120.18	2.7	4
1994	9	22	45.69	-120.16	2.9	4
1994	4	13	45.14	-120.85	2.8	4
1995	1	29	47.39	-122.36	5.1	4
1996	5	3	47.76	-121.88	5.5	4
1997	9	10	45.65	-120.20	2.7	4
1997	8	17	45.65	-120.19	2.8	4
1997	11	11	45.85	-120.57	2.8	4
1997	10	13	46.10	-120.36	3.3	4
1997	11	18	46.14	-120.46	3.3	4
1997	3	23	45.20	-120.07	3.4	4
1997	11	18	46.14	-120.47	3.8	4
1997	3	22	45.19	-120.07	3.9	4
1997	4	17	45.19	-120.08	3.2	4
1998	4	28	45.26	-120.28	2.7	4
1998	2	3	45.81	-120.20	3.1	4
1998	10	9	46.20	-120.71	4	4
1998	11	1	45.10	-120.83	2.9	4
1999	7	3	47.08	-123.46	5.8	4
1999	8	31	45.19	-120.09	3.2	4
2000	8	17	45.31	-120.04	3.2	4
2000	1	30	45.19	-120.10	3.4	4
2000	2	1	45.19	-120.11	3.6	4
2000	1	30	45.20	-120.12	4.1	4
2000	1	20	43.65	-127.26	6.4	4
2001	2	28	47.15	-122.73	6.8	4
2002	1	31	45.69	-120.17	2.7	4
2002	6	29	45.34	-121.68	3.8	4
2002	6	29	45.33	-121.69	4.5	4
2006	10	8	46.85	-121.60	4.7	4
2007	1	4	45.12	-120.94	3	4
2007	1	20	45.12	-120.94	3	4
2007	4	8	45.13	-120.94	3.1	4
2007	3	1	45.12	-120.93	3.6	4
2007	2	13	45.12	-120.94	2.9	4

Year Month Day Latitude Longitude Magnitude Estmated MM Intensity at Site 1980 5 16 46.21 -122.18 4.3 4 1980 3 22 46.21 -122.19 4.3 4 1990 4 11 46.21 -122.19 4.3 4 1980 5 2 46.22 -122.17 4.3 4 1980 5 8 46.22 -122.17 4.3 4 1980 5 8 46.22 -122.17 4.3 4 1980 5 8 46.22 -122.18 4.3 4 1980 4 12 46.22 -122.18 4.3 4 1980 4 12 46.22 -122.18 4.3 4 1980 4 16 46.22 -122.18 4.3 4 1980 4 16 46.22 -122.19 4.3 4 <th></th> <th></th> <th></th> <th></th> <th></th> <th></th> <th></th>							
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1980 4 16 46.22 -122.18 4.3 4 1980 3 26 46.22 -122.19 4.3 4 1980 3 30 46.22 -122.19 4.3 4 1980 4 6 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 4 19 46.22 -122.19 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980	1980	4	12	46.22	-122.18	4.3	4
1980 3 26 46.22 -122.19 4.3 4 1980 3 30 46.22 -122.19 4.3 4 1980 4 6 46.22 -122.19 4.3 4 1980 4 17 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.17 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980	1980	4	12	46.22	-122.18	4.3	4
1980 3 30 46.22 -122.19 4.3 4 1980 4 6 46.22 -122.19 4.3 4 1980 4 17 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 5 1 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980	1980	4	16	46.22	-122.18	4.3	4
1980 4 6 46.22 -122.19 4.3 4 1980 4 17 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 8 46.21 -122.17 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980	1980	3	26	46.22	-122.19	4.3	4
1980 4 17 46.22 -122.19 4.3 4 1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 5 1 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.3 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980	1980	3	30	46.22	-122.19	4.3	4
1980 4 18 46.22 -122.19 4.3 4 1980 4 29 46.22 -122.19 4.3 4 1980 5 1 46.22 -122.17 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980	1980	4	6	46.22	-122.19	4.3	4
1980 4 29 46.22 -122.19 4.3 4 1980 5 1 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.18 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980	1980	4	17	46.22	-122.19	4.3	4
1980 4 29 46.22 -122.19 4.3 4 1980 5 1 46.22 -122.19 4.3 4 1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.23 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980	1980	4	18	46.22		4.3	4
1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980	1980	4	29	46.22	-122.19	4.3	4
1980 4 5 46.23 -122.17 4.3 4 1980 4 19 46.23 -122.17 4.3 4 1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.18 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.18 4.4 4 1980	1980	5	1	46.22	-122.19	4.3	4
1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980	1980	4	5	46.23		4.3	4
1980 4 4 46.13 -122.03 4.4 4 1980 4 8 46.21 -122.17 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980	1980	4	19	46.23	-122.17	4.3	4
1980 4 8 46.21 -122.17 4.4 4 1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 5 46.22 -122.17 4.4 4 1980 5 5 5 46.22 -122.18 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 </td <td></td> <td>4</td> <td></td> <td></td> <td></td> <td></td> <td>4</td>		4					4
1980 5 5 46.21 -122.18 4.4 4 1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.18 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980		4	8				4
1980 4 8 46.21 -122.19 4.4 4 1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.18 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 21 46.11 -122.17 4.5 4		5				4.4	
1980 4 10 46.22 -122.17 4.4 4 1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980		4	8			4.4	4
1980 4 14 46.22 -122.17 4.4 4 1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980		4					4
1980 5 5 46.22 -122.17 4.4 4 1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.18 4.5 4 1980		4	14				4
1980 4 5 46.22 -122.18 4.4 4 1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980	1980	5	5	46.22	-122.17	4.4	4
1980 4 21 46.22 -122.18 4.4 4 1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980	1980	4	5	46.22	-122.18	4.4	4
1980 5 16 46.22 -122.18 4.4 4 1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980	1980	4	21	46.22		4.4	4
1980 3 30 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980		5	16			4.4	4
1980 3 31 46.22 -122.19 4.4 4 1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980		3	30			4.4	4
1980 3 31 46.22 -122.19 4.4 4 1980 4 4 46.22 -122.21 4.4 4 1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980							
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1980 5 10 46.35 -122.03 4.4 4 1980 4 21 46.11 -122.17 4.5 4 1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980	1980	4	4	46.22	-122.21	4.4	4
1980 4 21 46.11 -122.17 4.5 4 1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980 4 15 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.19 4.5 4	1980	5	10	46.35	-122.03	4.4	4
1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980 4 15 46.22 -122.2 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.18 4.5 4	1980	4	21	46.11	-122.17	4.5	
1980 3 31 46.19 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980 4 15 46.22 -122.2 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.18 4.5 4	1980	4	21	46.11	-122.17	4.5	4
1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980 4 15 46.22 -122.2 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.19 4.5 4	1980	3	31	46.19	-122.18	4.5	4
1980 5 3 46.21 -122.18 4.5 4 1980 4 4 46.21 -122.18 4.5 4 1980 5 3 46.21 -122.18 4.5 4 1980 3 30 46.22 -122.18 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 4 18 46.22 -122.18 4.5 4 1980 4 15 46.22 -122.2 4.5 4 1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.19 4.5 4							
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1980 4 1 46.22 -122.18 4.5 4 1980 5 3 46.23 -122.19 4.5 4							
1980 5 3 46.23 -122.19 4.5 4							
						4.5	4

						Estimated MM
						Intensity at
Year	Month	Day	Latitude	Longitude	Magnitude	Site
1980	4	1	46.21	-122.19	4.6	4
1980	3	30	46.21	-122.18	4.6	4
1980	4	18	46.21	-122.18	4.6	4
1980	3	31	46.21	-122.19	4.6	4
1980	4	1	46.21	-122.19	4.6	4
1980	5	5	46.22	-122.17	4.6	4
1980	5	6	46.22	-122.17	4.6	4
1980	5	9	46.22	-122.17	4.6	4
1980	5	14	46.22	-122.17	4.6	4
1980	4	7	46.22	-122.18	4.6	4
1980	4	22	46.22	-122.18	4.6	4
1980	4	27	46.22	-122.18	4.6	4
1980	4	28	46.22	-122.18	4.6	4
1980	3	31	46.22	-122.19	4.6	4
1980	3	27	46.22	-122.2	4.6	4
1980	5	5	46.22	-122.17	4.6	4
1980	5	9	46.22	-122.17	4.6	4
1980	5	14	46.22	-122.17	4.6	4
1980	4	7	46.22	-122.18	4.6	4
1980	4	22	46.22	-122.18	4.6	4
1980	4	27	46.22	-122.18	4.6	4
1980	4	28	46.22	-122.18	4.6	4
1980	3	27	46.22	-122.2	4.6	4
1980	5	4	46.23	-122.18	4.6	4
1980	5	2	46.23	-122.2	4.6	4
1980	5	4	46.23	-122.18	4.6	4
1980	5	2	46.23	-122.2	4.6	4
1980	5	12	46.25	-122.31	4.6	4
1980	5	12	46.25	-122.31	4.6	4
1980	4	18	46.21	-122.18	4.7	4
1980	4	15	46.21	-122.2	4.7	4
1980	4	29	46.22	-122.17	4.7	4
1980	5	11	46.22	-122.17	4.7	4
1980	5	16	46.22	-122.17	4.7	4
1980	4	10	46.22	-122.18	4.7	4
1980	4	13	46.22	-122.18	4.7	4
1980	4	17	46.22	-122.18	4.7	4
1980	4	18	46.22	-122.18	4.7	4
1980	4	8	46.22	-122.19	4.7	4
1980	4	14	46.22	-122.19	4.7	4
1980	5	7	46.22	-122.19	4.7	4
1980	<u>4</u> 5	29 11	46.22	-122.17	4.7	4
1980	5		46.22 46.22	-122.17	4.7	4
1980	4	16		-122.17	4.7	4
1980	4	10 13	46.22	-122.18	4.7	4
1980 1980	4	17	46.22 46.22	-122.18 -122.18	4.7	4
1980	4	8	46.22	-122.18 -122.19	4.7 4.7	4
	4	14			4.7	4
1980	4	14	46.22	-122.19	4./	4

						Estimated MM
Year	Month	Day	Latitude	Longitude	Magnitude	Intensity at Site
1980	5	7	46.22	-122.19	4.7	4
1980	4	11	46.23	-122.17	4.7	4
1980	4	10	46.23	-122.18	4.7	4
1980	4	19	46.23	-122.18	4.7	4
1980	4	6	46.23	-122.19	4.7	4
1980	4	29	46.23	-122.19	4.7	4
1980	4	10	46.23	-122.18	4.7	4
1980	4	19	46.23	-122.18	4.7	4
1980	4	6	46.23	-122.19	4.7	4
1980	4	29	46.23	-122.19	4.7	4
1980	4	23	46.26	-122.01	4.7	4
1980	4	23	46.26	-122.01	4.7	4
1980	5	6	46.36	-122.08	4.7	4
1980	5	6	46.36	-122.08	4.7	4
1980	4	9	46.2	-122.2	4.8	4
1980	4	3	46.21	-122.19	4.8	4
1980	4	11	46.22	-122.16	4.8	4
1980	4	16	46.22	-122.17	4.8	4
1980	4	30	46.22	-122.17	4.8	4
1980	5	9	46.22	-122.17	4.8	4
1980	4	1	46.22	-122.18	4.8	4
1980	4	2	46.22	-122.18	4.8	4
1980	4	18	46.22	-122.18	4.8	4
1980	4	20	46.22	-122.18	4.8	4
1980	4	24	46.22	-122.18	4.8	4
1980	4	11	46.22	-122.16	4.8	4
1980	4	16	46.22	-122.17	4.8	4
1980	4	30	46.22	-122.17	4.8	4
1980	5	9	46.22	-122.17	4.8	4
1980	4	2	46.22	-122.18	4.8	4
1980	4	18	46.22	-122.18	4.8	4
1980	4	20	46.22	-122.18	4.8	4
1980	4	24	46.22	-122.18	4.8	4
1980	4	3	46.23	-122.17	4.8	4
1980	4	3	46.23	-122.17	4.8	4
1980	5	15	46.21	-122.19	4.9	4
1980	4	1	46.21	-122.18	4.9	4
1980	5	15	46.21	-122.19	4.9	4
1980	4	9	46.22	-122.15	4.9	4
1980	4	15	46.22	-122.18	4.9	4
1980	4	16	46.22	-122.18	4.9	4
1980	5	12	46.22	-122.18	4.9	4
1980	4	9	46.22	-122.15	4.9	4
1980	4	15	46.22	-122.18	4.9	4
1980	4	16	46.22	-122.18	4.9	4
1980	5	12	46.22	-122.18	4.9	4
1980	4	5 7	46.23	-122.19	4.9	4
1980			46.23	-122.21	4.9	
1980	4	5	46.23	-122.19	4.9	4

Year	Month	Day	Latitude	Longitude	Magnitude	Estimated MM Intensity at Site
1980	4	7	46.23	-122.21	4.9	4
1980	4	1	46.22	-122.18	5	4
1980	4	1	46.22	-122.18	5	4
1980	5	8	46.23	-122.17	5	4
1980	4	3	46.23	-122.22	5	4
1980	5	8	46.23	-122.17	5	4
1980	4	3	46.23	-122.22	5	4
1980	4	25	46.26	-122.18	5	4
1980	4	25	46.26	-122.18	5	4
1980	5	18	46.21	-122.19	5.2	4
1980	5	18	46.21	-122.19	5.2	4
1980	4	14	46.21	-122.19	5.3	4
1980	4	14	46.21	-122.19	5.3	4
1980	5	1	46.21	-122.18	4.3	4

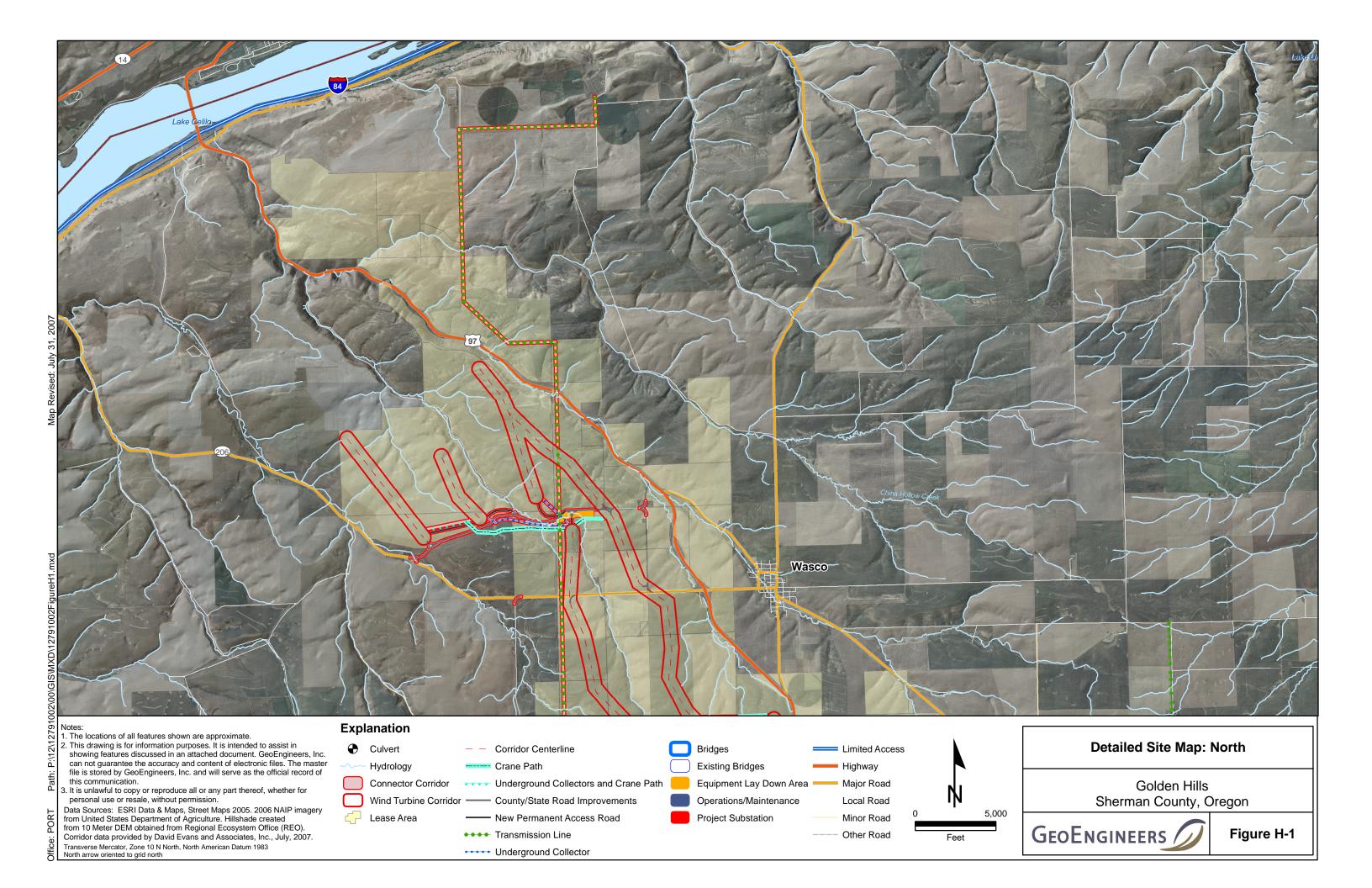
Table H-2: Earthquakes Greater than 50 Miles Causing Ground Shaking >MM-III

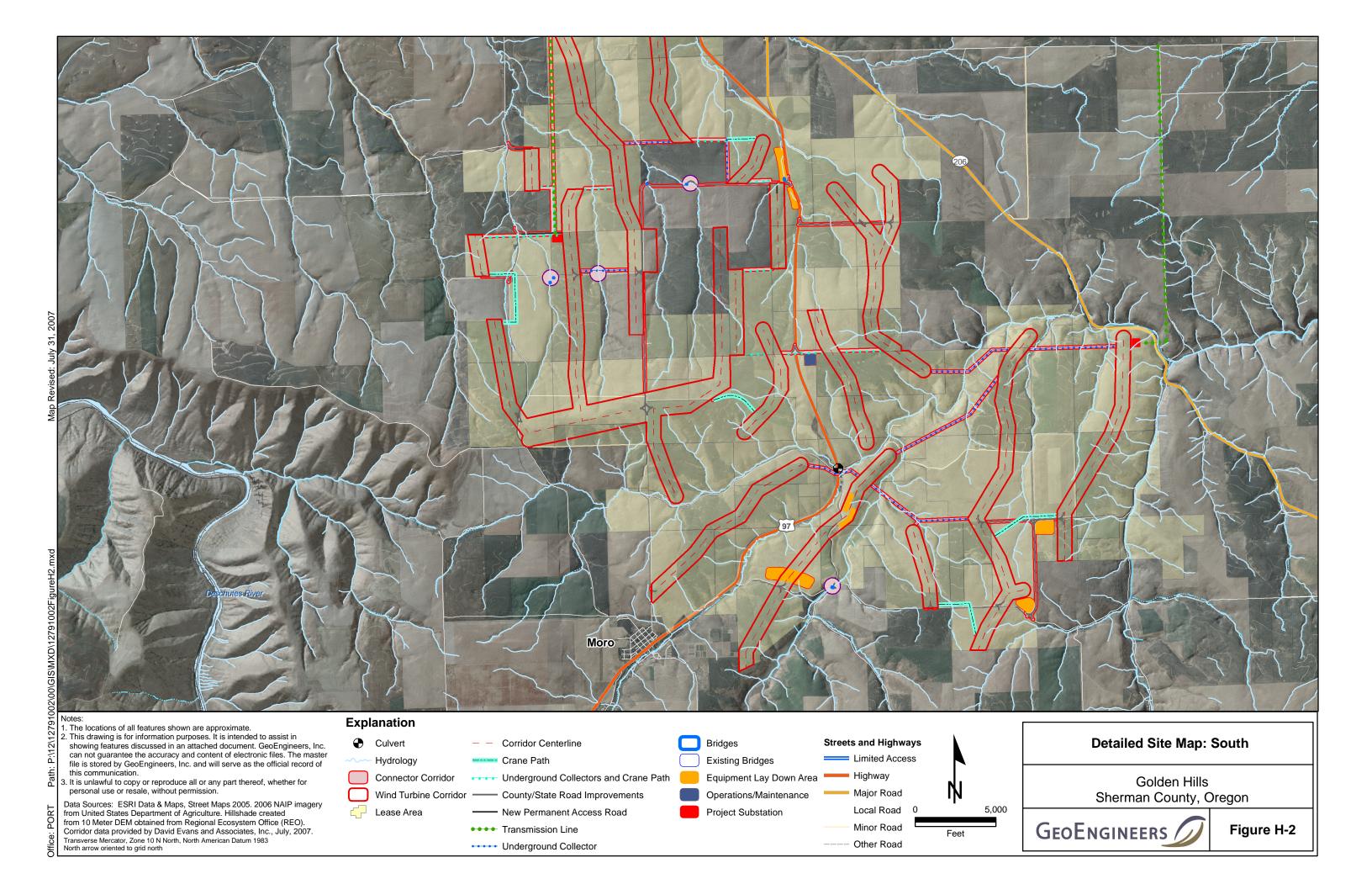
						Estimated MM Intensity
Year	Month	Day	Latitude	Longitude	Magnitude	at Site
1872	12	15	47.9	-120.3	7	4
1873	11	23	42	-124	6.7	4
1891	3	8	47.5	-121.5	5	4
1892	2	4	45.5	-122.7	5	4
1893	3	7	45.9	-119.3	4.7	4
1896	4	2	45.2	-123.2	5	4
1906	4	23	41	-124	6.4	4
1909	1	11	49	-122.7	6	4
1915	8	18	48.5	-121.4	5.6	4
1932	7	18	47.75	-121.83	5.2	4
1936	7	16	45.97	-118.21	5.7	4
1939	11	13	47.5	-122.5	5.7	4
1944	7	12	44.41	-115.06	6.1	4
1945	4	29	47.4	-121.7	5.5	4
1946	6	23	49.76	-125.34	7.3	4
1946	2	15	47.4	-122.67	5.7	4
1949	4	13	47.17	-122.62	6.9	4
1953	12	16	45.5	-122.7	5	4
1954	12	21	40.78	-124.17	6.5	4
1959	11	23	46.67	-121.75	4.8	4
1959	8	4	45.68	-122.27	4.7	4
1961	9	16	46.01	-122.13	4.8	4
1961	9	17	46.02	-122.12	5.1	4
1961	11	7	45.7	-122.4	4.5	4
1962	11	6	45.64	-122.59	5.2	4
1965	4	29	47.4	-122.3	6.7	4
1973	12	20	46.94	-119.25	4.8	4
1974	4	20	46.76	-121.52	4.9	4
1974	4	20	46.76	-121.52	4.9	4
1974	12	13	45.26	-121.6	4.1	4
1975	7	1	45.63	-120	3.5	4
1976	4	13	45.22	-120.77	4.8	4
1976	4	13	45.22	-120.77	4.8	4
1976	4	17	45.08	-120.8	4.2	4

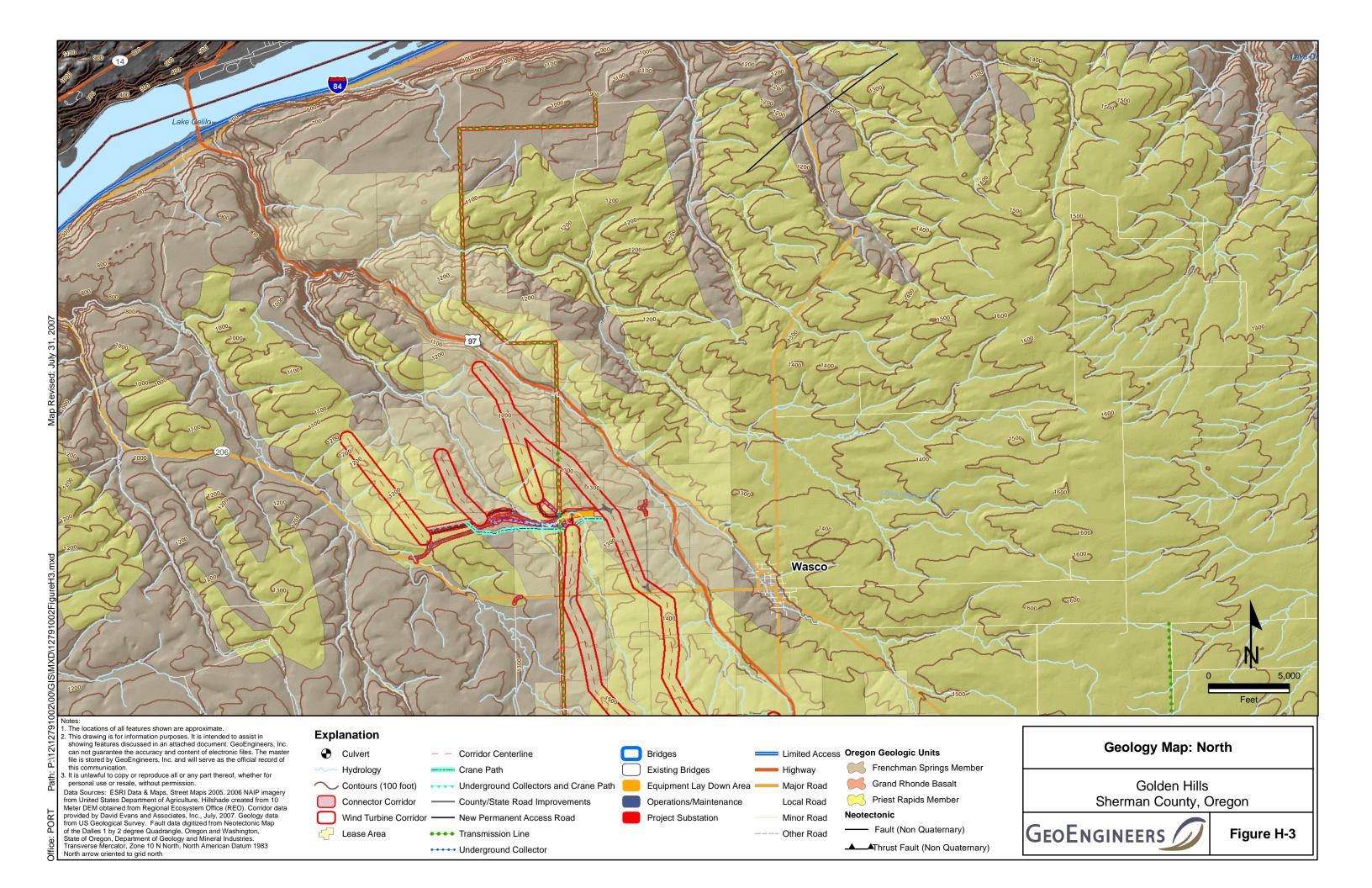
				, .		Estimated MM Intensity
Year	Month	Day	Latitude	Longitude	Magnitude	at Site
1980	11	8	41.12	-124.25	7.2	4
1980	11	8	41.12	-124.25	7.2	4
1981	2	2	46.28	-120.88	4	4
1981	5	28	46.53	-121.42	4.3	4
1981	2	14	46.35	-122.25	4.6	4
1981	5	28	46.53	-121.41	4.8	4
1981	2	14	46.35	-122.24	5.5	4
1981	2	14	46.35	-122.24	5.5	4
1981	6	14	45.95	-120.49	3.1	4
1983	10	28	44.06	-113.86	7.3	4
1983	10	28	43.97	-113.92	7.3	4
1985	2	10	45.86	-119.64	3.7	4
1987	12	2	46.68	-120.67	4.3	4
1988	9	29	45.85	-120.26	3.5	4
1989	3	27	45.82	-120.26	3.1	4
1989	12	24	46.65	-122.12	5.1	4
1989	12	24	46.65	-122.12	5.1	4
1989	9	15	45.37	-121.71	3.5	4
1990	10	19	45.34	-121.69	3.5	4
1991	4	20	45.35	-120.14	2.8	4
1991	7	13	42.18	-125.64	6.9	4
1991	8	17	41.82	-125.4	7.1	4
1992	8	7	45.86	-119.59	3.9	4
1993	12	18	45.25	-120.11	3.1	4
1993	3	25	45.03	-122.61	5.7	4
1993	9	21	42.36	-122.04	6	4
1993	9	21	42.31	-122.01	6	4
1994	11	17	45.7	-120.18	2.7	4
1994	9	22	45.69	-120.16	2.9	4
1994	4	13	45.14	-120.85	2.8	4
1995	1	29	47.39	-122.36	5.1	4
1996	5	3	47.76	-121.88	5.5	4
1997	9	10	45.65	-120.2	2.7	4
1997	8	17	45.65	-120.19	2.8	4
1997	11	11	45.85	-120.57	2.8	4

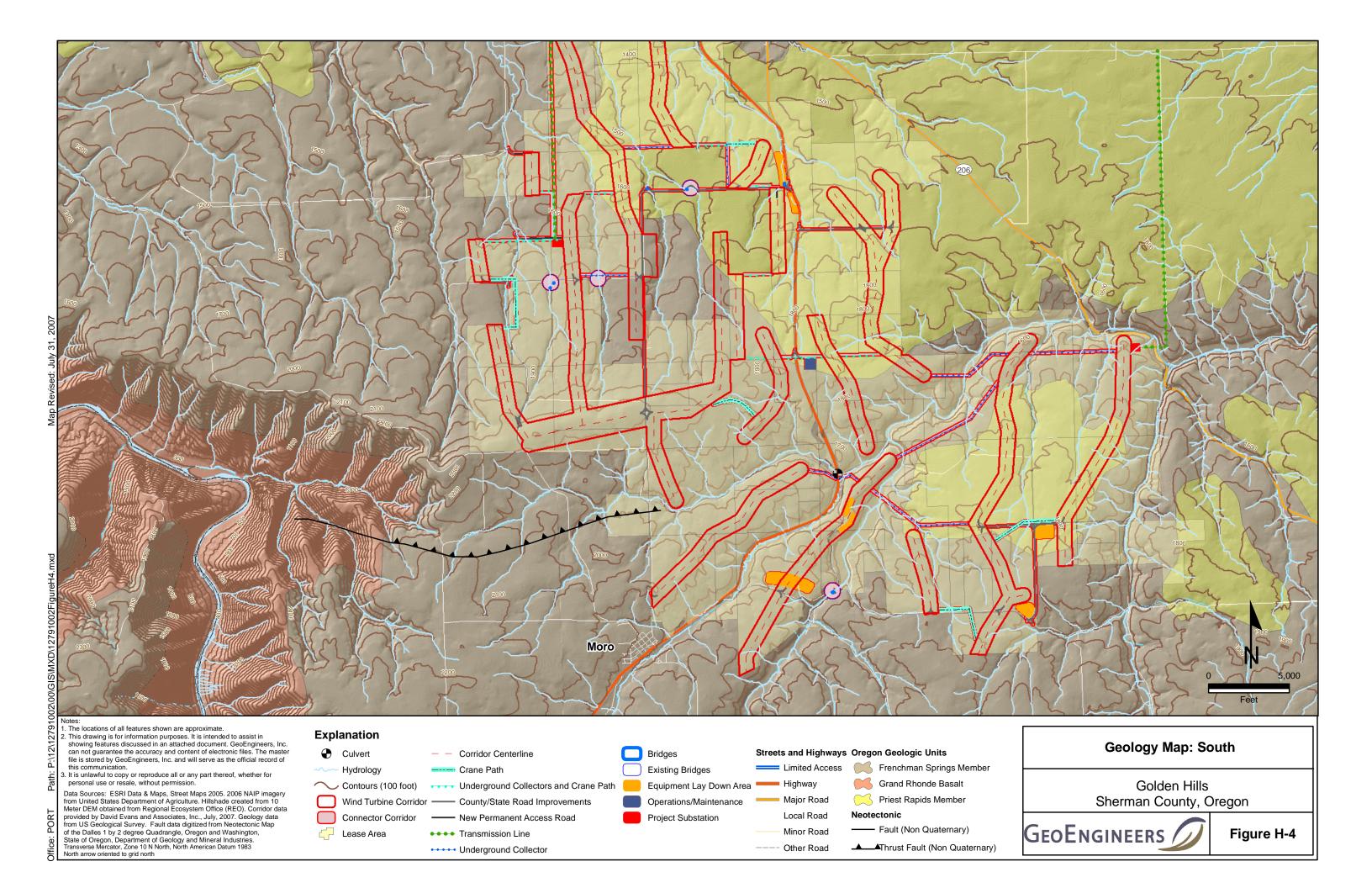
Year	Month	Day	Latitude	Longitude	Magnitude	Estimated MM Intensity at Site
1997	10	13	46.1	-120.36	3.3	4
1997	11	18	46.14	-120.46	3.3	4
1997	3	23	45.2	-120.07	3.4	4
1997	11	18	46.14	-120.47	3.8	4
1997	3	22	45.19	-120.07	3.9	4
1997	4	17	45.19	-120.08	3.2	4
1998	4	28	45.26	-120.28	2.7	4
1998	2	3	45.81	-120.2	3.1	4
1998	10	9	46.2	-120.71	4	4
1998	11	1	45.1	-120.83	2.9	4
1999	7	3	47.08	-123.46	5.8	4
1999	8	31	45.19	-120.09	3.2	4
2000	8	17	45.31	-120.04	3.2	4
2000	1	30	45.19	-120.1	3.4	4
2000	2	1	45.19	-120.11	3.6	4
2000	1	30	45.2	-120.12	4.1	4
2000	1	20	43.65	-127.26	6.4	4
2001	2	28	47.15	-122.73	6.8	4
2002	1	31	45.69	-120.17	2.7	4
2002	6	29	45.34	-121.68	3.8	4
2002	6	29	45.33	-121.69	4.5	4
2006	10	8	46.85	-121.6	4.7	4
2007	1	4	45.12	-120.94	3	4
2007	1	20	45.12	-120.94	3	4
2007	4	8	45.13	-120.94	3.1	4
2007	3	1	45.12	-120.93	3.6	4
2007	2	13	45.12	-120.94	2.9	4

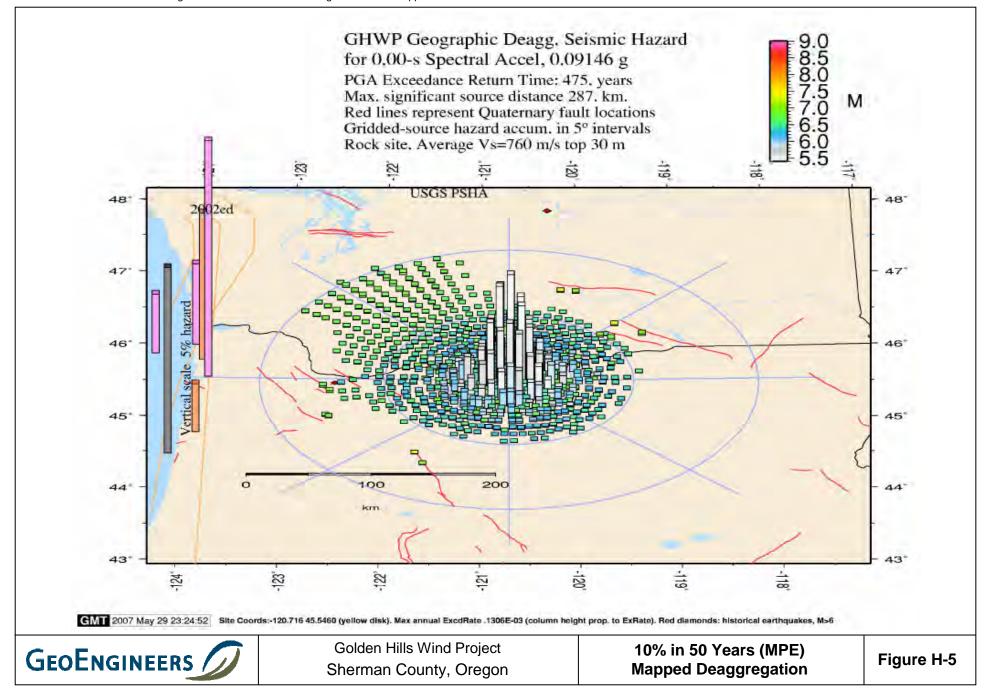
Note: Earthquakes associated with the 1980 Mount Saint Helens eruption have been removed from this table.

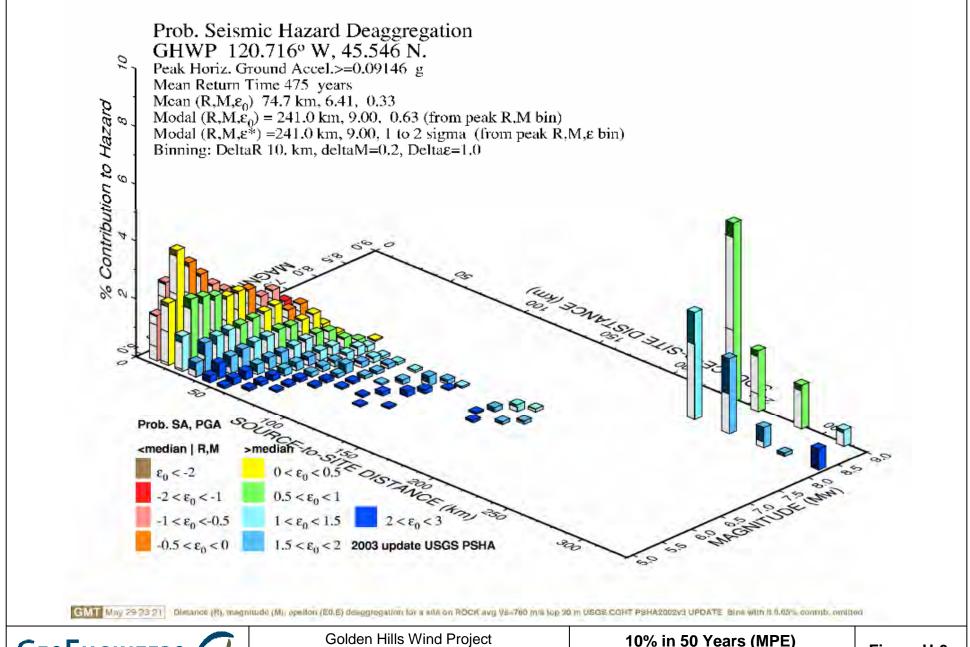


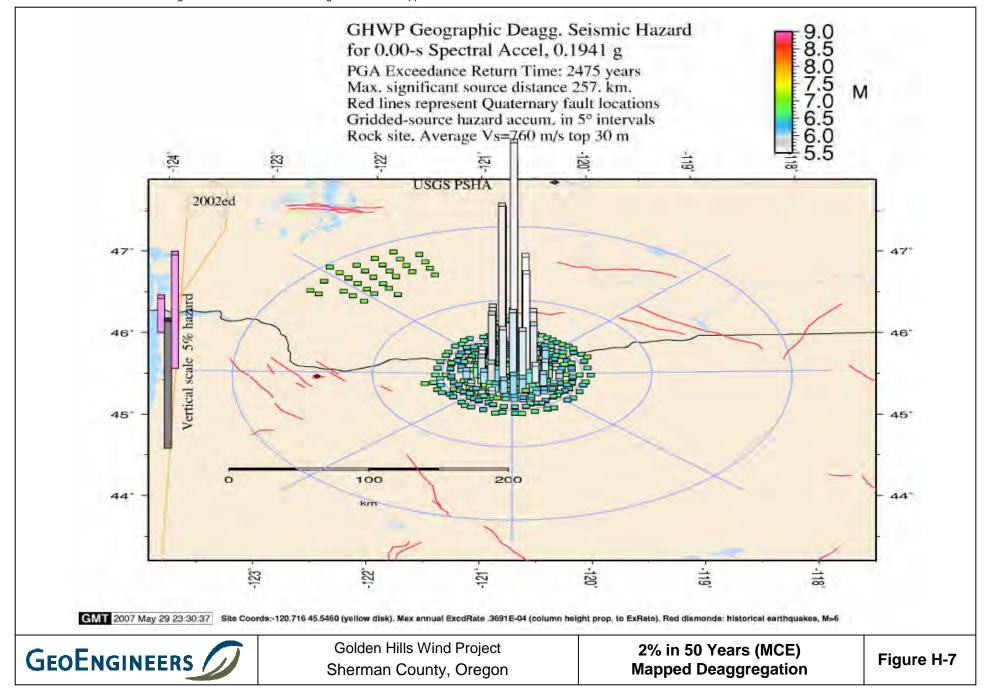


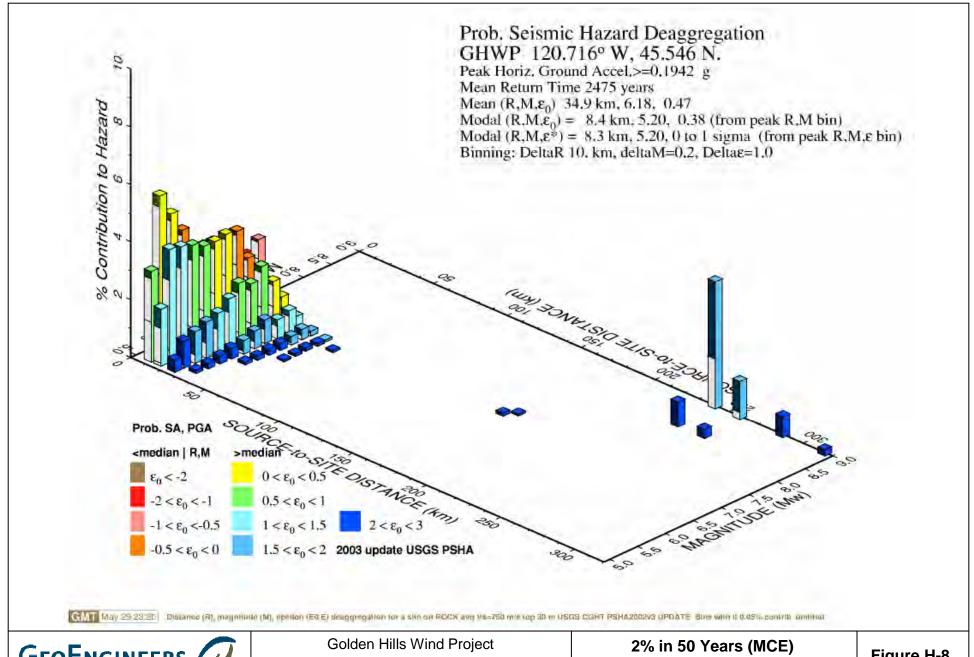












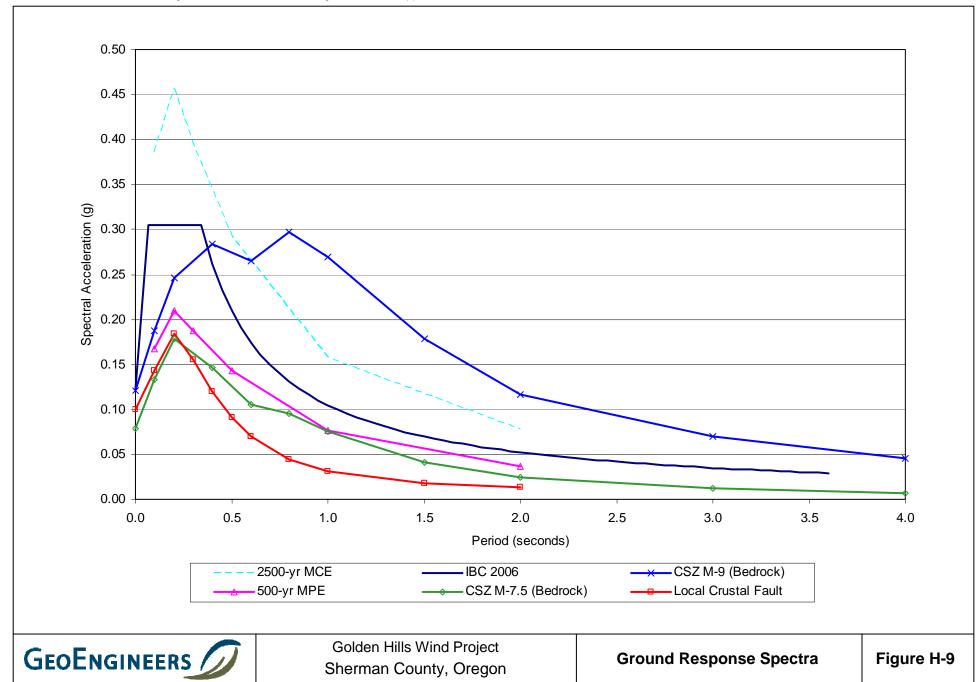


EXHIBIT I

SOILS

OAR 345-021-0010(1)(i)

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I.3	IDENTIFICATION AND DESCRIPTION OF LAND USES	I-2
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I.6	MONITORING PROGRAM	I-3

ATTACHMENT

I-1 NPDES Permit Application

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I.1 INTRODUCTION

OAR 345-021-0010(1)(i) *Information from reasonably available sources regarding soil conditions and uses in the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0022, including:*

I.2 IDENTIFICATION AND DESCRIPTION OF SOIL TYPES

OAR-345-021-0010(1)(i)(A) *Identification and description of the major soil types in the analysis area.*

Response: The near surface soils at the project site and in its vicinity were identified using the U.S. Natural Resources Conservation Service (NRCS) Soil Survey of Sherman County, Oregon (NRCS, 1999). The soils in the project area are grouped into five General Soil Units(GSU) – Walla Walla-Anderly, Wato Anders, Wrentham-Lickskillet-Rock Outcrop, Lickskillet-Nansene, and Mikkalo-Ritzville. Each of these general soil units is comprised of several soil series units, which are mapped at a greater level of detail but share relatively similar spatial coverage and engineering properties as the more General Soil Unit. Figure J-5 of Exhibit J shows the soil series map and Table I-1 provides a list of soil series within the project site and vicinity.

The Walla Walla-Anderly series soils are extensive on mesas in the north-central part of Sherman County in mostly flat and gently sloping areas. They have formed from loess over basalt in a 12- to 13-inch precipitation zone. This GSU is approximately 73 percent Walla Walla soils and 22 percent Anderly soils. The rest is soils of minor extent. Walla Walla soils are very deep or deep and are well drained. The surface layer is very dark brown silt loam. The subsoil is dark brown silt loam. Anderly soils are moderately deep and well drained. The surface layer is very dark grayish brown silt loam. The subsoil is dark brown silt loam. Of minor extent in this unit are very deep Endersby soils on terraces, very deep Hermiston soils on flood plains, and shallow Kuhl soils on north-facing canyonsides. The soils in this unit are used mainly for wheat, barley, alfalfa hay, and as pasture. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat (NRCS, 1999).

The Wato Anders series soil are extensive on mesas in the northwestern part of Sherman County in gently sloping and steep areas. They have formed from loess over basalt in a 12- to 13- inch precipitation zone. This GSU is approximately 82 percent Wato soils and 10 percent Anders soils. The rest is soils of minor extent. Wato soils are very deep and well drained. The surface layer is very dark brown very fine sandy loam. The subsoil is dark brown very fine sandy loam. Anders soils are moderately deep and well drained. The surface layer is very dark grayish brown very fine sandy loam. The subsoil is dark brown very fine sandy loam, silt loam, or gravelly silt loam. Of minor extent in this unit are very deep Quincy soils on dunes and terraces adjacent to the Columbia River and its tributaries. The soils in this unit are used mainly for wheat and barley grown in a grain-summer fallow system and for alfalfa hay. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat (NRCS, 1999).

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Wrentham-Lickskillet-Rock Outcrop series soils are moderately deep to shallow, well drained silt loam and very stony loam that formed over basalt and in residuum derived from basalt in an 11- to 12-inch precipitation zone. They occur mainly in canyons. This map unit is adjacent to the Deschutes and John Day Rivers, in the southern part of the county. This map unit consists of about 30 percent Wrentham soils, 30 percent Lickskillet soils, and 26 percent Rock outcrop. Wrentham soils are moderately deep and well drained. The surface layer is very dark brown silt loam. The subsoil is dark brown extremely cobbly silt loam. Lickskillet soils are shallow and well drained. The surface layer is very dark grayish brown very stony loam. The upper part of the subsoil is dark brown very gravelly loam, and the lower part is dark brown very gravelly clay loam, very gravelly loam, or very cobbly loam. Rock outcrop consists of areas of exposed bedrock on the shoulders and convex side slopes of very steep canyons. The soils in this unit are used mainly for livestock grazing and as wildlife habitat (NRCS, 1999).

Lickskillet-Nansene series soils are composed of shallow to deep, well drained, very stony loam and silt loam that have formed in residuum derived from basalt and in loess over basalt in a 12- to 13-inch precipitation zone. This map unit is located in the northern part of Sherman County. It is about 45 percent Lickskillet soils and 12 percent Nansene soils. The rest consists of soils of minor extent. Lickskillet soils are shallow and well drained. The surface layer is very dark grayish brown very stony loam. The upper part of the subsoil is dark brown very gravelly loam, and the lower part is dark brown very gravelly clay loam, very gravelly loam, or very cobbly loam. Nansene soils are deep and well drained. The surface layer and subsoil are very dark brown silt loam. The substratum is dark brown silt loam. Of minor extent in this unit are very shallow Bakeoven soils on ridgetops and benches of canyons, very deep Sagemoor soils on dissected terraces, and moderately deep Wrentham soils on north-facing canyonsides. The soils in this unit are used mainly for livestock grazing and as wildlife habitat (NRCS, 1999).

The Mikkalo-Ritzville GSU consists of moderately deep and deep, well-drained silt loam that has formed in loess over basalt in a 9- to 11-inch precipitation zone, typically on mesas. This map unit is in the northeastern corner of the survey area. It is about 56 percent Mikkalo soils and 38 percent Ritzville soils. The rest is soils of minor extent. Mikkalo soils are moderately deep and well drained. The surface layer is very dark grayish brown silt loam. The subsoil is dark brown, calcareous silt loam. Ritzville soils are deep and well drained. The surface layer is dark brown silt loam. The subsoil is dark yellowish brown, calcareous silt loam. Of minor extent in this unit are shallow Lickskillet Soils. The soils in this unit are used mainly for wheat and barley grown in a grain-summer fallow system. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat (NRCS, 1999).

I.3 IDENTIFICATION AND DESCRIPTION OF LAND USES

OAR-345-021-0010(1)(i)(B) *Identification and description of current land uses in the analysis area, such as growing crops, that require or depend on productive soils.*

<u>Response</u>: Land uses within and surrounding the site consist of private agricultural land generally used for dryland wheat production. Permanent project facilities will occupy

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approximately 96 acres of agricultural land and 8 acres of non-agricultural land. Temporary impacts from construction will disturb an additional 709 acres of agricultural land and 334 acres of non-agricultural land.

I.4 IDENTIFICATION AND ASSESSMENT OF IMPACTS TO SOILS

OAR 345-021-0010 (1)(i)(C) *Identification and assessment of significant potential adverse impact to soils from construction, operation, and retirement of the facility, including, but not limited to, erosion and chemical factors such as salt deposition from cooling towers, land application of liquid effluent, and chemical spills.*

Response: Unavoidable impacts to soils within the site boundary will result from placement of permanent project facilities such as gravel roads and concrete pads on approximately 104 acres. Additionally, facility construction will temporarily disturb soils on up to 1040 acres. These soil impacts will be limited according to the same methods identified in the ASC. Where temporary impacts would occur in cultivated areas, the approximately three feet of top soil would be salvaged and stockpiled in windrows. The windrows would be protected with plastic sheeting or mulch. Upon removal of temporary features, subsoils would be cultivated to a depth of at least 12 inches (except where bedrock prohibits archiving this depth), then salvaged topsoil would be redistributed to match adjacent grades. There are no cooling towers or land application of effluent. Because the quantities of chemical use will be minimal, the risk of spills is minor; appropriate measures will be taken to clean up and restore the area if any spill should occur.

I.5 DESCRIPTION OF PROPOSED MITIGATION MEASURES

OAR 345-021-0010(1)(i)(D) A description of any measures the Applicant proposes to avoid or mitigate adverse impact to soils.

Response: Direct permanent impacts to soils due to construction of access roads, turbine foundations, laydown areas, underground collectors and other features will be unavoidable. Construction of all features of the Project will be in compliance with an amended NPDES 1200-C construction permit (see Attachment I-1 for the Application). Measures outlined in the existing Erosion Control Plan submitted with the ASC will be implemented to minimize soil impacts and erosion. During retirement activities, turbines and turbine pads and unwanted roads will be removed, and the soils restored to farmable condition or habitat. This may require the import of appropriate topsoil as it is not practical to stockpile topsoil for the duration of the facilities operation.

I.6 MONITORING PROGRAM

OAR 345-021-0010(1)(i)(E) The Applicant's proposed monitoring program, if any, for adverse impact to soils during construction and operation.

<u>Response</u>: Monitoring of soil-disturbing activities during construction will be in accordance with the 1200-C permit; during operations, the Applicant will visually inspect project facilities periodically.

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ATTACHMENT I-1 NPDES Permit Application



NPDES #1200-C Permit Application Form

Oregon Department of Environmental Quality APPLICATION FOR NEW NPDES GENERAL PERMIT #1200-C For stormwater discharges to surface waters from construction activities disturbing 1 acre or more.

Please answer all questions. No line may be left blank. An incomplete application will not be processed and will be

	1 Ku	•	•	pplicable or not yet available, pleas	•	•
			A. PROJECT	INFORMATION		
1.	Applicant (Owner	nergy North America I er, Developer, or General C Kelly O'Brien Contact Name uisiana St. Suite 3300 Address Texas	ontractor)	Attn Scanning Der	ergy North America ot. Invoice Name P. O. Box 22024 Address	Inc.
	Houston City	State	77002 Zip	Tulsa City	OK State	74121 Zip
	(713) 354-2157		1	City	State	Zīþ
	Telephone	E-Mai	1 Address	Telephone	E-M	Tail Address
3.	Architect/Engineerin	s and Associates, Inc g Firm (Erosion & Sedimer Dana Siegfried Project Manager dns@dea			De selected by the c d Erosion and Sediment Contact Name	
Т	(503) 499-0369 Telephone	E-Mail Address		Telephone	E-Mail	Address
5.		den Hills Wind Project Name of Project ddress or Cross Street Oregon State	Zip	6. Nature of the Construction Ac Single Family (SIC Code Multi-Family Residential Commercial (SIC Code 1 Industrial (SIC Code 154 Highway (SIC Code 1613) Utilities (SIC Code 1623)	1521) (SIC Code 1522) 542) 1)	
Latit	Location by Latitude ar ude: 45 Degrees gitude: 120 Degrees	/	/ 0.98N Seconds / 1.46W Seconds	8. Project Size: Total Site Acreage (acres): Total Construction Area (acr Disturbed Area for this phase Total Number of Lots:		
App.	Received:	File #: Amount: Receipt #:	Che	D#: ck Name: al Name Confirmed: □	River Mile. Check #:	

	A. PROJECT INFORMATION Communed	
9. Runoff from proposed construction activities g	Ditch:	
10. Proposed site runoff discharges directly to, or 303(d) listed water body for turbidity of	or into a storm sewer or drainage system that discher or sedimentation (if applicable).	arges to, a Total Maximum Daily Load (TMDL)
$^{-1}$. LAND USE COMPATIBILITY STATEMENT	
Attach the <i>original</i> and complete Land Use Comp processed unless the local land use authority app	atibility Statement (LUCS) signed by the local land roves it and it meets statewide planning goals. (Sec	use authority. The application will not be a Attachment C for the LUCS statement)
C. SIGNAL	URE OF LEGALLY AUTHORIZED REPRESE	NTATIVE
The legally authorized representative must sign the	application. The following are authorized to sign the	document:
♦ Corporation — president, secretary, treasure more facilities employing more than 250 pers in accordance to corporate procedure to sign s	er, vice-president, or any person who performs princ ons or having gross annual sales or expenditures exc such documents	sipal business functions; or a manager of one or seeding \$25 million that is assigned or delegated
• Partnership — General partner		
♦ Sole Proprietorship — Owner. If more tha	n one person is the sole proprietor, each person n	nust sign the form.
♦ City, County, State, Federal, or other Pu	blic Facility — Principal executive officer or ranking	ng elected official
♦ Limited Liability Company — Member		
◆ Trusts— Acting trustee Please see 40 CFR 122.22 for more detail, if neede I hereby certify that the information contained in all permit fees required by Oregon Administrative determination fee invoiced annually by DEQ to me	this application is true and correct to the best of my ve Rules 340-045. This includes a renewal applic	knowledge and belief. In addition, I agree to pay ation fee to renew the permit and a compliance
Robert L. Lukefo	uhr Pres	ident
Name of Legally Authorized Representati	ive (Type or Print)	14,2007
P	July	14,2007
Signature of Legally Authorized Rep		Date
Attachment A for list of Agents):	owing must be completed and submitted to DEQ o	ffice listed below or to a DEQ Agent (see
☐ Signed Application form. ☐ Land Use Compatibility Statement with signat ☐ Stormwater Erosion and Sediment Control Pla ☐ Stormwater Erosion and Sediment Control Pla ☐ \$670 fee to the appropriate DEQ regional offic application to a DEQ Agent, check with the I	n Narrative	ental Quality. If you are sending your payable to the DEQ Agent.
DEQ Northwest Region 2020 SW 4 th Ave., Suite 400	DEQ Western Region 750 Front St. NE, Suite 120	DEQ Eastern Region 700 SE Emigrant, Suite 330
Portland, OR 97201-4987	Salem, OR 97301-1039	Pendleton, OR 97801
503-229-5263 or 1-800-452-4011	503-378-8240 or 1-800-349-7677	541-276-4063 or 1-800-452-4011
ΔI_+ C.	DEQ AGENT	homeostics)



NPDES General Permit 1200-C Application Instructions For Construction Activities

A. PROJECT INFORMATION

- A1 Enter the legal name of the applicant. Permit coverage will be issued to this entity. This is the person, business, public organization, or other entity responsible for assuring that erosion and sediment controls are in place and in working order through the life of the project. This must be the **legal** Oregon name (i.e., Acme Products, Inc.) or the **legal** representative of the company if it operates under an assumed business name (i.e., John Smith, dba Acme Products). The name must be a legal, active name registered with the Oregon Department of Commerce, Corporation Division in Salem at 503-378-4752 or
 - http://egov.sos.state.or.us/br/pkg web name srch inq.login, unless otherwise exempted by their rules. If the name of the applicant is not registered with the Corporation Division and the applicant is a partnership or doing business as a corporate entity, attach legal documents that verify the entity's existence with the application. The applicant may not an assumed business name.
 - To streamline administration and provide continuous permit coverage, the permit may be transferred from one party to another. For example, if a contractor feels that they will not be able to get a permit before the projected start date, the developer may apply for a permit and then transfer the permit over to the contractor. The transfer fee is \$60. Transfer forms are available from DEQ or at http://www.deq.state.or.us/wq/wqpermit/PmtTfrAppl.pdf.
- A2 Enter invoicing information for annual fee billing if different from the Applicant in A1 (e.g., "Invoice To: Business Office Accounts Payable"). Provide permanent address or P.O. Box, if applicable.
- A3 Provide the contact information for the Architect or Consulting Engineer who designed the Erosion and Sediment Control Plan (ESCP) so that they may be contacted should questions concerning the ESCP Drawings or Narrative arise.
- A4 Provide information on the Erosion and Sediment Control Inspector. This is a person that works for the applicant and not a government employee. If the inspector has not been selected yet, please provide the name of consultant who prepared the Erosion and Sediment Control Plan (ESCP). Upon designating an inspector(s), submit to the DEQ or the Agent an Action Plan, which is an addendum to the ESCP, that identifies their name(s), contact information and training and experience as required in Schedule A, condition 6(b) of the permit.
- A5 Provide the common name of the site. What is it to be called? Provide the location of the site with respect to cross roads in the area or a street address if appropriate.
- A6 Place a check mark in the box that best describes the use for which the site is being constructed. If other is selected, describe the use.
- Enter the latitude and longitude of the approximate center of the facility or site in degrees/minutes/seconds to the nearest 15 seconds. Latitude and longitude can be obtained from United States Geological Survey (USGS) quadrangle topographic maps by calling toll-free at 1-888-ASK-USGS (1-888-275-8747) or by using DEQ's location finder web site at http://deq12.deq.state.or.us/website/findLoc/data.asp. In using DEQ's location finder web site, if you do not know your address, go to "locate place" on the left side of the page and click on "latitude and longitude" and then click on "map it." To get the longitude and latitude to appear you may have to zoom in and re-center until you find the area. You may want to turn off DEQ interests to eliminate the yellow dots and you may want to turn on the Aerial Photos to help you locate the site. The latitude and longitude will be indicated on the left side of the page. Instructions for obtaining latitude and longitude from topographic maps may be obtained at http://www.deq.state.or.us/wq/wqpermit/LatLongInstr.pdf.
- A8 Provide property size information. What is the total acreage of the site? Provide an estimate, in the case of a multi-phased project, or if all of the property has not yet been purchased.
- A9 Indicate where the runoff goes after leaving the site during construction. If it goes in to the City storm drain system, provide best estimate of the receiving stream in addition to checking the Municipal Storm Sewer box.
- A10 Indicate whether stormwater runoff will be discharging directly to, or into a storm sewer or drainage system that discharges to "impaired" waters listed on the 303(d) list or are covered by a Total Maximum Daily Load (TMDL) for sediment or turbidity. A map and table identifying "impaired" water bodies and affected river miles for sediment or turbidity is available on DEQ's web site at: http://www.deq.state.or.us/wq/stormwater/docs/tmdl303dsedturblist.pdf.

B. LAND USE COMPATIBILITY STATEMENT

Land Use Compatibility Statement (LUCS) must be signed by local planning department. If there are any conditions placed on the land use approval, the findings must be included. The LUCS form may be obtained from DEQ at http://www.deq.state.or.us/pubs/permithandbook/lucs.htm.

C. SIGNATURE

The legally authorized representative for the applicant must sign the application. The following are authorized to sign the document

- Corporation president, secretary, treasurer, vice-president, or any person who performs principal business functions; or a manager of one or more facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million that is assigned or delegated in accordance to corporate procedure to sign such documents.
- **Partnership** General partner.
- **Sole Proprietorship** Owner. If more than one person is the sole proprietor, each person must sign the form.
- City, County, State, Federal, or other Public Facility Principal executive officer or ranking elected official.
- **Limited Liability Company** Member
- Trusts— Acting trustee

APPLICATION SUBMITTAL AND FEES

If you have a DEQ Agent in the area where your project is located, send the application to the DEQ Agent (See the DEQ Agent list in Attachment A). Otherwise, send the application to the DEQ office in your area (See DEQ office locations in Attachment B).

The permit application fee is \$670, which includes a \$60 filing fee, \$280 application processing fee, and \$330 annual fee. The permittee will also be billed an annual fee for every year the permit is in effect. If you have a DEQ Agent in the area, where your project is located contact them and verify fees. (See Attachment A for list of Agents)

In order to authorize permit registration, the following must be completed and submitted to DEQ office or a DEQ Agent (see Attachment A for list

of A	gents):
	Application form with original signature
	Land Use Compatibility Statement with original signature of the local land use authority
	Stormwater Erosion and Sediment Control Plan Narrative
	Stormwater Erosion and Sediment Control Plan Drawings
	\$670 fee to the appropriate DEQ regional office and make the check payable to the Department of Environmental Quality. If you are sending your application to a DEQ Agent, check with the Agent for the appropriate fees.

Erosion and Sediment Control Plan Worksheet

Project Name: Golden Hills Wind Farm
Prepared By: Sean P. Sullivan, L.A. (Oregon No. 412)
Company Name: David Evans and Associates, Inc.
Telephone: <u>503-223-6663</u>
Please answer the following questions as indicated. If needed, additional space is provided for you at the end of this form. You may also attach any information you feel is pertinent to the project. 1. Is your Erosion and Sediment Control Plan for an activity that covers 20 acres or more of disturbed land? YES NO If yes, the plan must be prepared by an Oregon Registered Professional Engineer, Oregon Registered Landscape Architect, or
Certified Professional in Erosion and Sediment Control (Soil and Water Conservation Society). Please complete question #4. 2. Does your Erosion and Sediment Control Plan require engineered facilities such as settling basins and/or diversion
structures? YES NO
If yes, the plan must be prepared by an Oregon Registered Professional Engineer.
3. If you answered "YES" to question #1 or 2, please provide the following information and use the space provided to imprint your seal.
Name: Sean P. Sullivan, L.A. (Oregon No. 412)
Address: <u>David Evans and Associates, Inc.</u>
2100 SW River Parkway
Portland, OR 97201
Telephone: 503.223.6663 Imprint Seal Above
4. Describe the nature of the construction activity: The Applicant proposes to construct a wind generation project in Sherman County, Oregon. The proposed project will involve construction of up to 267 turbines and generate up to 400 MW of power.

5. Describe in detail the phases of construction and the erosion control measures to be implemented during each phase. Also complete the table on the next page to assist with the narrative description.

See Attached.

Fill in the year(s) and the month(s) at the top of the chart during which the project will occur, and check the appropriate boxes to indicate when the items in the left column will be performed and/or installed. You may photocopy the chart if your project will last longer than 12 months.

YEAR: 2008	2008											
Month:	1	2	3	4	5	6	7	8	9	10	11	12
CLEARING				х								
EXCAVATION				х	х							
GRADING				х	х	Х	х	х				
CONSTRUCTION				х	х	Х	х	х	Х	х	х	Х
EROSION CONTROLS:												
Vegetative Buffer Strips				х	х	х	х	х	х	х	х	Х
Mulching				х	х	х	х	х	х	х	х	х
Netting/Mats/Blankets												
Temporary Seeding												
Permanent Seeding										х	х	х
Sod Stabilization												
Other: Graveling				х	х	х	х	х	х	х	х	Х
SEDIMENT CONTROLS:												
Silt Fencing				х	х	х	х	х	Х	х	х	Х
Straw Bales				х	х	х						
Sediment Traps				х	х	х						
Sediment Basins												
Storm Inlet Protection												
Drainage Swales												
Check Dams												
Contour Furrows												
Terracing												
Pipe Slope Drains												
Rock Outlet Protection												
Other: Sediment moat				х	х	х						

6. Describe the origin and nature of fill material to be used:

Native soils will be excavated for construction of the concrete turbine pads and temporary staging areas. These soils will be stockpiled until after construction when they will be redistributed over the temporarily disturbed areas.

7. Describe the soils present on the site and erosion potential of the soils.

Soil type(s): The near surface soils at the project area were identified using the U.S. Soil Conservation Service (SCS) Soil Survey of Sherman County, Oregon. The near surface soils in the project area are grouped into five General Soil Units: Walla Walla-Anderly, Wato Anders, Wrentham-Lickskillet-Rock Outcrop, Lickskillet-Nansene, and Mikkalo-Ritzville.

The Walla Walla-Anderly series soils are extensive on mesas in the north-central part of Sherman County in mostly smooth and gently sloping areas. They have formed from loess over basalt in a 12- to 13-inch precipitation zone. This General Soil Unit is approximately 73 percent Walla Walla soils and 22 percent Anderly soils. The rest is soils of minor extent. Walla Walla soils are very deep or deep and are well drained. The surface layer is very dark brown silt loam. The subsoil is dark brown silt loam. Anderly soils are moderately deep and well drained. The surface layer is very dark grayish brown silt loam. The subsoil is dark brown silt loam. Of minor extent in this unit are very deep Endersby soils on terraces, very deep Hermiston soils on flood plains, and shallow Kuhl soils on north-facing canyonsides. The soils in this unit are used mainly for wheat and barley grown in a grain-summer fallow system, for alfalfa hay, and as pasture. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat.

The Wato Anders series soil are extensive on mesas in the northwester part of Sherman county in gently sloping and steep areas. They have formed from loess over basalt in a 12- to 13- inch precipitation zone. This General Soil Unit is approximately 82 percent Wato soils and 10 percent Anders soils. The rest is soils of minor extent. Wato soils are very deep and well drained. The surface layer is very dark brown very fine sandy loam. The subsoil is dark brown very fine sandy loam. Anders soils are moderately deep and well drained. The surface layer is very dark grayish brown very fine sandy loam. The subsoil is dark brown very fine sandy loam, silt loam, or gravelly silt loam. Of minor extent in this unit are very deep Quincy soils on dunes and terraces adjacent to the Columbia River and its tributaries. The soils in this unit are used mainly for wheat and barley grown in a grain-summer fallow system and for alfalfa hay. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat.

Wrentham-Lickskillet-Rock Outcrop series soils are moderately deep and shallow, well drained silt loam and very stony loam that formed in loess over basalt and in residuum derived from basalt in an 11- to 12-inch precipitation zone. They occur mainly in canyons. This map unit is adjacent to the Deschutes and John Day Rivers, in the southern part of the county. This map unit consists of about 30 percent Wrentham soils, 30 percent Lickskillet soils, and 26 percent Rock outcrop. Wrentham soils are moderately deep and well drained. The surface layer is very dark brown silt loam. The subsoil is dark brown extremely cobbly silt loam. Lickskillet soils are shallow and well drained. The surface layer is very dark grayish brown very stony loam. The upper part of the subsoil is dark brown very gravelly loam, and the lower part is dark brown very gravelly clay loam, very gravelly loam, or very cobbly loam. Rock outcrop consists of areas of exposed bedrock on the shoulders and convex side slopes of very steep canyons. The soils in this unit are used mainly for livestock grazing and as wildlife habitat.

Lickskillet-Nansene series soils are composed of shallow and deep, well drained very stony loam and silt loam that have formed in residuum derived from basalt and in loess over basalt in a 12- to 13-inch precipitation zone. This map unit is located in the northern part of Sherman County. It is about 45 percent Lickskillet soils and 12 percent Nansene soils. The rest consists of soils of minor extent. Lickskillet soils are shallow and well drained. The surface layer is very dark grayish brown very stony loam. The upper part of the subsoil is dark brown very gravelly loam, and the lower part is dark brown very gravelly clay loam, very gravelly loam, or very cobbly loam. Nansene soils are deep and well drained. The surface layer and subsoil are very dark brown silt loam. The substratum is dark brown silt loam. Of minor extent in this unit are very shallow Bakeoven soils on ridgetops and benches of canyons, very deep Sagemoor soils on dissected terraces, and moderately deep Wrentham soils on north-facing canyonsides. This soil unit is used mainly for livestock grazing and as wildlife habitat.

The Mikkalo-Ritzville General Soil Unit consists of moderately deep and deep, well drained silt loam that has formed in loess over basalt in a 9- to 11-inch precipitation zone, typically on mesas. This map unit is in the northeastern corner of the survey area. It is about 56 percent Mikkalo soils and 38 percent Ritzville soils. The rest is soils of minor extent. Mikkalo soils are moderately deep and well drained. The surface layer is very dark grayish brown silt loam. The subsoil is dark brown, calcareous silt loam. Ritzville soils are deep and well drained. The surface layer is dark brown silt loam. The subsoil is dark yellowish brown, calcareous silt loam. Of minor extent in this unit are shallow Lickskillet Soils. The soils in this unit are used mainly for wheat and barley grown in a grain-summer fallow system. Areas too steep for cultivation are used for livestock grazing and as wildlife habitat.

b) Erosion Potential: Based on the soil types present, soil erosion potential at the facility site varies, being high in some areas and not high in others (USDA 1964; Table 2).

Table 2. Detailed soil map units present on project site and their properties.

Soil Series	Drainage Class	Erosion Potential
Anderly silt loam, 1 to 7 percent slopes	Well drained	Highly
Anderly silt loam, 7 to 15 percent slopes	Well drained	Highly
Anderly silt loam, 15 to 35 percent south slopes	Well drained	Highly
Anderly silt loam, 15 to 35 percent north slopes	Well drained	Highly
Anders very fine sandy loam, 15 to 35 percent slopes	Well drained	Highly
Endersby fine sandy loam, 0 to 3 percent slopes	Somewhat excessively drained	Not highly
Endersby-Hermiston complex, 0 to 3 percent slopes	Well drained	Not highly
Kuhl very stony very fine sandy loam, 3 to 20 percent slopes	Well drained	Highly
Kuhl-Rock outcrop complex, 20 to 40 percent north slopes	Well drained	Highly
Lickskillet-Rock outcrop complex, 40 to 70 percent south slopes	Well drained	Not highly
Lickskillet very stony loam, 7 to 40 percent south slopes	Well drained	Not highly
Lickskillet-Bakeoven complex, 2 to 20 percent slopes	Well drained	Not highly
Mikkalo silt loam, 2 to 7 percent slopes	Well drained	Highly
Mikkalo silt loam, 7 to 15 percent slopes	Well drained	Highly
Nansene-Rock outcrop complex, 35 to 70 percent north slopes	Well drained	Not highly
Rock outcrop-Rubble land-Lickskillet complex, 50 to 80 percent south slopes	Well drained	Not highly
Walla Walla silt loam, 1 to 7 percent slopes	Well drained	Not highly
Walla Walla silt loam, 7 to 15 percent slopes	Well drained	Not highly
Walla Walla silt loam, 15 to 35 percent north slopes	Well drained	Not highly
Walla Walla silt loam, 15 to 35 percent south slopes	Well drained	Not highly
Wato very fine sandy loam, 3 to 7 percent slopes	Well drained	Not highly
Wato very fine sandy loam, 7 to 15 percent slopes	Well drained	Not highly
Wato very fine sandy loam, 15 to 35 percent north slopes	Well drained	Not highly
Diversion h*		

8. Submit two copies of site maps and constructions plans. The following checklist is provided for your convenience:

	THE FOLLOWING INFORMATION PROVIDED AND DETAILED ON THE MAPS SUBMITTED TO EDEQ?	YES	No	N OT A PP.	Ехнівіт
a.	The complete development, including any phases.	Х			Figure C-2
b.	The areas of soil disturbance on the site, including areas that will be cleared, graded or excavated.	Х			Figure C-2
C.	The areas of cut and fill.	Х			Figure C-2
d.	The drainage patterns and slopes of the land both before and after major grading activities.	Х			Figure C-2
e.	The location of existing and proposed storm drains and outfalls.			Х	
f.	The receiving water body for drainage from the site.	Х			Figure C-2
g.	The areas used for storage of soils or wastes. (laydown areas)	Х			Figure C-2
h.	The location of all erosion and sediment control facilities and/or structures.			Х	
i.	The areas on the site where vegetative practices will be used.			Х	
j.	The location of existing and future impervious structures and areas.	Х			Figure C-2
k.	The location and name of all springs, wetlands, and surface waterbodies near the project.	х			Figure C-2
I.	The boundaries of the 100 year flood plain if known.			Х	
m.	The location of graveled access entrance and exit drives and graveled parking areas to be used by construction vehicles. (at each turbine string entrance)	Х			Figure C-2
n.	The locations of graveled roads traveled by more than 25 vehicles per day.	Х			Figure C-2
0.	Installation details of vegetative and other erosion control practices (vegetative buffer strips, seeding, mulching, erosion blankets, etc.).			Х	
p.	Installation details of sediment control practices (silt fences, straw bale dikes, storm drain inlet protection, etc.).	Х			
	r DEQ BMP for Stormwater Discharges Associated with Construction Activities de)				
q.	List the temporary and permanent vegetative seed in the seed mix. *	Х			
r.	If concrete work is done on site, then note the concrete truck washout procedure used and locate any sump, if used, on the drawing.			Х	

^{*} No temporary seeding is proposed because of arid conditions during construction period. Mulch will be used instead. Permanent seeding will be completed in Fall 2008.

^{9.} Describe the truck drippage precautions you will take to prevent discharge of water from trucks hauling wet soils or stone excavated from the site: See Attached.

^{10.} Describe the procedures you will use to assure prompt maintenance and repair of graded surfaces and erosion and sediment control measures: <u>See Attached.</u>

Attachments

5. Describe in detail the phases of construction and the erosion control measures to be implemented during each phase. Also complete the table on the next page to assist with the narrative description.

<u>Response</u>: Construction activities for the project are anticipated to begin in the second quarter of 2008 and conclude in the fourth quarter of 2008. Phases of construction and the erosion control measures (best management practices or "BMPs") to be implemented during each phase are generally as follows:

Mobilization, Staging, and Laydown

It is anticipated that one or more general contractors would mobilize to the project area and would require staging areas for temporary construction offices, temporary laydown facilities, and materials staging (Figure C-2). These staging areas would be used to park construction vehicles, construction employees' personal vehicles, and other construction equipment. Laydown areas will be required during tower construction and turbine installation. Tower sections, nacelles, blades, and appurtenances would be temporarily stored in laydown facilities as each turbine is constructed. Fueling and chemical/solvent storage will occur at staging areas at each turbine string. At the end of the turbine string, an area approximately 300 feet in diameter (1.6 acres) would be needed to allow construction equipment to turn around.

BMPs anticipated for use during this phase include silt fences placed on the down slope side of the staging areas, gravel construction entrances, gravel laydown facilities, and container and waste storage bins/dumpsters. Additionally, the following BMPs would also be developed to prevent or minimize the mixing of runoff with pollutants such as hydraulic fluid, fuel, and lubricants: written spill prevention and response procedures, employee training on spill prevention and proper disposal, emergency spill kits, and regular maintenance schedule for vehicles and equipment.

After completion of construction within the expanded site boundary, these temporary staging/laydown areas would be restored to their pre-construction conditions. Disturbed areas would be re-seeded to wheat or native grasses as appropriate to establish permanent vegetation. Silt fences and other BMPs would be removed once vegetation provides soil stabilization.

Road Construction

To the extent possible, existing roads would be used to minimize the need to construct new roads. New roads would be constructed to provide access to the turbine locations (Figure C-2). All unpaved roads used for construction purposes would be graveled or paved as appropriate, or effective BMPs would be placed on the road or down slope of the road to prevent the discharge of fugitive sediment in lieu of graveling.

A variety of BMPs would be used during road construction to control erosion and sedimentation. These BMPs may be used individually or in concert as site conditions and levels of disturbance warrant. BMPs for road construction include graveling, watering or applying other dust palliatives, preserving existing vegetation, silt fence, mulching, and reestablishing permanent vegetation. Silt fences would be removed once vegetation stabilized soils.

Underground Utility Construction

Underground electrical and communications cables would be placed in a trench approximately 2 feet wide and at least 3 feet deep, generally along the length of the proposed turbine access roads and County roads linking turbine strings to two collector substations within the Project. Topsoil would be stripped and stockpiled adjacent to the work area. The remaining trench excavation would be sidecast adjacent to the trench and later used as backfill. Upon the installation of electrical cables, and communications cables, the trench would be backfilled with native material and then top-dressed with the salvaged topsoil. The trench excavation would be reseeded with wheat or native seed as appropriate.

BMPs for underground utility construction include phasing the work as practical to minimize disturbance at any given time, preserving existing vegetation, and reestablishing permanent vegetation. If construction persists in the wet season, additional BMPs such as covering the sidecast and topsoil stockpiles would be considered.

Turbine Foundation Construction

It is anticipated that up to 267 turbine foundations would be designed by conventional methods including: (1) spread foundations below the loess (i.e., wind-formed soils), (2) drilled shaft foundations that support in the materials below the loess, (3) removal of the loess and replacement with compacted fill, and/or (4) in situ improvements of the loess soils. One or more of these approaches have been used in the design and construction of the foundations at nearby projects and will be used to design the foundations for the project.

Construction would likely require excavation approximately nine to ten feet deep and approximately 50 feet in diameter. Excavated material would be stockpiled for use as backfill adjacent to the turbine pad for approximately 14 to 28 days while the concrete cures. Silt fences or sediment moats would be installed on the downslope side of stockpiles. Sediment moats are ditches dug around the perimeter of the stockpile with the excavation sidecast to the outboard side of the ditch to form a temporary dike. The temporary dike provides a physical barrier that traps sediment "in the moat" and prevents its discharge. Once the concrete cures, the stockpiled materials would be used for backfilling. The contractor would be responsible for locating a disposal site, which may include placing and cultivating the excess material on upland agricultural lands within the lease boundary for excess materials if saturated soils are encountered and must be hauled away from the site, loads would be drained on-site until dripping is reduced to minimize spillage on roads. Disturbed areas resulting from foundation and crane pad construction would be seeded to establish crops or native species as appropriate.

BMPs used as part of turbine foundation construction would include phasing the work as practical to minimize disturbance at any given time, preserving existing vegetation, graveled access road, draining saturated soils on site, silt fences, sediment moats, and reestablishing permanent vegetation. If construction persisted in the wet season, additional BMPs such as covering the stockpiles and heavy mulching would be considered. Silt fences would be removed once the stockpile has been removed and the disturbed areas stabilized with vegetation.

Tower and Rotor Assembly

Turbine tower pieces, nacelle, hub, blades and appurtenances would be transported by trucks to each turbine location and erected using a construction crane. The base tower section would be bolted to the foundation pedestal, the middle section would then be bolted to the base section, and the top section would then be bolted to the middle section. The nacelle is then lifted to the top of the tower and bolted in place. The rotor (hub and three blades) is assembled on the ground and then the rotor assembly is hoisted and attached to the turbine nacelle.

No additional BMPs would be required for this phase of construction. BMPs previously installed as part of road construction and/or turbine foundation construction should provide adequate erosion and sedimentation control.

Mitigation Site

Portions of the mitigation site may be plowed in preparation of habitat mitigation. A 100-foot wide vegetated filter strip will be left on the downslope side of the mitigation site, to prevent exposed soils from eroding.

Stormwater Management

Stormwater management will be ongoing through the life of the project. The use of water for construction practices (*e.g.*, dust suppression, road compaction) is not anticipated to generate runoff. Wastewater would not be discharged into wetlands or other adjacent resources. The area receives approximately 12 inches of precipitation annually, most of which occurs between October 1 and March 31. Stormwater runoff resulting from precipitation is anticipated to be minimal and would infiltrate onsite.

Demobilization

Demobilization would include final road grading, site cleanup, and decommissioning the erosion and sedimentation BMPs among other activities. The Applicant will remove all silt fences and other BMPs as appropriate and would end 1200-C permit coverage once all soil disturbance activities have been completed and final stabilization of exposed soils has occurred. Table 1 lists construction equipment typically used during wind project construction.

Table 1.- Equipment Typically Used for Wind Facility Construction

Equipment	Use
Bulldozer	Road and pad construction
Grader	Road and pad construction
Water trucks	Compaction, erosion and dust control

Table 1.- Equipment Typically Used for Wind Facility Construction

Roller/compactor Road and pad compaction

Digging trenches for underground utilities

g machine Foundation excavation

Excavator

Backhoe/trenchin

Heavy duty rock Underground trenching

trencher

Truck-mounted Drilling power pole

drilling rig holes

Concrete Pouring tower and other trucks/concrete structure foundations

pumps

Cranes Tower/turbine erection

Dump trucks Hauling road and pad

material

Flatbed & Lowbed trucks

Hauling towers, turbines and components, and

construction equipment

Pickup trucks General use and hauling

minor equipment

Small hydraulic Loading and unloading

cranes/forklifts equipment

Four-wheel-drive Rough grade access and all-terrain underground cable

vehicles installation

Rough-terrain Lifting equipment and cranes / forklifts pre-erection assembly

Additional Information

A revegetation plan describing revegetation methods and seedmixes is attached. Erosion and Sediment Control (ESC) BMPs will be installed according to the guidance provided in NPDES Storm Water Regulations for Construction Projects, December 2002.

In addition to the NPDES guidance, practices that can be used to control erosion of loess soils include seeding early in the spring, stubble-mulch tillage, and construction of terraces, diversions, and grassed waterways. Leaving crop residue near the surface helps conserve moisture, maintain tilth, and control erosion.

9. Describe the truck drippage precautions you will take to prevent discharge of water from trucks hauling wet soils or stone excavated from the site:

Because of the climate and soil types in the area, excessively wet soils and/or stone excavation are not anticipated. Therefore, truck drippage is not expected to be an issue. In the unlikely event of hauling wet soils or stone, trucks would be allowed to drain on-site before entering public right-of-way (i.e., county road system). If draining on-site is determined to be inadequate, the ESC Lead would coordinate additional BMPs to minimize truck drippage.

10. Describe the procedures you will use to assure prompt maintenance and repair of graded surfaces and erosion and sediment control measures.

Response: A copy of the ESC Plan (Plan) and all inspection reports (described below) for the Project would be retained on-site and made available to the Department of Environmental Quality, its agent, or the local municipality upon request. The contractor would designate an ESC Lead who would be responsible for implementing the ESC Plan and following through on all maintenance requirements. The ESC Lead would be a person with knowledge and experience in construction stormwater controls and management practices. The ESC Lead's contact information, including an emergency contact number, would be provided as part of the ESC Plan.

All roads, pads, trenched areas, stockpiles and disturbed areas resulting from facility construction would be inspected regularly and maintained to minimize erosion and sedimentation. For active sites, inspections would occur daily during stormwater runoff or snowmelt runoff and at least once every seven calendar days and within 24 hours after any storm event greater than 0.5 inches of rain in a 24-hour period. For inactive periods greater than seven days, inspections would occur once every two weeks. If a site is inaccessible due to adverse weather conditions, inspections would not occur, but the adverse weather conditions would be noted on the inspection report.

The inspections would document the following:

- Inspection date, inspector's name, weather conditions, and rainfall amount in the last 24 hours.
- List observations of all BMPs.
- At representative discharge point(s), document the quality of discharge for any turbidity, color, sheen, or floating materials.
- Recommended corrective actions required, if any.

The applicant would implement the following maintenance activities and guidelines:

- Significant amounts of sediment that leave the site would be cleaned up within 24 hours and placed back on the site or disposed of in a legal manner.
- Under no circumstances would sediment be intentionally washed into storm sewers or drainages unless it was to be captured by a BMP (e.g., basin insert) before entering receiving waters.
- For silt fences, the trapped sediment would be removed before it reaches one third of the above ground height of the fence.
- All erosion and sedimentation control BMPs not directly in the path of work would be installed before any land disturbance.
- All disturbed areas that would be revegetated with native species would be reseeded at appropriate intervals until a performance standard of 70 percent cover is met.
- Fertilizers would not be used when seeding native species, and would only be used in such a way to minimize nutrient-laden runoff when seeding wheat.
- If construction activities cease for 45 days or more, all disturbed areas would be stabilized using vegetation, heavy mulch, or other appropriate BMPs as necessary.
- All temporary erosion and sediment control measures will be removed within 30 days after final stabilization of the site. Final stabilization is deemed to have occurred when the impacted areas demonstrate 70% cover and the risk of erosion has been minimized.
- Adequate stockpiles of silt fences, straw bales, spill kits, and other measures as appropriate will be maintained on site for emergency situations and to allow for the prompt response for repairs.

EXHIBIT J

WETLANDS OAR 345-021-0010(1)(j)

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J.1 INTRODUCTION

OAR 345-021-0010(1)(j) *Information based on literature and field study, as appropriate, about waters of the United States, including:*

Response: A wetland delineation was conducted that included a review of background resources as well as an on-site investigation (Attachment J-1). The wetland delineation covered the area occupied by the 900-foot turbine corridors, a 200-foot corridor for crane paths, underground collectors and transmission lines, and the substation, laydown and O&M facility locations. This area constitutes the wetland analysis area. Wetlands and other waters of the state identified within the wetland analysis area were overlain with proposed Project features to determine the potential for Project impacts. Results of this analysis are provided below.

J.2 DESCRIPTION OF ALL WETLANDS, STREAMS AND RIPARIAN AREAS

OAR-345-021-0010(1)(j)(A) A description of all areas within the site boundary that might be waters of the state or waters of the United States and a map showing the location of these features.

Response: Twelve wetlands were identified during the field investigation associated with the drainage features of Mud Hollow, Spanish Hollow, China Hollow, and Grass Valley Canyon. These drainage features are tributaries to the Columbia River and are likely jurisdictional under Section 404 of the Clean Water Act and the Oregon Removal Fill Law. The final jurisdictional determination is up to the ACOE and the Department of State Lands.

The wetlands are fully detailed in the wetland delineation in Attachment J-1. The report includes data sheets and maps of wetlands and other waters of the state within the wetland analysis area (Figure J-1, sheets 1-5), and summarized as follows.

J.2.1 Wetlands

Wetland A is located at the north extremity of the Project along China Hollow. It is six feet wide with a vegetated stream channel and has been determined to be a palustrine emergent wetland.

Wetland B is located about three miles northeast of the City of Moro, associated with Goose Creek, a tributary of Grass Valley Canyon. The wetland is an irregular complex of associated rivulets. Wetland B is determined to be palustrine emergent wetland.

Wetland C is located about three miles northwest of the City of Wasco adjacent to Highway 97 in a steep drainage feature of Spanish Hollow. Wetland C is determined to be a palustrine emergent wetland.

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Wetland D is located about four miles northwest of the City of Wasco adjacent to Highway 97. The wetland is about six feet wide with a vegetated stream channel of Spanish Hollow. Wetland D is determined to be a palustrine emergent wetland.

Wetland E is located about three miles northeast of the City of Moro southeast of Wetland B and is associated with another fork of Grass Valley Canyon. The wetland about ten feet wide and is determined to be a palustrine emergent wetland.

Wetland F is located about three miles northwest of the City of Wasco and is associated with a spring of Mud Hollow. Wetland F is determined to be a palustrine emergent wetland.

Wetland G is located about four miles northeast of the City of Moro, downstream and north of Wetland E along the same tributary of Grass Valley Canyon. The wetland is about ten-feet wide and determined to be a palustrine emergent wetland.

Wetland H is located about two miles south of the City of Wasco, a drainage feature of Spanish Hollow along the west side of Highway 97. The wetland is in a low area near a culvert. Wetland H is determined to be a palustrine emergent wetland.

Wetland I is located between Highway 97 and Highway 206. It is located downstream and northeast from wetlands B, C, and G in Grass Valley Canyon. Wetland I is determined to be a palustrine emergent wetland.

Wetland K is located between Highway 97 and Highway 206, about one half mile west of where Highway 206 crosses Grass Valley Canyon, along unnamed tributary of Grass Valley Canyon. It is in a drainage feature with a spring and determined to be a palustrine emergent wetland.

Wetland M is located two miles northeast of the City of Moro, near Monkland Road. The wetland is associated with the creek and open water of Grass Valley Canyon. Wetland M is determined to be a palustrine emergent wetland.

Wetland N is located nearly six miles southeast of the City of Wasco, along the creek of Grass Valley Canyon east side of Highway 206. Wetland N is determined to be a palustrine emergent wetland.

I.2.2 Other Waters of the State

The major drainage features (water of the state) identified within the wetland analysis area include Locust Grove Canyon, China Hollow, Mud Hollow, Spanish Hollow, and Grass Valley Canyon. These major drainage features are all tributaries of the Columbia River and considered jurisdictional waters. Mud Hollow joins Spanish Hollow and heads north out of the wetland analysis area to the Columbia River as does Locust Grove Canyon. The Grass Valley Canyon heads eastward and continues out of the wetland analysis area to join the John Day River north to the Columbia River.

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During June site visits, water was observed within the wetland analysis area in the drainage features of China Hollow, Mud Hollow, and Grass Valley Canyon. The Locust Grove drainage feature within the wetland analysis area either flows intermittently (i.e. for only a portion of the year) or ephemerally (i.e. only once every several years). No water was observed in this feature within the wetland analysis area. Spanish Hollow had water observed only at the north extent by Wetland C; none was observed upstream within the wetland analysis area, but there were indicators that it flows either intermittently or ephemerally.

J.3 EFFECT ON WATERS OF THE STATE AND WETLANDS

OAR-345-021-0010(1)(j)(B) An analysis of whether construction or operation of the proposed facility would adversely affect any waters of the state, as defined under OAR 141-085-0010, or waters of the United States, as defined under Section 404 of the Clean Water Act.

<u>Response</u>: Based on the wetland delineation results, no impacts to wetlands and other waters of the state are anticipated as a result of the proposed project.

Four potential impact locations occur where the connection corridor has aboveground transmission lines and crosses the drainage channel and/or an associated wetland. These are at wetlands A, C, D, and N. Impacts to these wetlands will be avoided by siting the transmission line towers outside of the drainage channel and wetland.

One of the potential impact locations occurs where the road improvement and a new road will be constructed near wetland F. Impacts will be avoided by siting the roadway outside of the wetland.

One of the potential impact locations occurs at wetland H where a laydown area is adjacent to the drainage channel. Impacts will be avoided by reducing the size of the laydown area.

Four potential impact locations occur where the collector system will cross drainage channels. Impacts at these wetlands – E, G, I, and K - will be temporary and total approximately 0.05 acres. Impacts will be restored by re-establishing the channel to preconstruction contours and re-vegetating with native wetland shrubs and grasses.

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Table J-1

- Wetland	Project Feature(s)	Impact
A	Overhead Transmission Line	Avoid by proper pole placement
В	Underground transmission Line	Avoid by boring under state highway and wetland
С	Overhead Transmission Line	Avoid by proper pole placement
D	None	None
Е	Underground Collector	0.01 acres of temporary impact
F	Underground Collector, new access road	Avoid wetland by routing road and collector around it
G	Underground Collector	0.01 acres of temporary impact
Н	None	None
I	Underground Collector	0.01 acres of temporary impact
K	Underground Collector	0.01 acres of temporary impact
M	None	None
N	Overhead Transmission Line	Avoid by proper pole placement

J.4 SIGNIFICANT POTENTIAL IMPACTS TO WETLANDS

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

Response: A total of approximately 0.05 acres of palustrine emergent wetland will be temporarily impacted by construction activities when installing the underground collector system at five locations. Less than 350 cubic yards of native soil material will be removed from the wetlands, and replaced at the same location when collector system installation is complete. This does not represent a significant impact because these wetlands are relatively common, degraded by surrounding activities, and will be restored to their preconstruction condition or better. Therefore, the same amount and type of wetlands as currently exists will be maintained after construction.

J.5 EVIDENCE THAT FILL AND REMOVAL PERMIT NEED NOT BE ISSUED

OAR 345-021-0010(1)(j)(D) *If the proposed facility would not need a removal-fill authorization as described under OAR 141-085-0018, an explanation of why no such authorization is required for the construction and operation of the proposed facility.*

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<u>Response</u>: An application for the removal and filling activities in the wetlands will be submitted. See Section J.6

J.6 EVIDENCE THAT FILL AND REMOVAL PERMITS CAN BE ISSUED

OAR 345-021-0010(1)(j)(E) If the proposed facility would need a removal-fill authorization, information to support a determination by the Council that the Oregon Department of State Lands should issue a removal-fill permit, including information in the form required by the Department of State Lands under OAR Chapter 141 division 85.

<u>Response</u>: A joint permit application for temporary impacts to wetlands is included as Attachment J-2. The application demonstrates compliance with the criteria of the Removal-Fill Law. Impacts have been minimized, and restoration of the temporary impacts in wetlands will be accomplished by returning the areas to their preconstruction contours and replanting with native grasses and shrubs.

J.7 MONITORING PROGRAM, IF ANY, FOR IMPACTS TO WETLANDS

OAR 345-021-0010(1)(j)(F) A description of proposed actions to mitigate adverse impacts to the features identified in (A) and the Applicant's proposed monitoring program, if any, for such impacts.

<u>Response</u>: Monitoring will be conducted for three years to ensure that restoration of temporary impacts results in equal or better wetlands conditions at those sites. The detailed monitoring program is included in the joint permit application.

J.8 REFERENCES

References utilized in the preparation of Exhibit J are listed as part of the wetland delineation in Attachment J-1.

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ATTACHMENT J-1 Wetland Delineation Report

Wetland Delineation Report Golden Hills Wind Farm Project

Prepared for:

BP Alternative Energy, Inc.

Prepared by:

David Evans and Associates, Inc.

June 2007

Wetland Delineation Report Golden Hills Wind Farm Project

Prepared for:

BP Alternative Energy, Inc. 700 Louisiana St, 33 Fl Houston, TX 77002

Prepared by:

David Evans and Associates, Inc. 2100 SW River Parkway Portland, Oregon 97201

June 2007

Wetland Delineation Golden Hills Wind Farm

PREFACE

David Evans and Associates, Inc. (DEA) prepared this wetland delineation report for BP Alternative Energy. The findings of this report are based upon information gathered during the field investigation and upon DEA's understanding of state and federal law relating to the regulation of wetland areas. DEA staff used the *U.S. Army Corps of Engineers (USACE) Wetlands Delineation Manual* (Environmental Laboratory 1987) and *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory, 2006) in completing the wetland delineation.

The wetland boundaries and classifications described in this document represent the best professional judgment of DEA staff. The decisions were based on the circumstances and site conditions at the time of the field investigation. Final verification of this wetland delineation is to be made as part of the Oregon Energy Facility Siting Council process.

This report documents the investigation, best professional judgment, and conclusions of the investigator. It should be considered a Preliminary Jurisdictional Determination until it has been reviewed and approved by the Oregon Energy Facility Siting Council as part of the energy facility siting process.

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Wetland Delineation Golden Hills Wind Farm

EXECUTIVE SUMMARY

David Evans and Associates Inc. (DEA) conducted a wetland delineation on June 11, 12, 13, and 14, 2007 for the Golden Hills Wind Farm. The Project site is located in rural north Sherman County (Figure 1). It is roughly three miles south of the Columbia River, six miles west of the John Day River, and four miles east of the Deschutes River. The project site is a roughly triangular-shaped area beginning near Thornberry, Oregon, extending south to Moro, Oregon, then bordered six miles to the east on a diagonal by Highway 206.

Wetland delineation results found that, in general, the wetland analysis area consists almost entirely of upland areas under agricultural production, and to a lesser extent, upland plant communities. The main drainage features include Locust Grove Canyon, Mud Hollow, Spanish Hollow, China Hollow, Hay Canyon, and Grass Valley. These features include intermittent unnamed tributaries. Mud Hollow joins Spanish Hollow and heads north out of the wetland analysis area to the Columbia River, as does Locust Grove Canyon. Grass Valley Canyon heads eastward, joins Hay Canyon, and continues out of the wetland analysis area to join the John Day River north to the Columbia River.

Topography within the project vicinity is typified by gently rolling to level ground located along a high plateau. Areas of steep slopes are confined to the major drainage features. These areas drop rapidly from the high and relatively level plateau down to the hollows and canyon areas. Elevations range between approximately 1,000 to 2,100 feet.

The vast majority of the project site is under dry land wheat production. Very little acreage of native plant communities remains within the project site, occurring predominantly along the plateau margins and steep side slopes. These communities consist of sagebrush (*Artemisia tridentata*) and rabbit brush (*Chrysothamnus* sp.), dominated shrublands and native bunchgrass grasslands, each with varying degrees of invasive species present. Agricultural areas that are enrolled under the Conservation Reserve Program (CRP) are located throughout the project site, occurring as narrow strips in previously plowed drainageways, and as large blocks in other areas. CRP areas have been planted with a mix of native and non-native bunch grasses with the primary intent of increasing wildlife habitat in the area. Wetland areas are associated with the major drainage features.

A Level 2 Routine On-Site Method was used to delineate wetland areas according to the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* herein referred to as the *Arid West Supplement*. This manual is designed as a supplement to the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987). This method requires an area to possess a prevalence of hydrophytic vegetation, hydric soils, and wetland

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hydrology. Under normal circumstances, positive indicators of each of these three parameters must be present for an area to satisfy the criteria for jurisdictional wetlands. Areas of relatively low disturbance, such as CRP areas, were considered to have normal circumstances. In instances where a site has been substantially disturbed and one or more parameters were not measurable, then the wetland delineation may rely solely on the remaining measurable parameter(s). Such circumstances are referred to as atypical situations. For this Project, areas within the wetland analysis area consisting of cultivated wheat were considered atypical situations with "normal circumstance." In these instances, only soil conditions and wetland hydrology indicators were used to determine if an area should be classified as a jurisdictional wetland.

Twelve wetlands were identified during the field investigation associated with the drainage features of Mud Hollow, Spanish Hollow, China Hollow, and Grass Valley Canyon. Wetlands or other waters of the U.S. are under the jurisdiction of either the U.S. Army Corps of Engineers (USACE) or the Oregon Department of State Lands (DSL). These agencies authorize permits involving removal and fill activities in jurisdictional wetlands. DSL requires a Removal/Fill Permit when the total removal or fill in a water of the state, including wetlands, is equal to or exceeds 50 cubic yards. In essential salmonid habitat (ESH), a permit is required for any fill amount. No areas within the wetland analysis area are mapped as essential salmonid habitat by DSL.

USACE administers Section 404 of the Clean Water Act, which regulates the discharge of fill materials into waters of the U.S., including wetlands. USACE issues Nationwide or Individual permits depending on the amount of impact to wetland resources and the purpose for which the discharge of fill materials is proposed.

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1 INTRODUCTION

David Evans and Associates, Inc. (DEA) conducted a wetland delineation on June 1, 12, 13, and 14, 2007 for the Golden Hills Wind Farm (Applicant). The project site is located in rural, north Sherman County (Figure 1). It is roughly three miles south of the Columbia River, six miles west of the John Day River, and four miles east of the Deschutes River. The project site is triangular shaped area beginning near Thornberry, Oregon, extending south to Moro, Oregon, roughly six miles east, then bordered on the east diagonal by Highway 206. The project site is located in the following Township, Range, and Sections:

- Township 2 North, Range 16 East, Sections 7,12,13,14, 23,24, 25, 26, 27, 34, 35 and 36
- Township 2 North, Range 17 East, Sections 29, 30, 31, and 32
- Township 1 North, Range 16 East, Sections 1, 2, 3, 13, 24, 25, and 36
- Township 1 North, Range 17 East, Sections 5 through 8, Sections 15 through 23, and Sections 27 through 36
- Township 1 North, Range 18 East, Sections 30 and 31
- Township 1 South, Range 17 East, Sections 1 through 5, 6 through 14,16, and
- Township 1 South, Range 18 East, Section 5 and 6

The purpose of this delineation is to determine the current presence, location, and size of federal and state jurisdictional wetlands and other "waters of the U.S." Once verified by the appropriate agencies, this wetland delineation will allow BP Alternative Energy to accurately understand specific impacts to waters of the U.S. and/or waters of the state, including wetlands associated with the proposed project.

2 PROJECT DESCRIPTION

Golden Hills proposes to construct an approximately 400 megawatt (MW) wind generation project in Sherman County, Oregon (Figure 2). The proposed project is located on lands adjacent to the Klondike I, II, and III projects. The Project is expected to provide approximately 133 average megawatts (aMW) of energy. The Project will interconnect with the Bonneville Power Administration's (BPA) transmission system at two locations – one near Klondike Schoolhouse Substation (200 MW) and one at John Day Substation (200 MW).

All project facilities will be located on private agricultural land; BPAE has negotiated long-term wind energy leases with the landowners to construct and operate the facility on those lands. The leases allow landowners to continue their farming operations in and around the project facilities where farming activities would not impact the operation and maintenance of the wind generation equipment.

Project construction is targeted to begin in spring of 2008 with a completion of construction by the end of 2008, when commercial operations will begin. Substations, access roads, and O&M building will also be constructed as part of the Project.

3 SITE BOUNDARY AND WETLAND ANALYSIS AREA

The "site boundary" for the proposed Project includes all areas of proposed permanent and temporary construction and other ground disturbing activities that would result from the Project (Figure 2). The site boundary was derived using the following protocols:

- 100 feet on each side of the centerline for the following project elements: proposed new roads, underground collector system (within road prism and not within road prism).
- 900 feet from the centerline of the turbine strings.
- Actual footprint (i.e. no buffer) of all proposed laydown areas, new substations, and habitat mitigation areas and existing roads.

The wetland analysis area is within this site boundary.

4 SITE DESCRIPTION

Located on the eastern side of the Cascade Mountains, the project site predominantly exhibits the continental climate of the Intermountain Region – extreme temperatures and low rainfall (Orr, et al., 1992). However, the Columbia River Gorge provides a passageway for the normal eastward migration of ocean-conditioned air masses from the Pacific. These currents usually lead to shorter hot or cool periods than those typical of the Intermountain Region. For the period 1971 to 2000, mean minimum and maximum temperatures for the month of January, the coldest month of the year, were 24.7°F and 38.3°F, respectively (Oregon Climate Center 2007). For the month of August, the warmest month of the year, mean minimum and maximum temperatures were 52.6°F and 81.8°F, respectively. However, temperature extremes are known to range from -16°F to 106°F. Most of the annual rainfall in Sherman County occurs between November and February, reflecting the strong influence of marine air masses entering from the Pacific Ocean. Mean monthly rainfall (measured 1971 – 2000 at Moro, Oregon) ranges from 0.31 inches in July to 1.57 inches in January. Between 1910 and 1995, mean total annual precipitation was 11.76 inches in Wasco, Oregon.

Sherman County is on the Deschutes-Columbia Plateau, a lava-floored plain that has experienced uplifting. This is predominantly a volcanic province sloping gently northward to the Columbia River. Topography within the project site is typified by

gently rolling to level ground located along the high plateau. Areas of steep slopes are confined to the major drainage features of Locust Grove Canyon, China Hollow, Mud Hollow, Spanish Hollow, Hay Canyon, and Grass Valley. In these areas, elevations drop rapidly from the high and relatively level plateau of approximately 1,300 feet to 2,100 feet to the hollows and canyon areas with 1,000- to 1,200-foot elevation.

These major drainage features are tributaries of the Columbia River. Mud Hollow joins Spanish Hollow and heads north out of the wetland analysis area to the Columbia River as does Locust Grove Canyon. The Grass Valley Canyon heads eastward, joins Hay Canyon, and continues out of the wetland analysis area to join the John Day River north to the Columbia River.

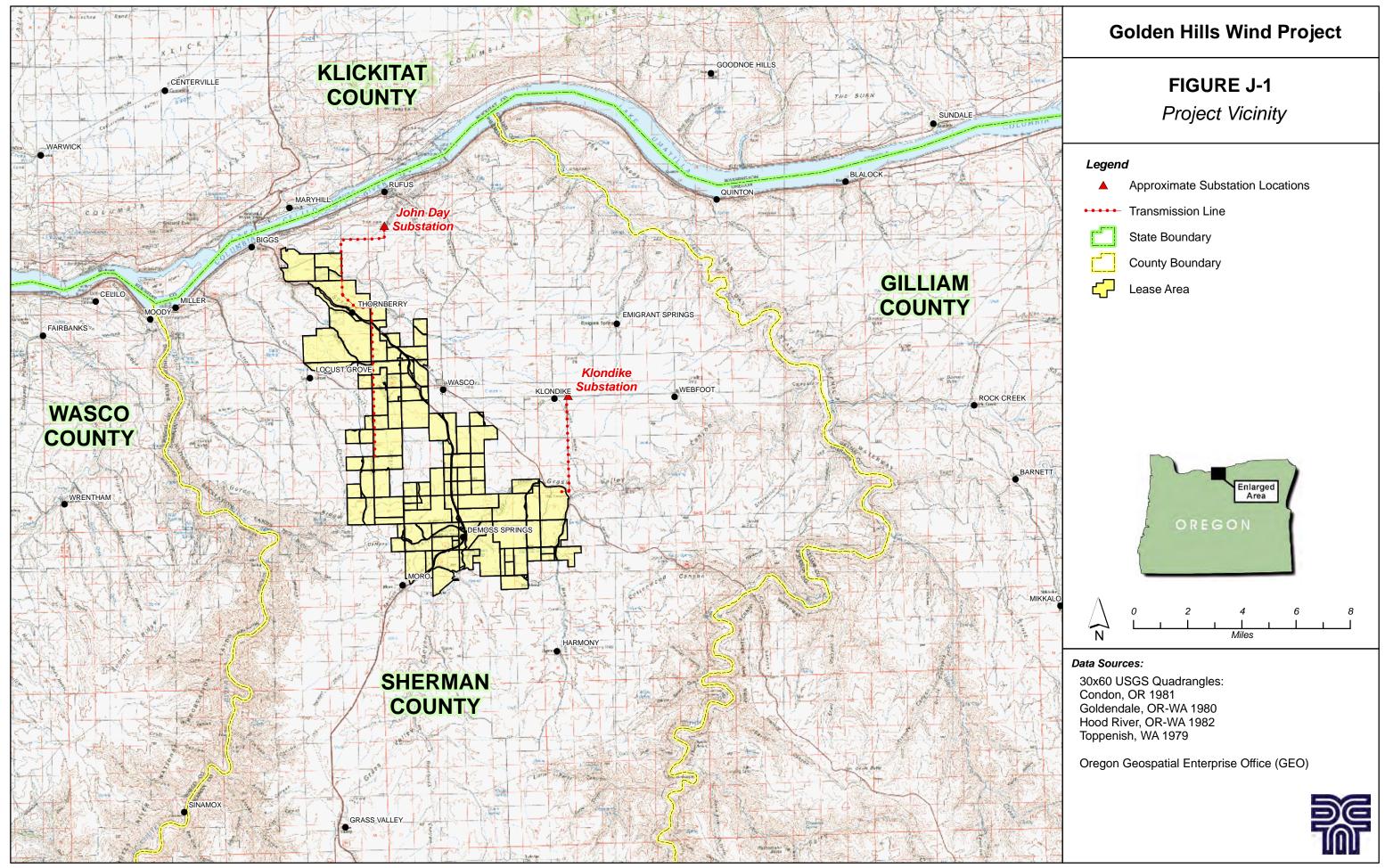
The vast majority of the project site is under dry land wheat production. Very little acreage of native plant communities remains, occurring predominantly along the plateau margins and steep side slopes. These communities consist of sagebrush (*Artemisia tridentata*) and rabbit brush (*Chrysothamnus* sp.), dominated shrublands and native bunchgrass grasslands, each with varying degrees of invasive species present. Agricultural areas that are enrolled under the Conservation Reserve Program (CRP) are located throughout the project site, occurring as narrow strips in previously plowed drainageways, and as large blocks in other areas. CRP areas have been planted with a mix of native and non-native bunch grasses with the primary intent of increasing wildlife habitat in the area. Hybrid Lombardy poplar (*Populus X niger*) and black locust (*Robinia pseudoacacia*) have been introduced along some drainage features and farmsteads.

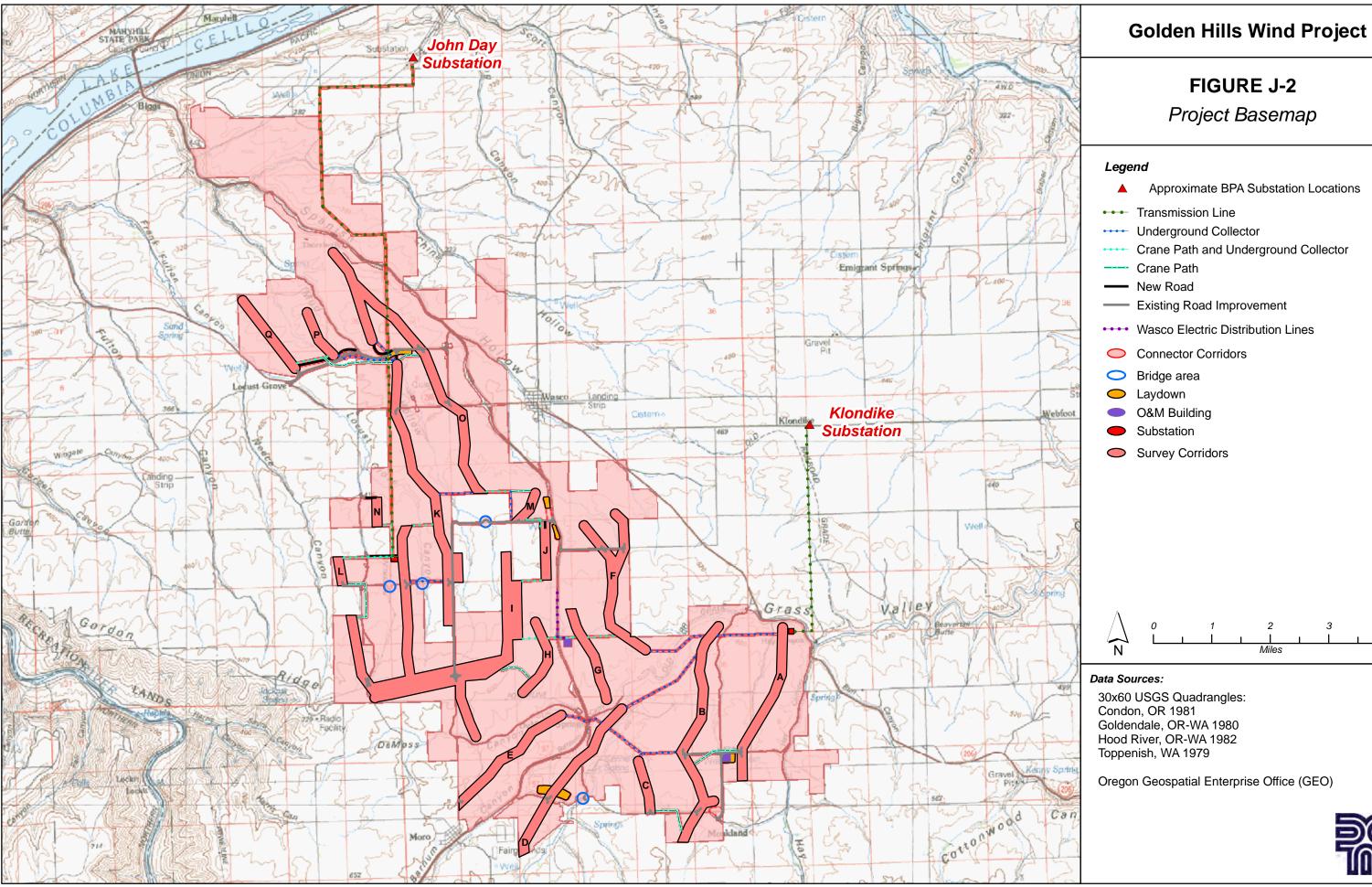
5 METHODS

5.1 PRELIMINARY RESOURCE REVIEW

Reference materials were reviewed prior to the field investigation to provide information regarding the possible presence of wetlands, water features, hydric soils, wetland hydrology, and site topography. The materials reviewed included:

- Precipitation data for Pendleton, Oregon (Oregon Climate Service, 2007)
- Wasco, Oregon, 7.5 minute Quadrangle, U.S. Geological Survey (USGS 1987)
- Sherman, Oregon, 7.5 minute Quadrangle, U.S. Geological Survey (USGS 1971)
- Wasco, Oregon, National Wetlands Inventory (NWI) 7.5 minute quadrangle maps, U.S. Fish and Wildlife Service (USFWS 1981)
- Sherman, Oregon, National Wetlands Inventory (NWI) 7.5 minute quadrangle maps, U.S. Fish and Wildlife Service (USFWS 1981)
- On-line Soil Survey of Sherman County Area, Oregon, U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS), (USDA 2005)





6 FIELD METHODS

Wetland areas were delineated according to the Level 2 Routine On-Site Method described in the *U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2006). The project site is located within the Columbia/ Snake River Plateau of Land Resource Region (LRR B) as described in the *Arid West Supplement*, applicable to significant portions of Oregon that are dominated mainly by grasslands, shrublands, hardwood savannas, deciduous woodlands, and pinyon/juniper woodlands (Environmental Laboratory, 2006).

This method requires an area to possess a prevalence of hydrophytic vegetation, hydric soils, and wetland hydrology. Under normal circumstances, positive indicators of each of these three parameters must be present for an area to satisfy the criteria for jurisdictional wetlands. For this Project, areas of relatively low disturbance, such as CRP areas, were considered to have normal circumstances. In instances where a site has been substantially disturbed and one or more parameters are not measurable, then the wetland delineation may rely solely on the remaining measurable parameter(s). Such circumstances are referred to as atypical situations. Areas consisting of cultivated wheat were considered atypical situations. Although vegetative cover data was recorded for these areas, only soil conditions and wetland hydrology indicators were used to determine if an area should be classified as a jurisdictional wetland.

6.1.1 Hydrology

When delineating wetlands, an area is considered to possess wetland hydrology when the soil is saturated to the surface for a sufficient period of time during the growing season to develop anaerobic conditions. The USDA Natural Resource Conservation Service WETS Table database for Sherman County (USDA 2005) identifies the growing season for Moro, Oregon as occurring from April 19 to October 15 with a 50% probability.

Field indicators of wetland hydrology are divided into two categories: primary and secondary. Primary indicators include surface water, high water table, saturation, non-riverine watermarks, non-riverine sediment deposits, non-riverine drift deposits, surface soil cracks, inundation visible on aerial imagery, water-stained leaves, salt crust, biotic crust, aquatic vertebrates, hydrogen sulfide odor, oxidizes rhizospheres, or presence of reduced iron. Two secondary field indicators are required; they include riverine watermarks, riverine sediment deposits, riverine drift deposits, drainage patterns, dry season water table, thin muck surface, crayfish burrows, saturation visible on aerial imagery, shallow aquitard, or a FAC-neutral test. At each sample plot, the surrounding area was examined for the presence of primary and secondary indicators of wetland hydrology. Data on hydrology is best collected during the early

growing season because primary field indicators can be used. Later in the season a combination of primary and secondary indicators can be used as is the case for this delineation..

6.1.2 Soils

The project site was examined for the presence of hydric soils. Hydric soils are soils which are saturated, flooded, or ponded long enough (usually a week or more) during the growing season to develop anaerobic conditions in the upper part (Environmental Laboratory 1987). Soil pits were dug and profiled. The *Munsell Soil Color Chart* (Munsell Color 1990) was used for color analysis based on hue, value, and chroma. All mineral layers above any of the indicators must have a dominant chroma of 2 or less, or the layers with dominant chroma of more than 2 must be less than six inches thick to meet any hydric soil indicator. There are 17 hydric soil indicators, plus several that are region specific. Generally, they include hystic soils, depletion, muck, redox, and gleying. Low soil chroma and redox are indicators of reduced soil conditions caused by anaerobic, wet environments. Redox indicates a fluctuating water table. The *Soil Survey of Umatilla County Area*, *Oregon* (USDA 1988) was consulted prior to fieldwork to determine if hydric soils were mapped in the analysis area.

6.1.3 Vegetation

USFWS has classified vegetation according to its frequency of occurrence in wetlands (USFWS 1988). Many plant species have been given wetland indicator status of either obligate wetland (OBL), facultative wetland (FACW), facultative (FAC), facultative upland (FACU), or upland (UPL) based on their probabilities for occurring in wetlands. Table 1 provides the definitions of plant indicators used to determine wetland status. Many species are not listed (NL) in regional or national lists.

Table 1. Plant Indicators Used to Determine Wetland Status

Indicator Symbol	Indicator Status	Definition	
OBL	Obligate	Species that occur almost always (estimated probability >99%) in wetlands under natural conditions.	
FACW	Facultative wetland	Species that occur in wetlands (estimated probability 67 to 99%), but occasionally are found in non-wetlands.	
FAC	Facultative	Species that are equally likely to occur in wetlands or non-wetlands (estimated probability 34-66%).	
FACU	Facultative upland	Species that usually occur in non-wetlands (estimated probability 67-99%), but occasionally are found in wetlands.	
UPL	Upland	Species that occur almost always in non-wetlands under normal conditions (estimated probability >99%).	
NI	No indicator	Species for which insufficient information was available to determine an indicator status.	

Source: National List of Plant Species that Occur in Wetlands: Northwest (Region 9) (USFWS 1988).

In accordance with the USACE 1987 Manual and Arid West Supplement, vegetation plots were established in areas supporting a single plant community. Plant species observed were identified using The Flora of the Pacific Northwest (Hitchcock and Cronquist 1973) and assigned their indicator status using the National List of Plant Species that Occur in Wetlands, Northwest - Region 9 (USFWS 1988) and the 1993 supplement (USACE 1993). Percent cover of each plant species was visually estimated. Plots with a 5-foot radius were used to estimate percent cover of herbaceous vegetation. The same plot was enlarged to a 30-foot radius to estimate percent cover of shrubs, saplings, vines, and trees. Plot sizes were adjusted in size and shape, as necessary, to encompass only one plant community.

Dominant species were determined for each of the three vegetative strata found on site (herb, sapling/shrub, and tree) using percent area cover. There were no woody vine strata present. The dominant species in each of the three strata are determined separately. The species within each stratum are ranked in descending order of estimated percent cover. The species that provide the most cover are totaled until 50% of the total coverage is exceeded; these are considered dominant species. If any additional species comprise at least 20% of the total coverage in each stratum, they are also considered dominant species. When more than 50% of the dominant species have wetland indicators of OBL, FACW, or FAC, the area is considered to support hydrophytic (wetland) vegetation.

6.1.4 Plot Location, Boundary Determination, and Mapping Accuracy

Due to the arid and well-drained nature of the site, few areas would be expected to contain wetlands or other waters of the state and/or U.S. Although the entire wetland analysis area was reviewed for the presence of these features, this delineation took a focused approach when determining sample plot locations. Ravine bottoms,

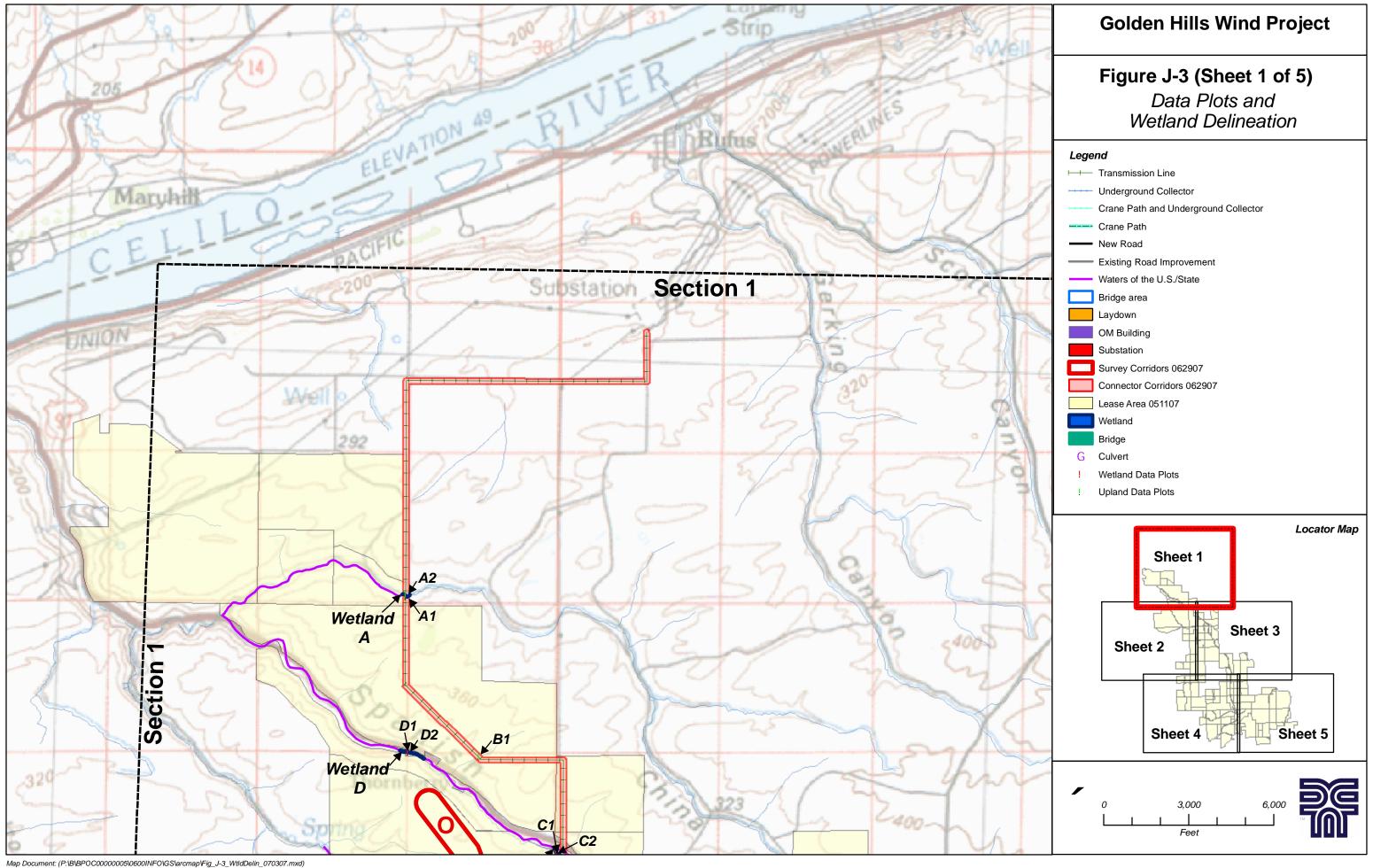
depressions, and other areas that could potentially collect water were purposely investigated, as these areas would have the highest probability of containing waters of the state or wetlands. This included areas mapped as wetlands by the NWI and areas mapped as intermittent or perennial drainages by the USGS. These areas had the highest probability of containing wetlands or other waters of the state, and U.S. Sample data plots were conducted and data sheets were completed at each sample plot, which document the vegetation, soils, and hydrology.

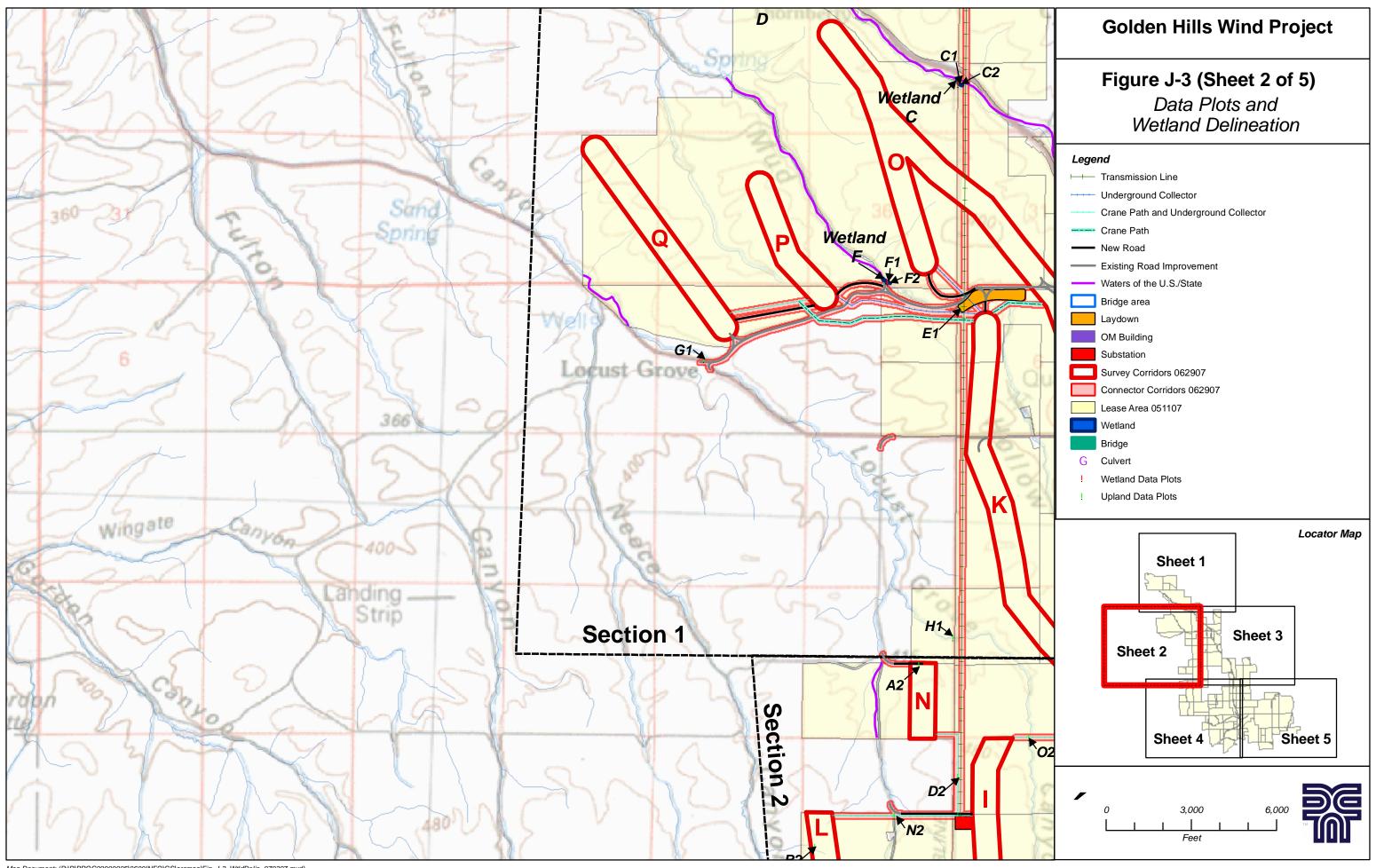
Areas in which wetland hydrology, hydric soils, and hydrophytic vegetation were all present were considered wetlands. In areas experiencing atypical situations, only the combined presence of hydric soils and hydrology were required to delineate an area as jurisdictional wetland. Areas where a defined channel was present, regardless of presence of flowing water, were considered to be other waters of the state and/or U.S. Areas where such features may have existed in the past but have since been plowed through and no channel exists, were not delineated as other waters of the state and/or U.S. Photographs were taken to document field conditions.

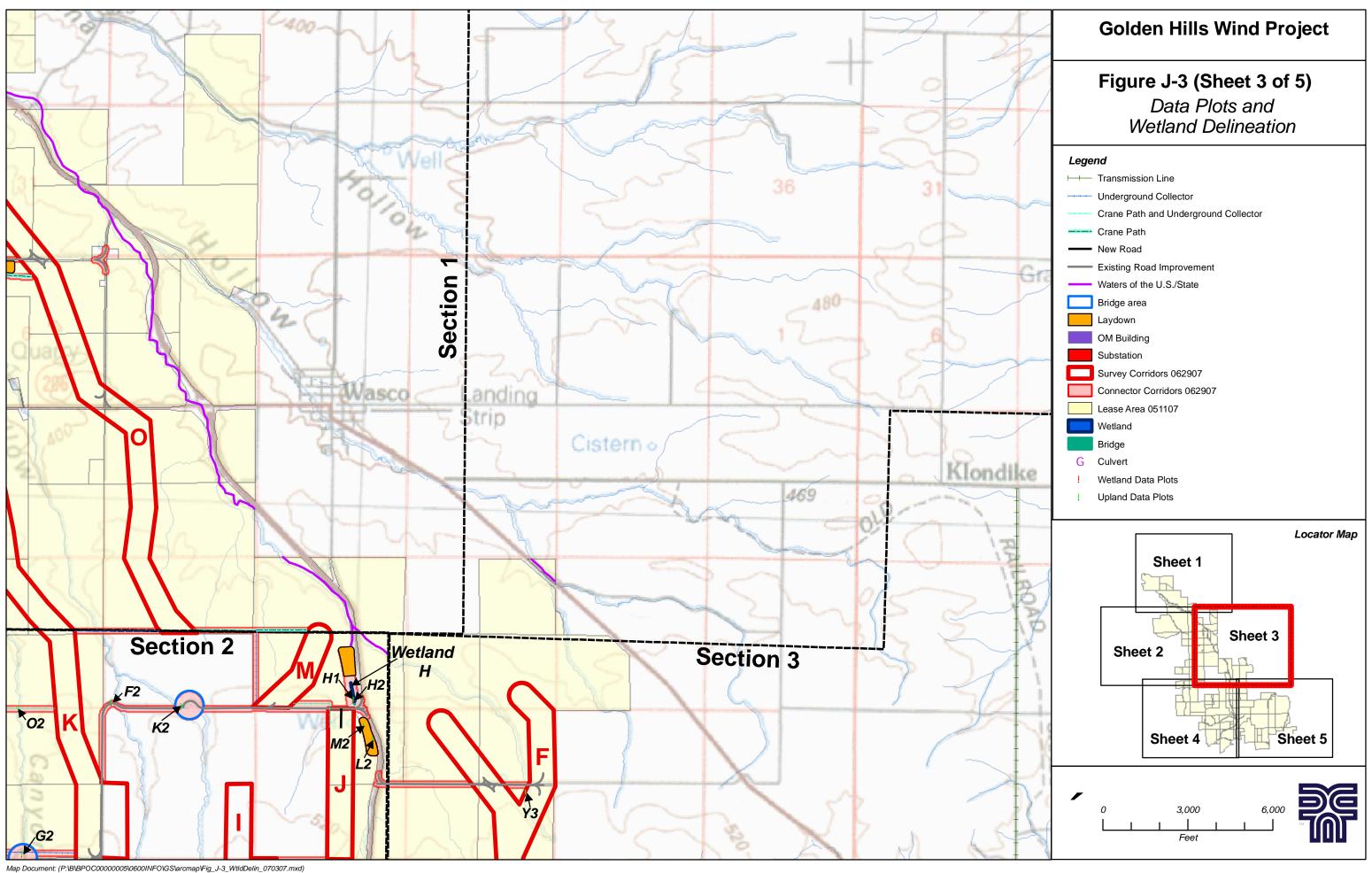
Wetland data plot locations, wetland boundaries, and potential crossings of jurisdictional waters were collected using a Trimble GeoExplorer Global Positioning System (GPS) receiver. Wetland boundaries were delineated at the demarcation of hydrophytic vegetation. Post processing of GPS data was used to increase the accuracy of collected data. Accuracy of the GPS collected data is estimated at plus or minus three feet.

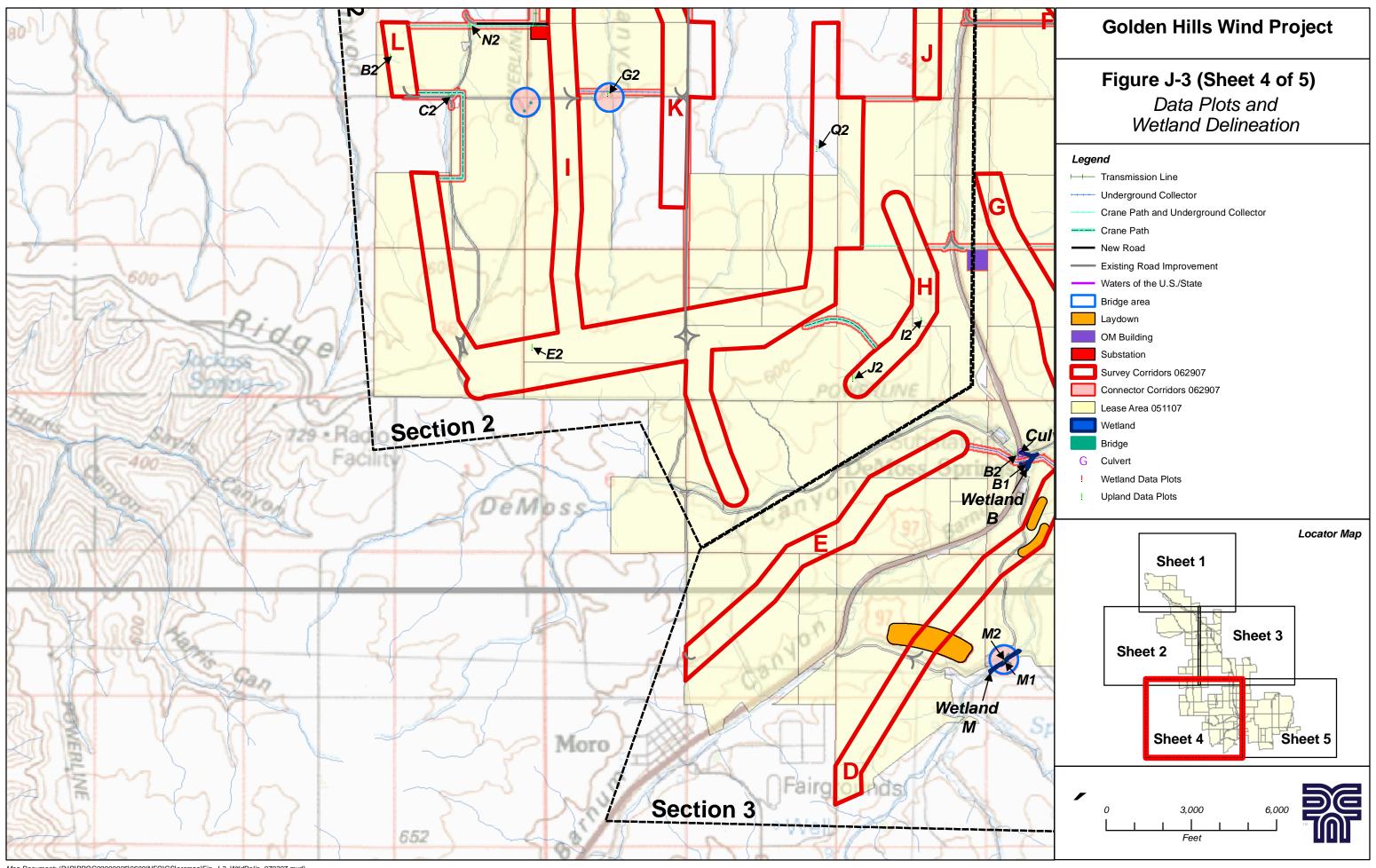
7 RESULTS

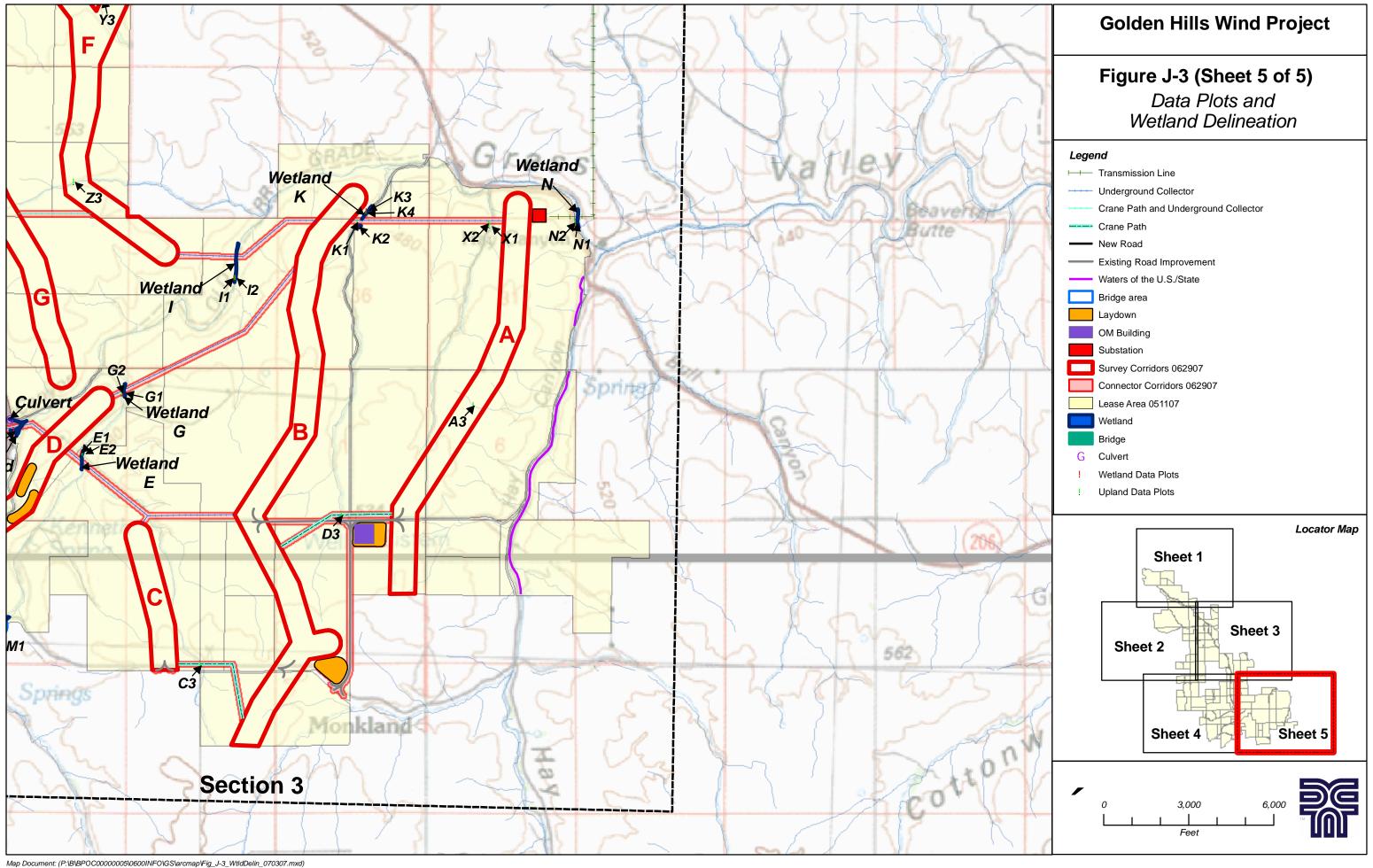
Preliminary research results are graphically displayed on Figures 3 through 5. Text description of the delineation results follows thereafter.

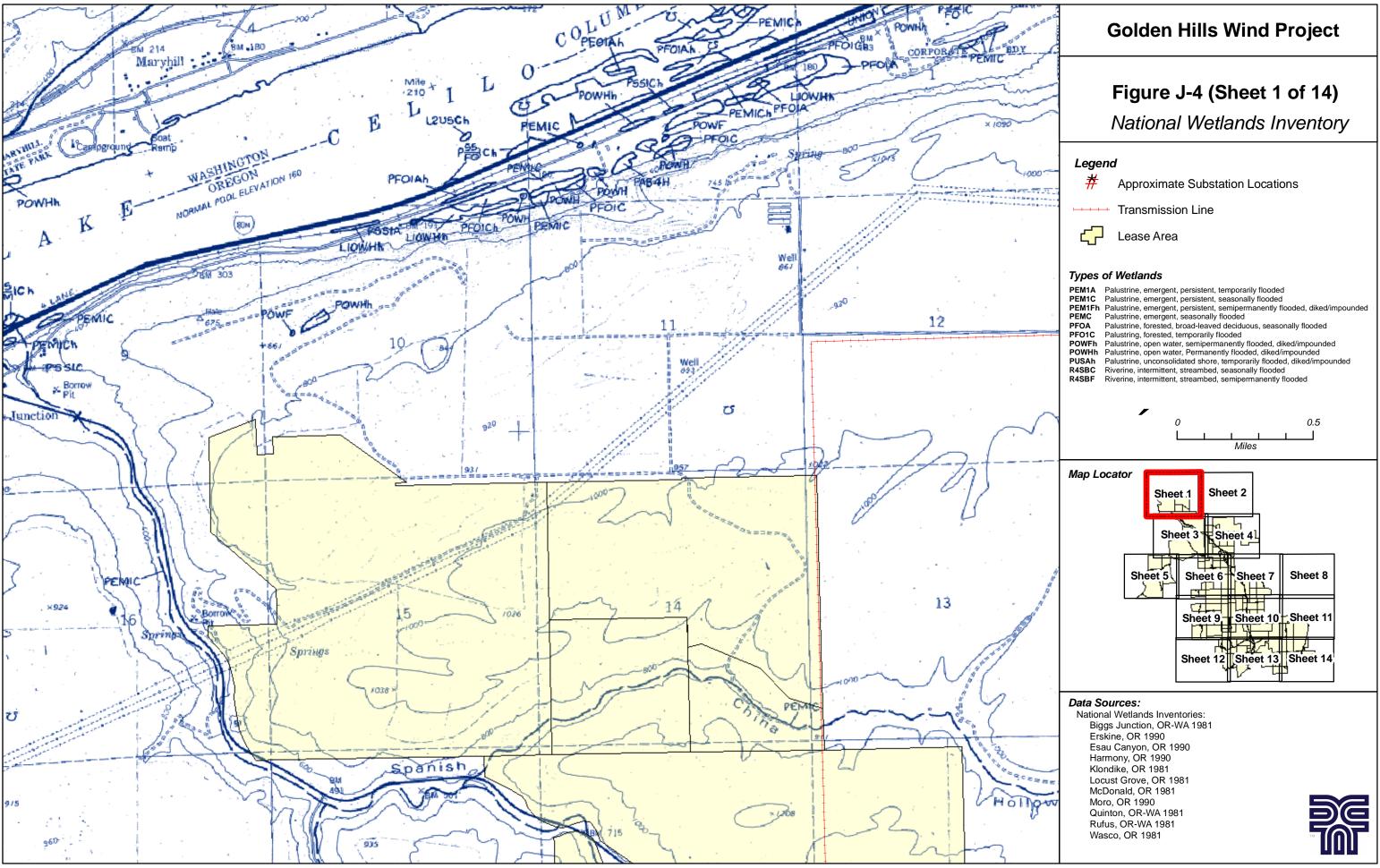


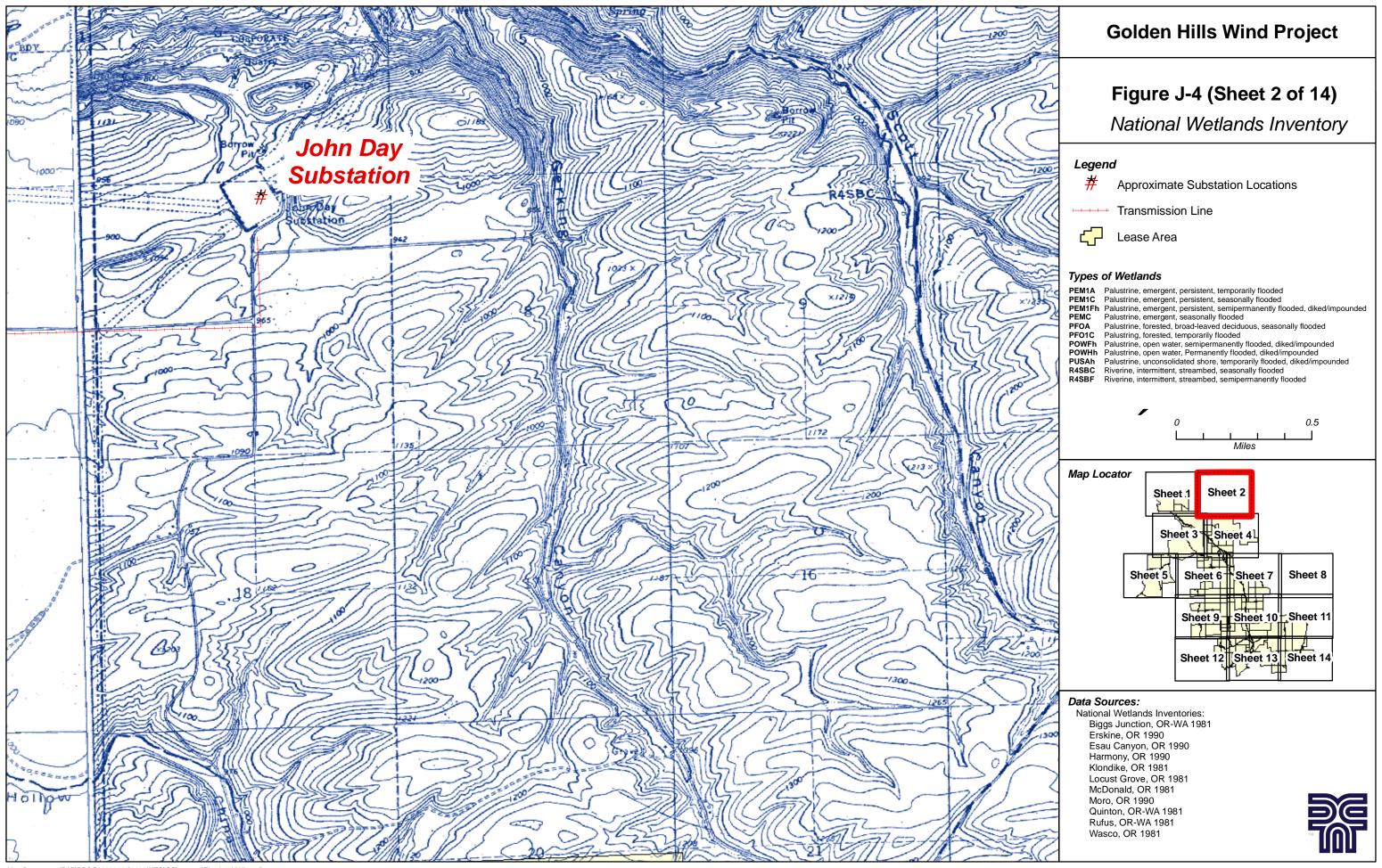


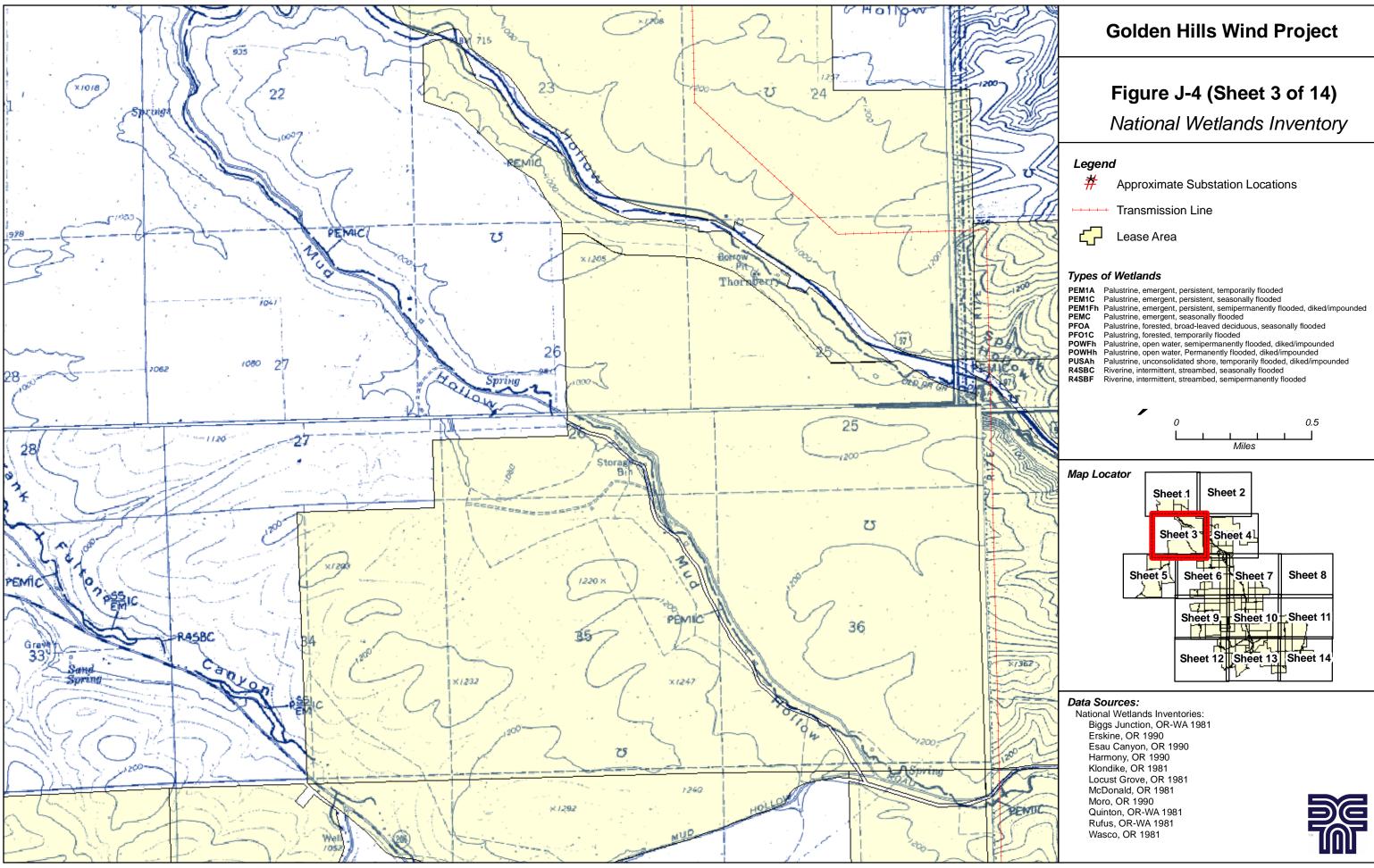






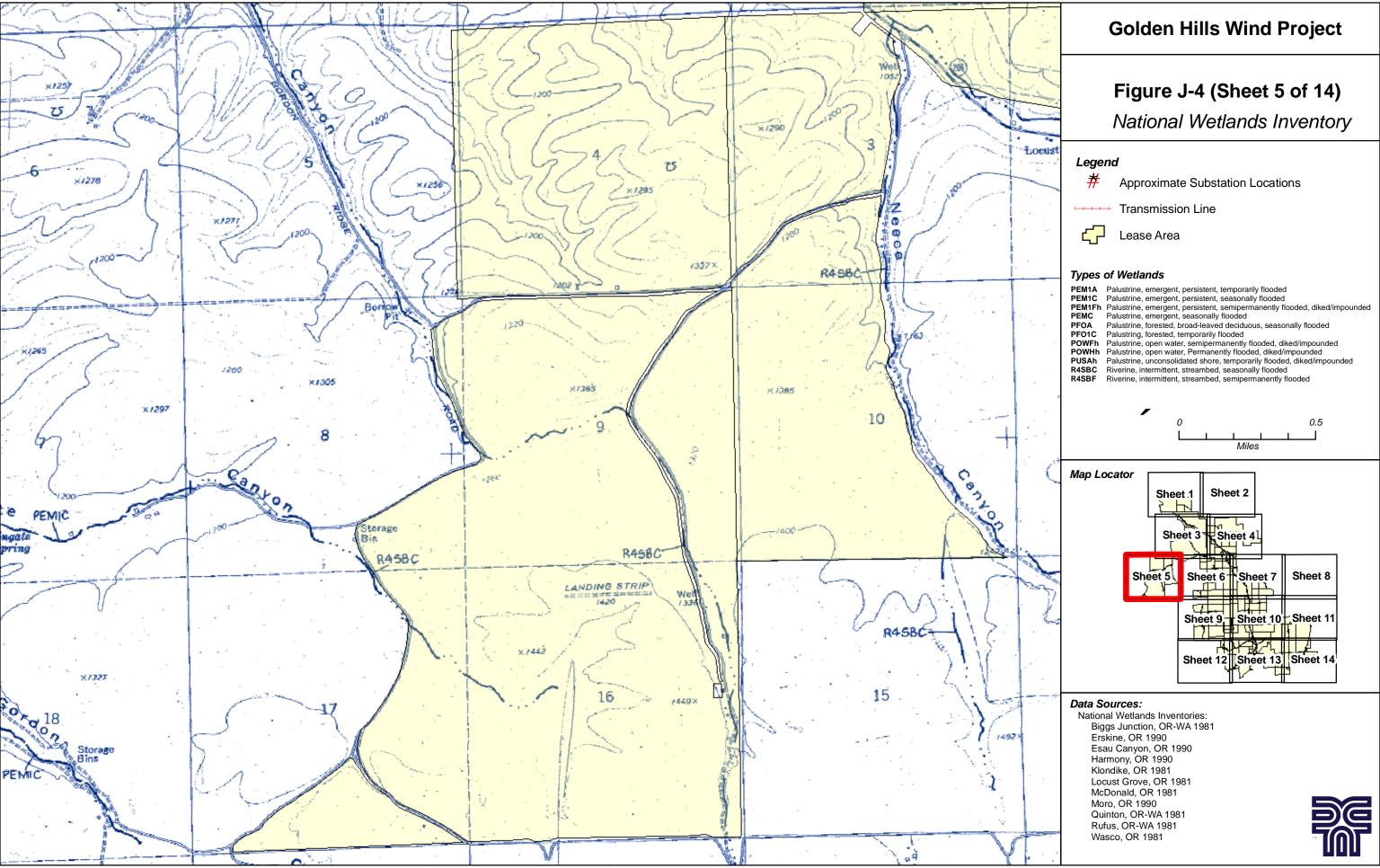


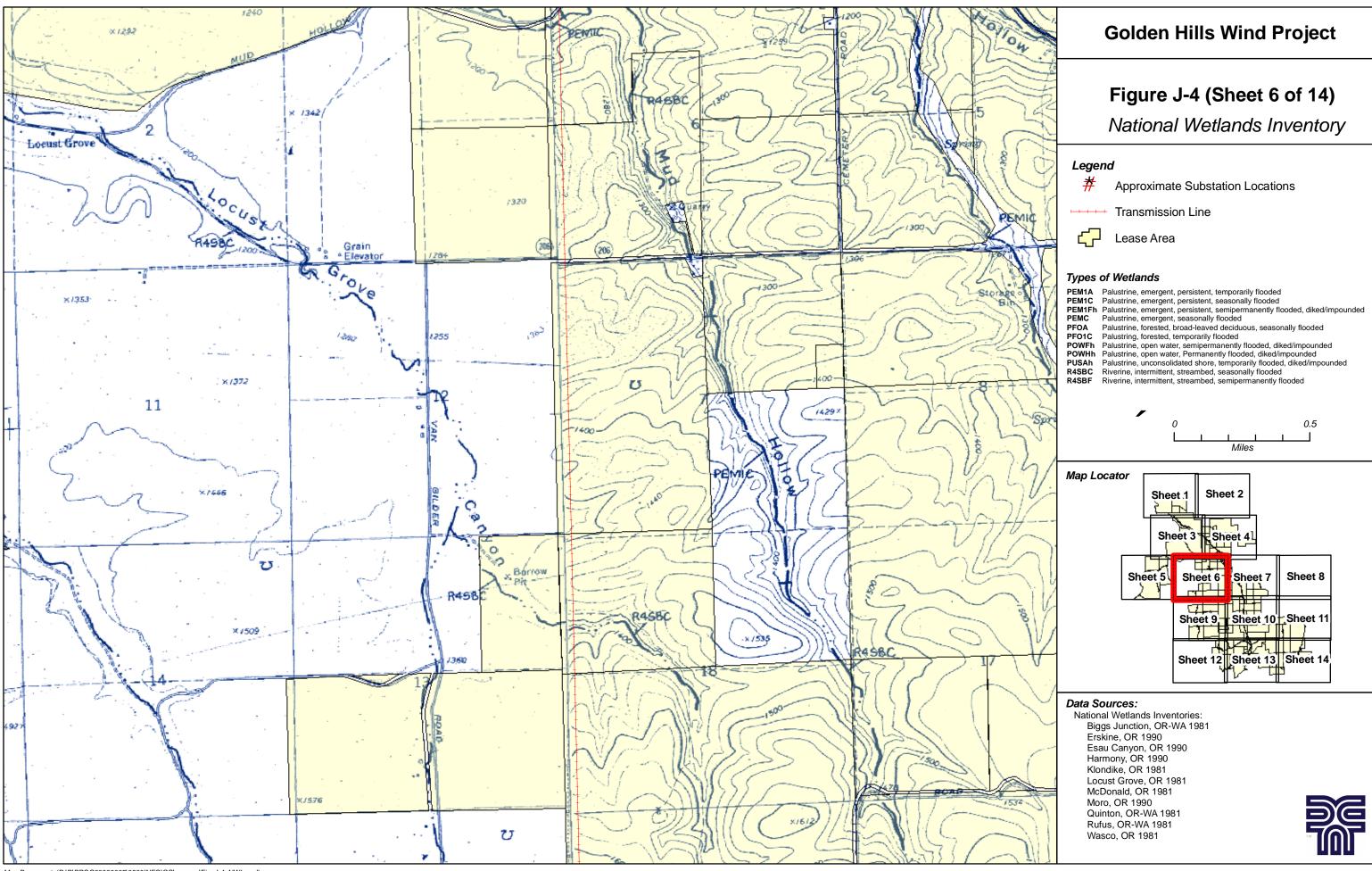


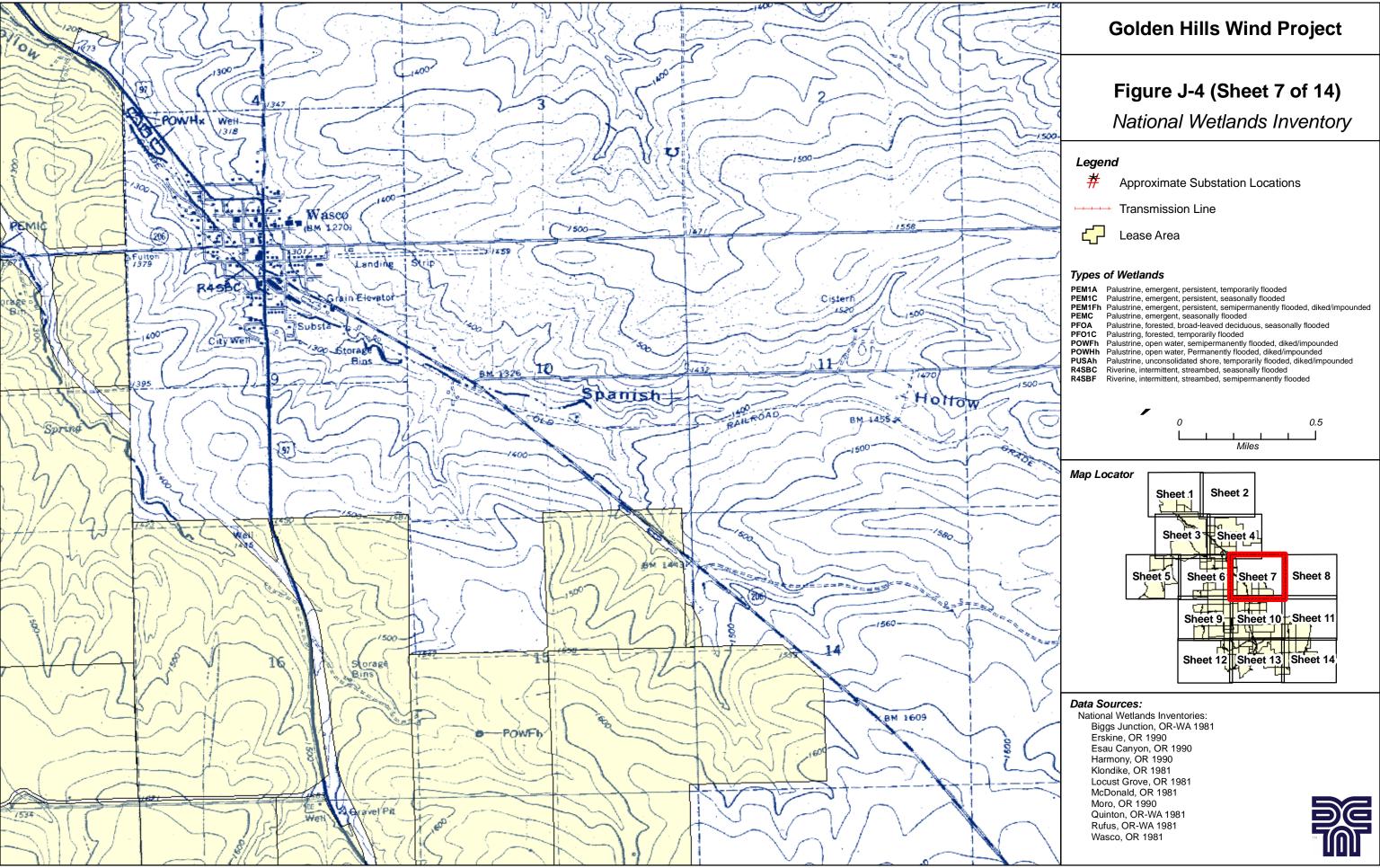


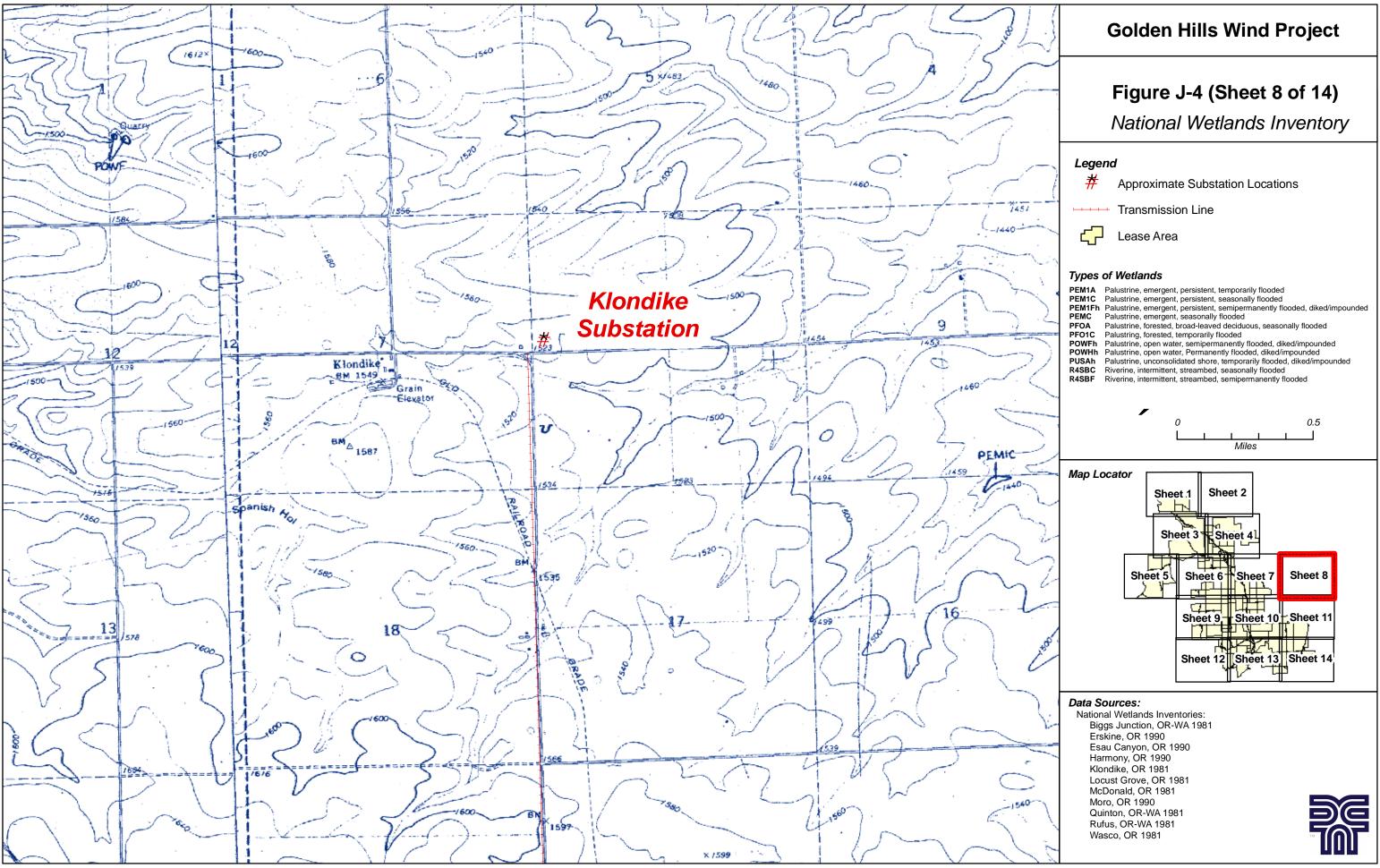
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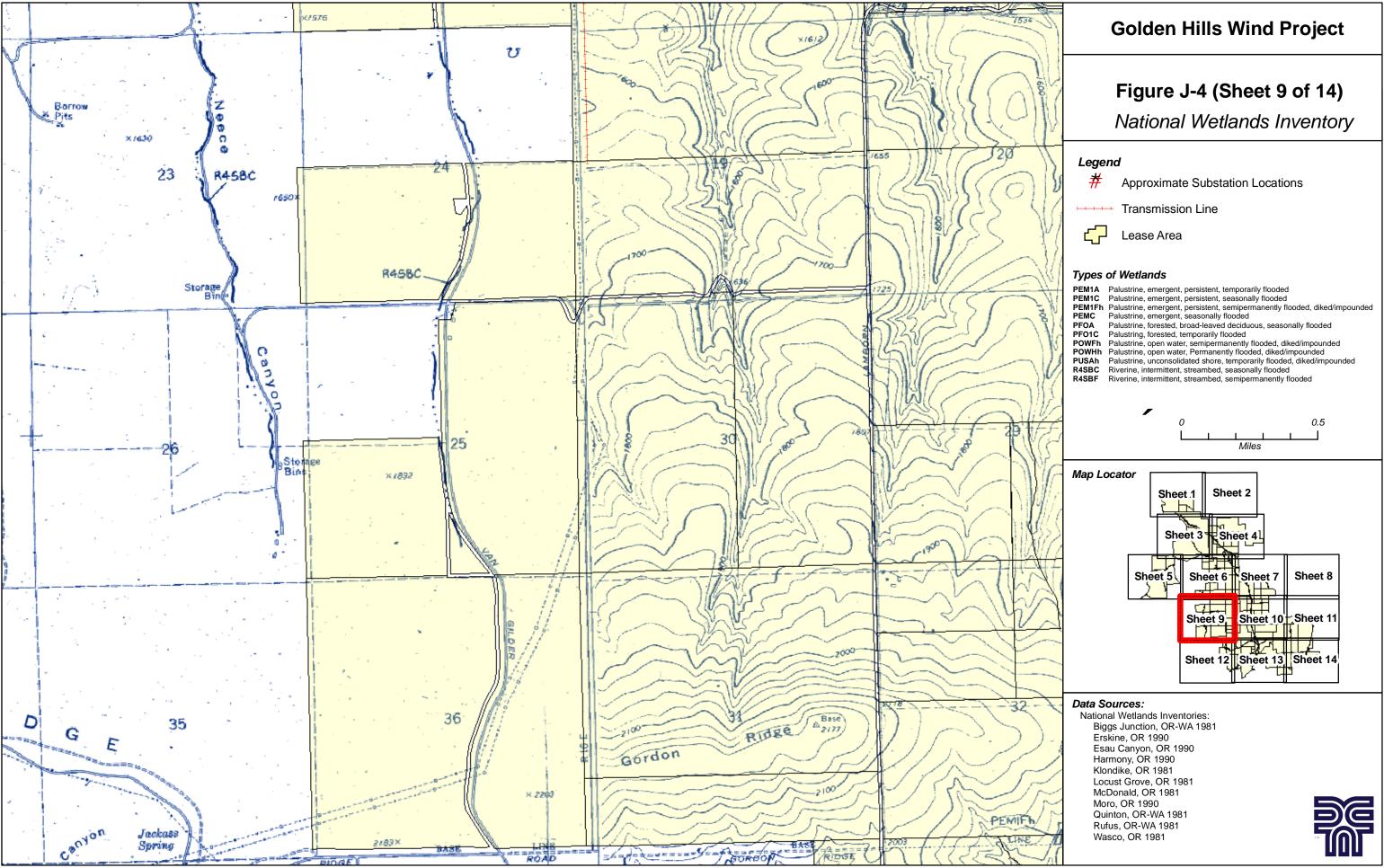
Golden Hills Wind Project Figure J-4 (Sheet 4 of 14) National Wetlands Inventory Legend Approximate Substation Locations Transmission Line Lease Area Types of Wetlands PEM1A Palustrine, emergent, persistent, temporarily flooded PEM1C Palustrine, emergent, persistent, seasonally flooded PEM1Fh Palustrine, emergent, persistent, semipermanently flooded, diked/impounded **PEMC** Palustrine, emergent, seasonally flooded PFOA Palustrine, forested, broad-leaved deciduous, seasonally flooded Palustring, forested, temporarily flooded Palustrine, open water, semipermanently flooded, diked/impounded POWHh Palustrine, open water, Permanently flooded, diked/impounded PUSAh Palustrine, unconsolidated shore, temporarily flooded, diked/impounded R4SBC Riverine, intermittent, streambed, seasonally flooded R4SBF Riverine, intermittent, streambed, semipermanently flooded Miles Map Locator Sheet 1 Sheet 2 PEMIC Sheet 3 Sheet 4 Sheet 6 Sheet 7 Sheet 8 Sheet 9 Sheet 10 Sheet 11 Sheet 12 Sheet 13 Sheet 14 Data Sources: National Wetlands Inventories: Biggs Junction, OR-WA 1981 Erskine, OR 1990 Esau Canyon, OR 1990 Harmony, OR 1990 Klondike, OR 1981 Locust Grove, OR 1981 McDonald, OR 1981 Moro, OR 1990 Quinton, OR-WA 1981 Rufus, OR-WA 1981 Wasco, OR 1981

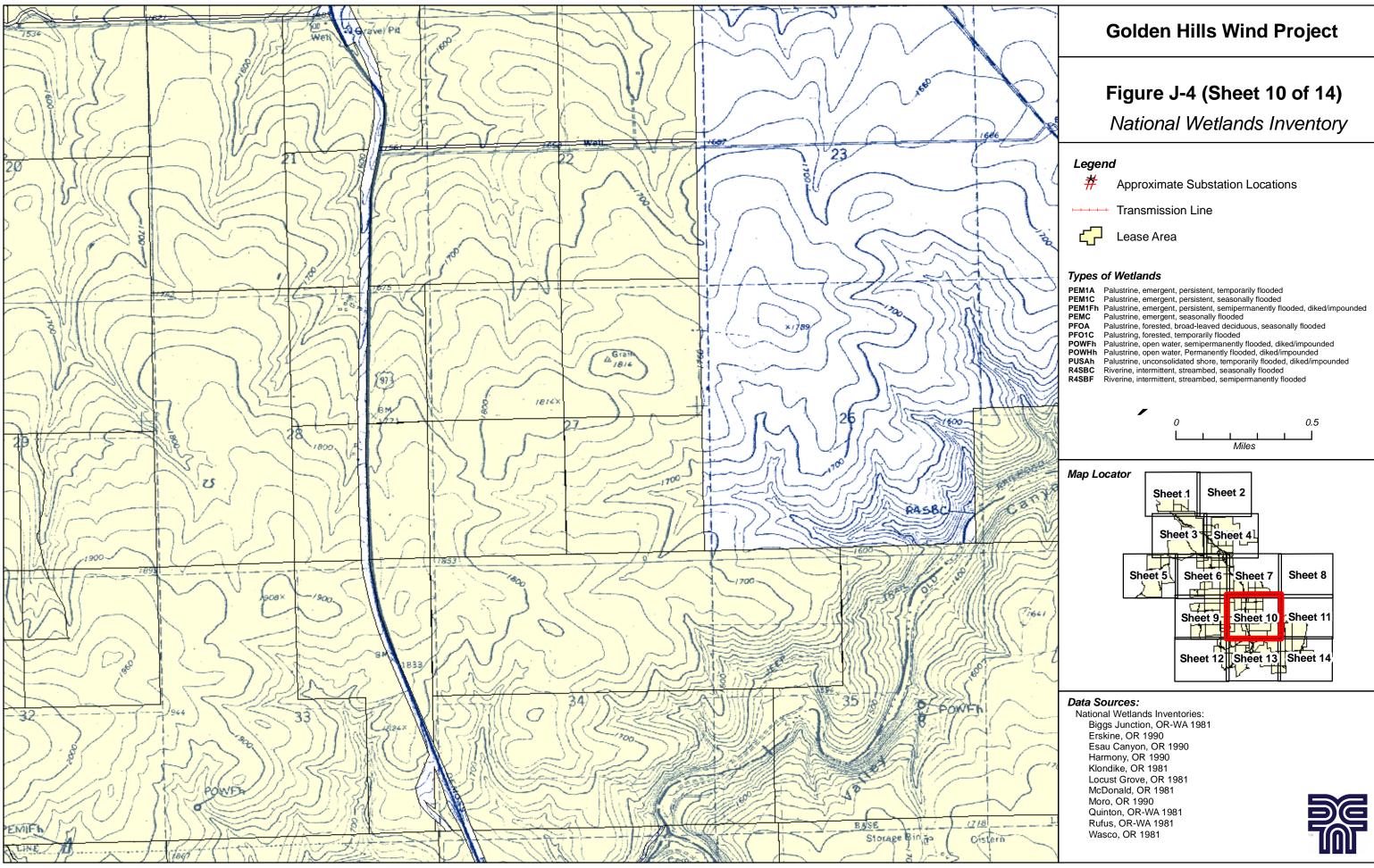


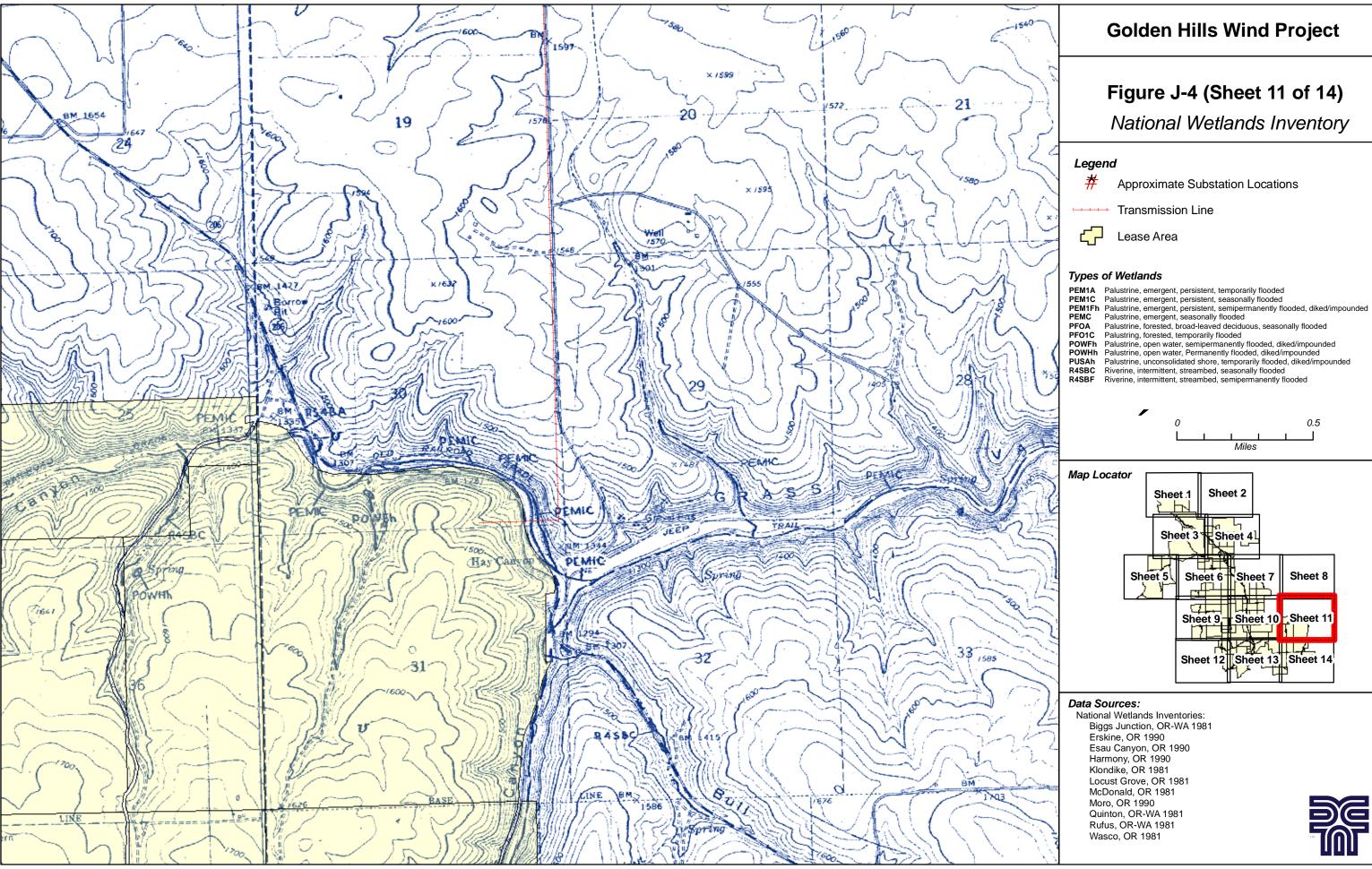




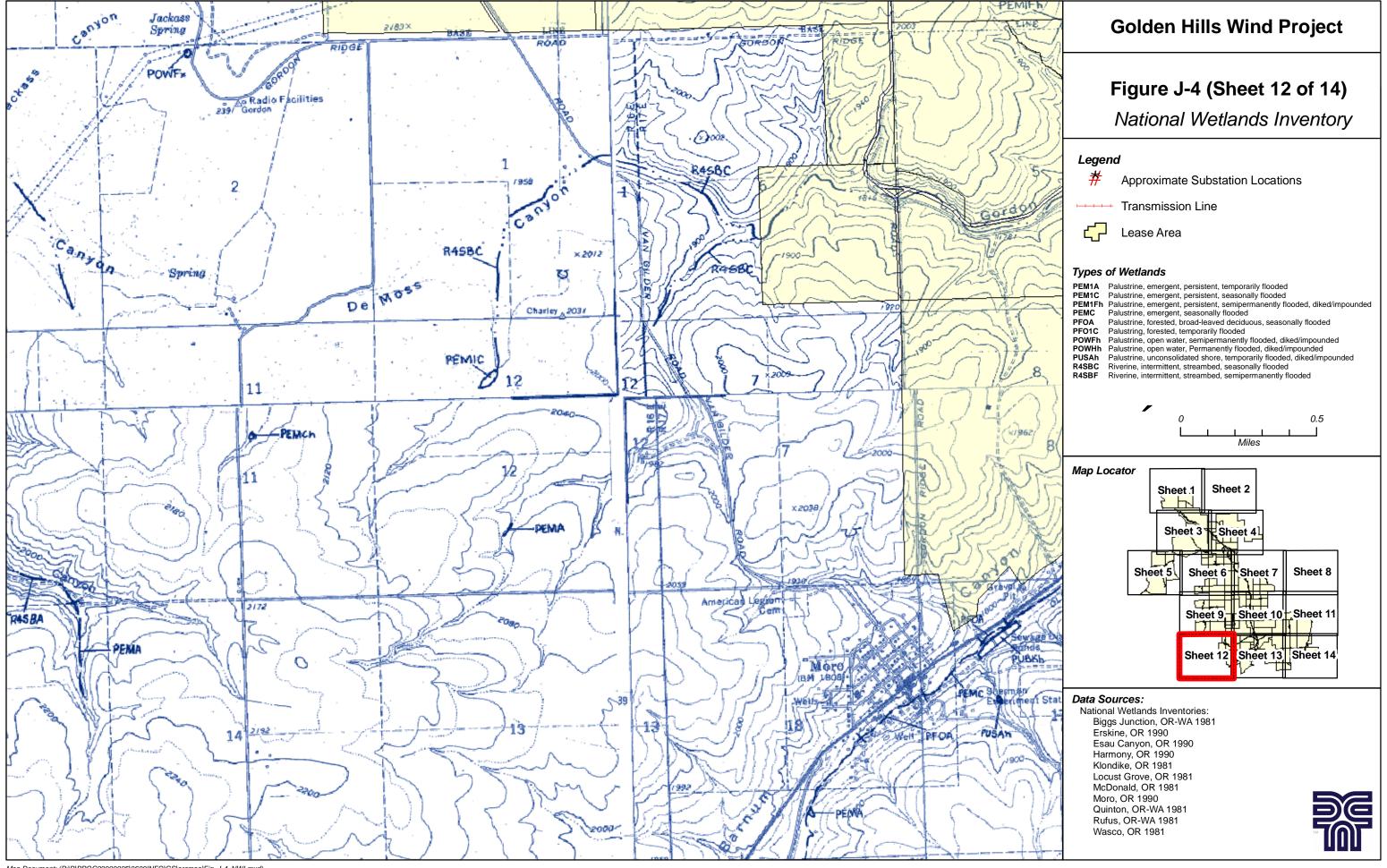


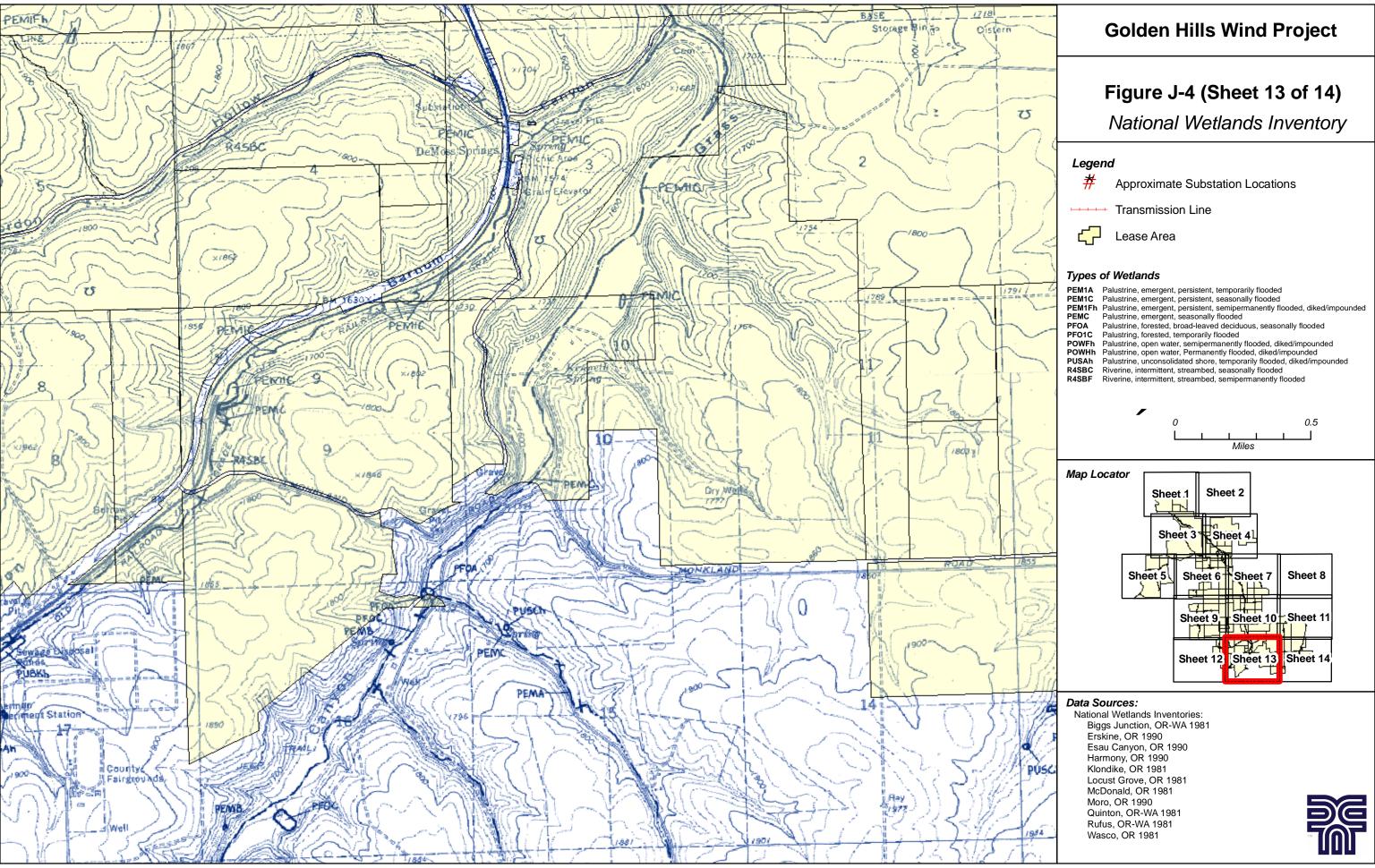


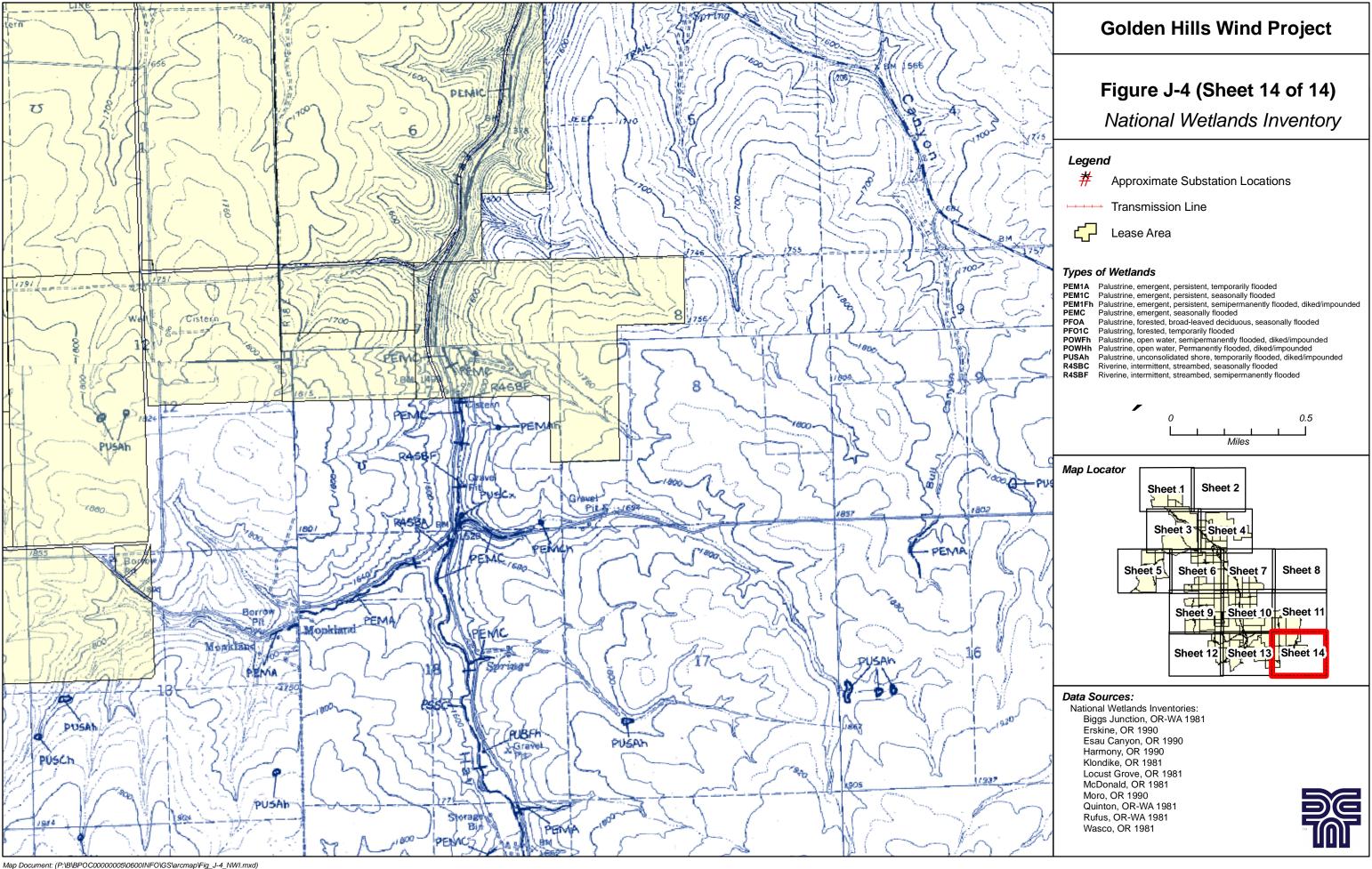


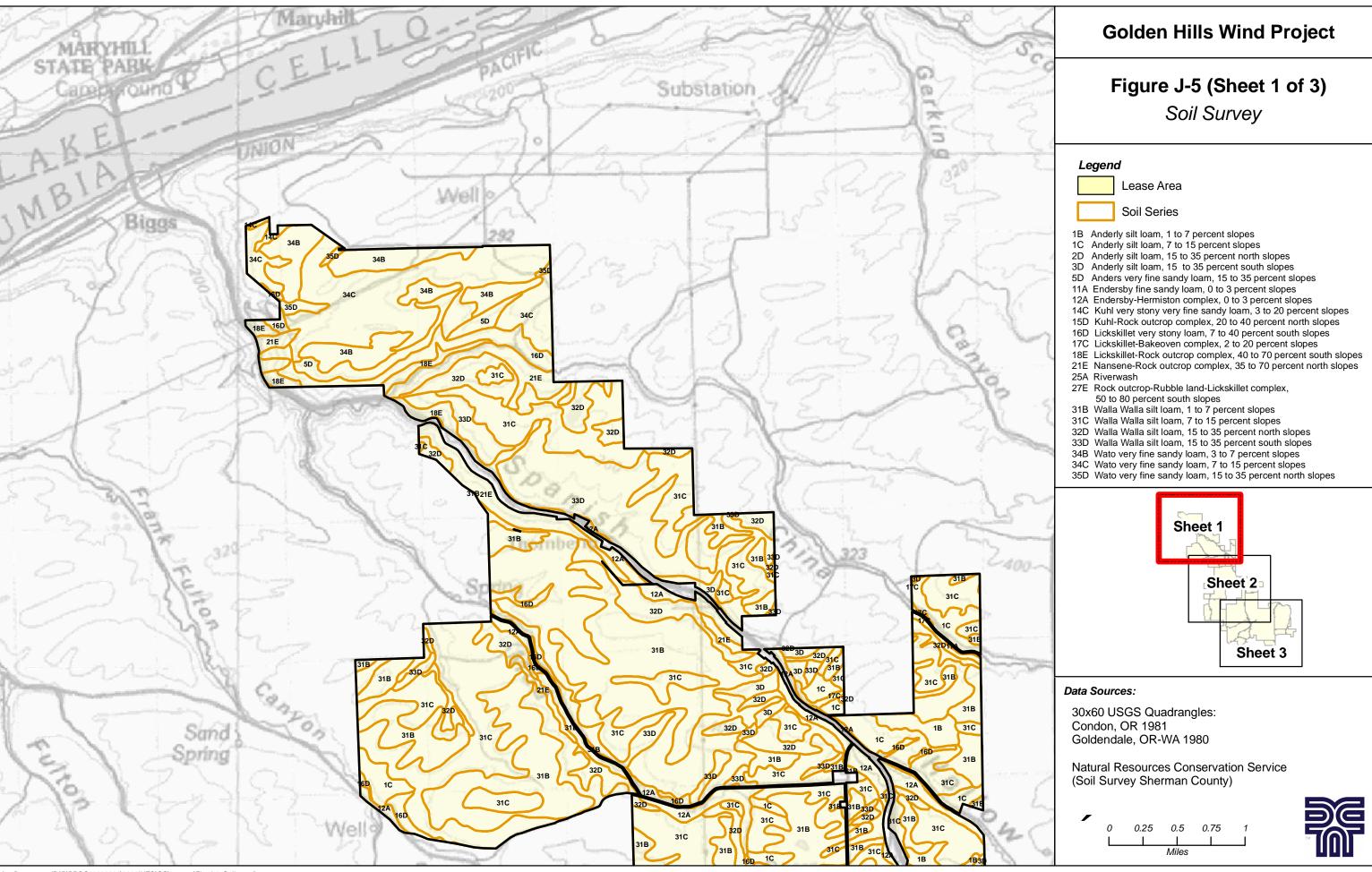


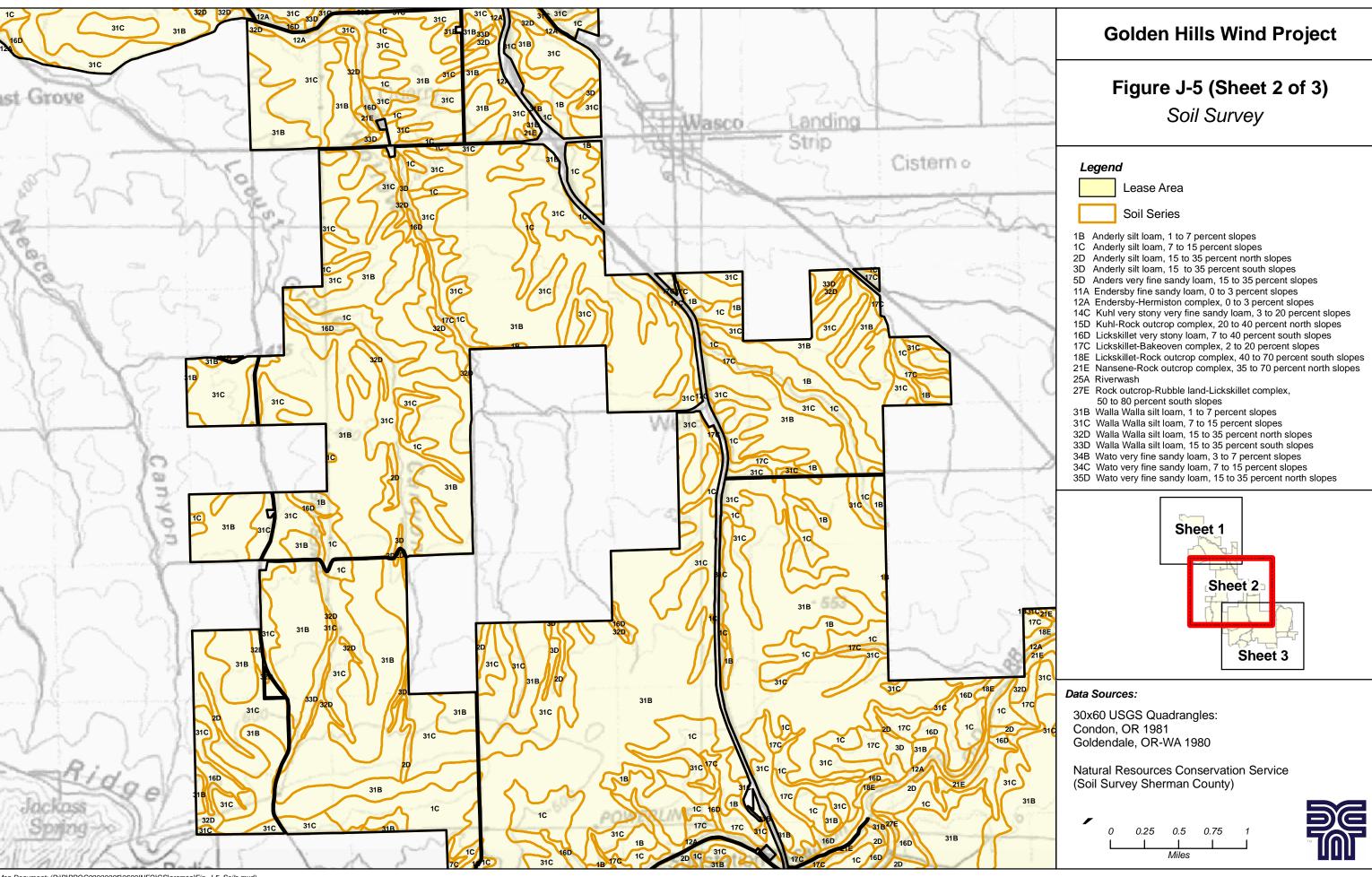
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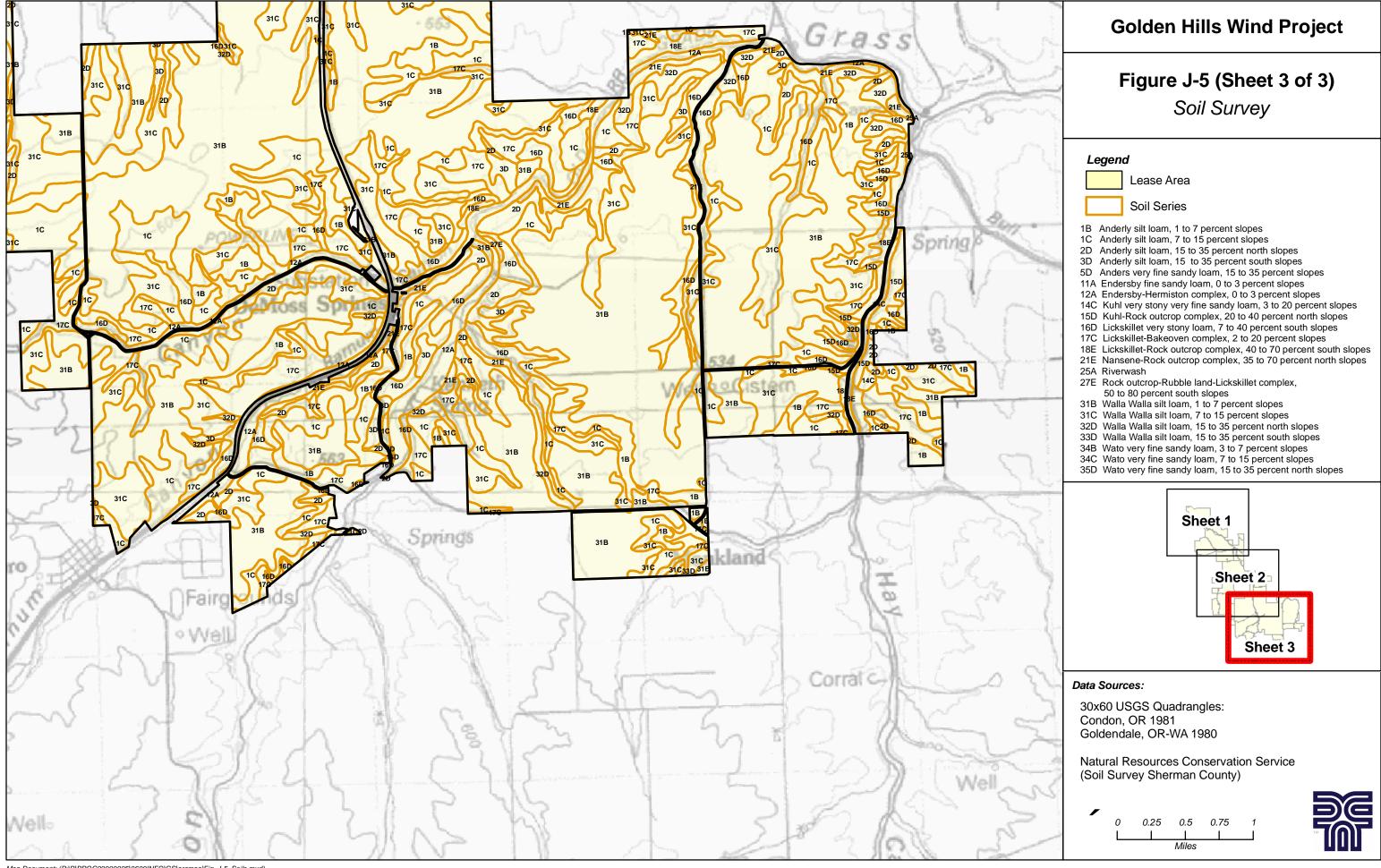








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PRELIMINARY RESOURCE REVIEW

7.1.1 Precipitation Record

Historic average daily precipitation data for the days of the site visits June 11, 12, 13, and 14, 2007, as well as the 14 days prior to each visit is 0.03 based on historic data from 1928 through 2005. Historic average total precipitation recorded for the month of June is 0.78 inches based on historic data from 1971 through 2000 (Oregon Climate Center, 2007).

7.1.2 Wetland Inventory Maps

The NWI shows several wetland types within the wetland analysis area, the most common are palustrine emergent, persistent, seasonal wetlands (PEM1C) and palustrine emergent, seasonal wetlands (PEMC). Also listed were riverine, intermittent, streambed seasonably flooded wetland (R4SBC); palustrine open water, semi- permanently, diked/impounded flooded wetlands (POWFh); and palustrine, open water, permanently flooded, diked/impounded wetlands (POWHh). Most wetlands are associated with a drainage feature as indicated on the USGS quadrangle map. The USGS drainage features of the wetland analysis area include Locust Grove Canyon, China Hollow, Mud Hollow, Spanish Hollow, Hay Canyon, and Grass Valley.

7.1.3 Soils

Figure 5 shows soil types within the project area, as mapped by the County soil survey. Table 3 provides a list of soils mapped by the Soil Survey of Sherman County Area (USDA 1988) that occurs within the wetland analysis area and overall project area. There are no hydric soils mapped within the wetland analysis area or the greater project area.

Table 3. Soils mapped by Soil Survey of Sherman County Area that occur within the wetland analysis area.

Soil Series	Hydric Status	Hydric Inclusions
1B - Anderly silt loam, 1 to 7 percent slopes	Non-hydric	None
1C - Anderly silt loam, 7 to 15 percent slopes	Non-hydric	None
2D - Anderly silt loam, 15 to 35 percent south slopes	Non-hydric	None
3D - Anderly silt loam, 15 to 35 percent south slopes	Non-hydric	None
5D - Anderly very fine sandy loam, 0-3 percent slopes	Non-hydric	None
11A - Endersby fine sandy loam, 0 to 3 percent slopes	Non-hydric	Riverwash
12A - Endersby-Hermiston complex, 0 to 3 percent slopes	Non-hydric	Riverwash
14C - Kuhl very stony very fine sandy loam, 3 to 20 percent slopes	Non-hydric	None
15D - Kuhl-Rock outcrop complex, 20 to 40 pecent north slopes	Non-hydric	None

Soil Series	Hydric Status	Hydric Inclusions
16D - Lickskillet very stony loam, 7 to 40 percent south slopes	Non-hydric	None
17C - Lickskillet-Bakeoven complex, 2 to 20 percent slopes	Non-hydric	None
18E- Lickskillet-Rock outcrop complex, 40 to 70 percent south slopes	Non-hydric	None
21E - Nansene-Rock outcrop complex, 35 to 70 percent north slopes	Non-hydric	None
25A - Riverwash	Non-hydric	Riverwash
27E - Rock outcrop-Rubble land-Lickskillet complex, 50 to 80 percent south slopes	Non-hydric	None
31B - Walla Walla silt loam, 1 to 7 percent slopes	Non-hydric	None
31C - Walla Walla silt loam, 7 to 15 percent slopes	Non-hydric	None
32D - Walla Walla silt loam, 15 to 35 percent north slopes	Non-hydric	None
33D - Walla Walla silt loam 15 to 35 percent south slopes	Non-hydric	None
34B - Wato very fine sandy loam, 3 to 7 percent slopes	Non-hydric	None
34C - Wato very fine sandy loam, 7 to 15 percent slopes	Non-hydric	None
35D - Wato very fine sandy loam, 15 to 35 percent north slopes	Non-hydric	None

7.2 FIELD RESULTS

Site visits were conducted on June 11, 12, 13, and 14, 2007. Drainage features, depressions, and other areas that could potentially collect water were purposely investigated, as these areas would have the highest probability of containing waters of the state or wetlands. According to protocol, a total of 51 sample plots were conducted. Data forms are contained in *Appendix 1*; photographs of the wetland data plots are contained in *Appendix 2*.

7.2.1 Vegetation

Five general plant communities were identified within the wetland analysis area. Plant communities were as follows:

- Cultivated Wheat (Triticum aestivum) Community
- CRP Community
- Upland Grass and CRP Community
- Upland Shrub (non-CRP) Community
- Emergent Wetland Community

All communities, with the exception of the emergent wetland community, were considered to be non-hydrophytic plant communities. As would be expected, the Cultivated Wheat Community was dominated by cultivated wheat. These areas were considered to fall under the atypical situation category and so the plant community

parameter was not factored in when determining wetland status for these areas. Only soils and hydrology were used. Nonetheless, no area containing the cultivated wheat community was delineated as wetland.

7.2.1.1 CRP Community

The CRP community consisted of planted bunch grasses, as well as more weedy species. Sage and rabbitbrush were occasionally found within this community, but not at high enough percentages to be considered dominant species. Table 4 provides a listing of dominant plant species found within the CRP community. This community was considered to be non-hydrophytic.

Table 2. CRP Community

Common Name	Scientific Name	Indicator Status
Intermediate wheatgrass	Agropyron intermedium	NL
Sandberg bluegrass	Poa secunda	NL
Bulbous bluegrass	Poa bulbosa	FAC

Upland Grass and CRP Community

The upland grass community was primarily found in uncultivated areas. This community was comprised of native and non-native upland species. Table 5 provides a listing of dominant plant species found within the upland grass community. This community was considered to be non-hydrophytic.

Table 3. Upland Grass and CRP Community

Common Name	Scientific Name	Indicator Status
Bulbous bluegrass	Poa bulbosa	FAC
Redstem stork's bill	Erodium cicutarium	NL
Basin wildrye	Elymus cinereus	FAC
Cheat grass	Bromus tectorum	NL
Carey's balsamroot	Balsamorhiza careyana	NL
Dusty maidens	Chaenactis douglassii	NL
Cultivated wheat	Triticum aestivum	NL

7.2.1.2 Upland Shrub (Non-CRP) Community

The upland shrub community was identified in a few small patches primarily along the banks of the drainage that runs in close proximity to Klondike Lane. This community was comprised of a mix of native and non-native shrub and herbaceous

species. Table 6 provides a listing of dominant plant species found within the upland shrub community. This community was considered to be non-hydrophytic.

Table 4. Upland Shrub (Non-CRP) Community

Common Name	Scientific Name	Indicator Status
Big sagebrush	Artemisia tridentata	NL
Lupine sp.	Lupinus sp.	UPL
Russian thistle	Salsola kali	UPL
Russian olive	Elaeagnus angustifolia	FAC
Tall tumblemustard	Sisymbrium altissimum	FACU
Black locust	Robinia pseudoacacia	FACU
Sandberg bluegrass	Poa secunda	NL
Bulbous bluegrass	Poa bulbosa	FAC
Cheat grass	Bromus tectorum	NL
Basin wildrye	Elymus cinereus	FAC
Prickly lettuce	Lactuca serriola	FACU
Cultivated wheat	Triticum aestivum	NL
Bedstraw	Galium aparine	FAC

7.2.1.3 Emergent Wetland Community

Emergent wetland communities were identified at most wetland locations. These were comprised of both hydrophytic and non-hydrophytic herbaceous species with hydrophytic species dominating. Table 6 provides a listing of dominant plant species found within the emergent wetland community. This community was considered to be hydrophytic.

Table 5. Emergent Wetland Community

Common Name	Scientific Name	Indicator Status
Spikerush	Eleocharis palustris	OBL
Intermediate wheatgrass	Agropyron intermedium	NL
Hybrid Lombardy poplar	Populus X niger	NL
Black locust	Robinia pseudoacacia	FACU
Reed canarygrass	Phalaris arundinadea	FACW
Cattail	Typha latifolia	OBL
Stinging nettle	Urtica dioica	FAC
Curly dock	Rumex crispus	FAC
Rabbitfoot grass	Polypogon mospeliensis	FACW
Dense silkybent	Agrostis(Apera) interrupta	NL

Common Name	Scientific Name	Indicator Status
Meadow horsetail	Equisetem pratensis	FACW
Rush	Juncus sp.	FAC
Baltic rush	Juncus balticus	FACW
Canada thistle	Circium arvense	FAC
Thistle	Cirsium sp.	NL
Wavy-leaved thistle	Cirsium undulatum	FACU
Willow sp.	Salix sp.	FAC
American speedwell	Veronica americana	OBL

7.2.2 Soils

Soils were relatively homogeneous throughout the project site area. The typical soil profile consisted of light brown (10YR 3/2) loams from 0 to 16 inches depth, with no primary or secondary indicators of hydric soils present. This profile was observed throughout the project site. These soils have no appearance of having been formed under conditions of saturation, flooding, or ponding long enough to develop anaerobic conditions. These soils were determined to be non-hydric.

In areas where hydric soils were identified, these soils consisted generally of 10 YR 2/1 or 10 YR 3/2 silt loams with redox features. Hydric soil indicators were typically Depleted Matrix (F3) and Hydrogen Sulfide (A4).

7.2.3 Hydrology

With the exception of the major drainage features of China Hollow, Locust Grove, Spanish Hollow, Mud Hollow, and Grass Valley Canyon, field observations of wetland hydrology were absent from the wetland analysis area. Most drainage features mapped on the USGS quadrangle maps within the wetland analysis area either have been plowed through or have no channel; wetland hydrology indicators such as surface water, the water table, or saturation was not observed.

7.3 WETLAND DETERMINATIONS

Wetland determinations were typically based on the presence of hydrophytic vegetation, hydric soils, and positive indicators of wetland hydrology. In atypical situations, wetland determinations were based on positive indicators of hydric soils and wetland hydrology.

Twelve wetlands were identified during the field investigation. All the wetlands identified within the project area are described and summarized below. The data forms of wetland plots are located in *Appendix 1*. Prospective wetland areas that were determined to be upland sites are also included. Photographs of the wetlands are

located in *Appendix 2*. Two NWI wetland sites that were determined to be upland sites are also included along with typical photographs of prospective wetlands that were determined to be upland sites.

7.3.1 Wetland A

Wetland A is located at the north extremity of the Project along China Hollow, southwest of the John Day substation and one mile east of Highway 97. The wetland extends about six feet wide with a vegetated stream channel. Two data plots were set up: DP A1 at the north edge of the wetland and DP A2 located about fifteen feet north, upland from the edge of the wetland.

Vegetation. Dominant species in Wetland A, DP A1, includes big sagebrush, stinging nettle, and curly dock. Seventy-five percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation (greater than 50%).

Soils. Soils at DP A1 include a 10YR 3/1 silt loam at a depth of 0 to 6 inches and a restrictive layer at six inches. This soil has hydric indicators of Hydrogen Sulfide (A4) and Thick Dark Surface (A12). It meets the criteria of hydric soils.

Hydrology. Hydrology for Wetland A is associated with the stream and overland flow from surrounding areas. DP A1 was located about two feet from the water channel. Surface water was at a depth of zero inches. The water table was located at a depth of four inches. These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland A is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. The NWI has classified this as a PEMIC wetland.

DP A2, the upland site, was dominated by big sagebrush, cheatgrass, and Sandberg bluegrass. None of these species are FAC or wetter vegetation. Soils were 10YR 5/3 sandy loam at 0-10 inches. A hydric soil was not present. DP A2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland A is adjacent to China Hollow, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.2 Wetland B

Wetland B is located about three miles northeast of the City of Moro, east of Highway 97. Located north of DeMoss Park, it is associated with Goose Creek, a tributary of Grass Valley Canyon. The wetland is an irregular complex of associated

rivulets. Two data plots were set up, DP B1 at the south edge of the wetland and DP B2 located west of the wetland.

Vegetation. Dominant species in Wetland B, DP B1, includes hybrid Lombardy poplar, black locust, and reed canarygrass. Sixty-six percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soils at DP B1 include a 10YR 3/1 silt clay loam at a depth of 0 to 11 inches. This soil has hydric indicators of Hydrogen Sulfide (A4) and Depleted Matrix (F3). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland B is associated with the streams and overland flow from surrounding areas. DP B1 was located about two feet from the water channel. Saturation was at a depth of six inches. Indicators also included Waterstained Leaves (B9), Hydrogen sulfide Odor (C1), and Oxidized Rhizospheres (C3). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland B is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. The NWI has classified this as a PEMIC wetland.

DP B2, the upland site located west of Highway 97, was dominated by wild caraway. This species is not listed as a wetland plant. Soils were 10YR 4/3 sandy loam at 0 to 7 inches. A hydric soil was not present. DP A2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland. Incidentally, the location of this data plot was shown as a PEMIC wetland according to the NWI, but the field investigation did not verify wetland vegetation, soils, or hydrology. It likely was a historical floodplain but no longer has hydrolic connection. A photograph is included in *Appendix* 2.

Jurisdictional Determination. Because Wetland B is adjacent to Goose Creek, a tributary of Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.3 Wetland C

Wetland C is located about three miles northwest of the City of Wasco along and west of Highway 97. It is associated with Spanish Hollow, located in a steep drainage feature. Two data plots were set up, DP C1 within the wetland and DP C2 located upland of the wetland about six feet from the creek.

Vegetation. Dominant species in Wetland C, DP C1, includes poison hemlock (*Conum maculatum*), Wood's rose, and eighty percent reed canarygrass. Sixty-six

percent of the dominant species were FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soils at DP C1 include a 10YR 2/1 loam with redox at a depth of 0 to 14 inches and a 10YR 2/1 loamy sand with redox at a depth of 14 to 18 inches. This soil has hydric indicators of a Depleted Matrix (F3). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland C is associated with the stream of Spanish Hollow and overland flow from surrounding areas. DP C1 had saturation at a depth of three inches and the water table was present at 12 inches. Indicators also included Water Marks (B1), Sediment deposits (B2), and Drift Deposits (B3). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland C is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. The NWI has classified this as a PEMIC wetland.

DP C2, the upland site, was dominated by black locust, Wood's rose, cheatgrass, and Canada thistle. It did not meet the criteria of FAC or wetter for wetland vegetation. Soils were 10YR 3/3 loam at 0 to 5 inches and 10YR 3/4 sandy loam at 5 to 15 inches. A hydric soil was not present. DP C2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland C is adjacent to Spanish Hollow, a tributary of the Columbia River, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.4 Wetland D

Wetland D is located about four miles northwest of the City of Wasco along the west side of Highway 97. It is associated with Spanish Hollow. The wetland extends about six feet wide with a vegetated stream channel. Two data plots were set up, DP D2 within the wetland and DP D1 located upland from the edge of the wetland.

Vegetation. Dominant species in Wetland D, DP D2, includes reed canary grass, cattails, curly dock, and Canada thistle. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soils at DP D2 include a 10YR 2/1 loamy sand with redox at a depth of 0 to 6 inches and a 10YR 2/1 sandy gravely muck, at 6 to 9 inches, and a restrictive layer of rocks at nine inches. This soil has hydric indicators of Hydrogen Sulfide (A4), Thick Dark Surface (A12), and Sandy Mucky Mineral (S1). It meets the criteria of hydric

soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland D is associated with the stream of Spanish Hollow and overland flow from surrounding areas. Surface water was observed nearby. The water table was located at a depth of seven inches, and saturation was at three inches. These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland D is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils.

DP D1, the upland site, was dominated by reed canary grass and willow. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation. Soils were 10YR 3/2 silty sandy loam at 0-10 inches. Hydric soil indicators were not present. DP A2 had a dry soil pit and no indicators of wetland hydrology. Therefore, although it has hydrophytic vegetation, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland D is adjacent to Spanish Hollow, a tributary of the Columbia River, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.5 Wetland E

Wetland E is located about three miles northeast of the City of Moro along and about one half mile east of Highway 97. It is southeast of Wetland B and is associated with another fork of Grass Valley Canyon. The wetland is linear, ten feet wide along both sides of the 5 foot wide creek. Two data plots were set up.

Vegetation. Dominant species in Wetland E, DP E1, includes Baltic rush, meadow horsetail, and small-flowered rush. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soils at DP E1 include a 10YR 3/2 silt clay loam with dark and abundant mottles at a depth of 0 to 14 inches. This soil has hydric indicators of Redox Dark Surface (F6). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland E is associated with the stream and overland flow from surrounding areas. DP E1 had saturation was at a depth of three inches. Indicators also included Drift Deposits (B3). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland E is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. The NWI has classified this as a PEMIC wetland.

DP E2, the upland site, was dominated by big sagebrush and intermediate wheatgrass. These species are not listed as a wetland plants. Soils were 10YR 3/2 sandy loam at 0-7 inches and a rock restrictive layer at seven inches. A hydric soil was not present. DP E2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland E is adjacent to a tributary of Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.6 Wetland F

Wetland F is located about three miles northwest of the City of Wasco and is associated with Mud Hollow. Two data plots were set up, DP F1 within the wetland, and DP F2 located three feet upslope.

Vegetation. Dominant species in Wetland B, DP F1, includes reed canarygrass and Baltic rush. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soils at DP F1 include a 10YR 2/1 sandy muck at a depth of 0 to 10 inches with redox. This soil has hydric indicators of Hydrogen Sulfide (A4) and Sandy muck mineral (S1). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland F is associated with a spring located to the southwest by the tree line and overland flow from surrounding areas. Surface water was present nearby, saturation was at the surface, and the water table was present at four inches. Indicators also included Hydrogen Sulfide Odor (C1). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland F is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils.

DP F2, the upland site, was dominated by cheatgrass. This species is not listed as a wetland plant. Soils were 10YR 3/3 loam at 0 to 12 inches. A hydric soil was not present. DP A2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland F is adjacent to Mud Hollow, a tributary of Spanish Hollow, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.7 Wetland G

Wetland G is located about four miles northeast of the City of Moro, one mile east of Highway 97. It is located downstream and north of Wetland E along the same tributary of Grass Valley Canyon. The wetland is linear, averaging ten feet wide along both sides of the five foot wide creek. Two data plots were set up, DP G1 at the west edge of the wetland and DP G2 located fourty feet west of the wetland.

Vegetation. The dominant species in Wetland G, DP G1, is reed canarygrass. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP G1 includes a 10YR 2/1 silt at a depth of 0 to 16 inches. This soil has hydric indicator of Depleted Matrix (F3). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland G is associated with the stream and overland flow from surrounding areas. DP G1 was located about two feet from the water channel. Saturation was at a depth of three inches. Indicators also included Drift Deposits (B3) and Drainage Patterns (B10). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland G is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils.

DP G2, the upland site, was dominated by big sagebrush and cheatgrass. These species are not listed as a wetland plant. Soils were 10YR 3/2 silt loam at 0-11 inches. A hydric soil was not present. DP G2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland G is adjacent to a tributary of Grass Valley Canyon it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.8 Wetland H

Wetland H is located about two miles south of the City of Wasco, along the west side of Highway 97. The wetland is in a low area of Spanish Hollow. Two data plots were set up, DP H1 within the wetland and DP H2 located upslope of DP H1.

Vegetation. Dominant species in Wetland H, DP H1, includes rabbitfoot grass and toad rush. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP H1 includes a 10YR 3/2 clay loam at a depth of 0 to 1 inches; a 10YR3/2 sand ant 2 to 4 inches: a 10YR 3/2 clay loam with redox features at 4-8 inches, and a restrictive rock layer at eight inches. This soil has a hydric indicator of Loamy Gleyed Matrix (F2). It meets the criteria of hydric soils.

Hydrology. Hydrology for Wetland H is associated with low spot ponding, overland flow from surrounding areas, and a drainage feature of a nearby culvert. Indicators include Drift Deposits (B3), Oxidized Rhizospheres (C3), and Drainage Patterns (B10). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland H is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils.

DP H2, the upland site, was dominated by big sagebrush, cheatgrass, Sandbergs bluegrass, and intermediate wheatgrass. These species are not listed as wetland plants. Soils were 10YR 3/2 sandy loam at 0 to 6 inches, with a restrictive rock layer at six inches. A hydric soil was not present. DP H2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland H is adjacent to Spanish Hollow, a tributary of the Columbia River, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.9 Wetland I

Wetland I is located northeast of the City of Moro, between Highway 97 and Highway 206. It is located downstream and northeast from wetlands B, C, and G in Grass Valley Canyon. The wetland is linear along both sides of the creek. Two data plots were set up east of the creek, DP I1 within the wetland and DP I2 located upslope of DP I1 about fifteen feet.

Vegetation. Dominant species in Wetland I, DP I1, includes spike rush, American speedwell, and another unidentified rush species. One hundred percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP I1 includes a 10YR 2/1 silt at a depth of 0 to 8 inches with a restrictive layer at eight inches. This soil has a hydric indicator of Depleted Matrix (F3). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland I is associated with the creek and overland flow from surrounding areas. Saturation occurred at surface level. Indicators also included Drift Deposits (B3) and Drainage Patterns (B10). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland I is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils.

DP I2, the upland site, was dominated by big sagebrush, cheatgrass, and intermediate wheatgrass. These species are not listed as a wetland plants. Soils were 10YR 3/2 silt at 0 to 10+ inches. A hydric soil was not present. DP H2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland I is adjacent to Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.10 Wetland K

Wetland K is located between Highway 97 and Highway 206, five miles southeast of the City of Wasco. It is about one-half mile west of where Highway 206 crosses Grass Valley Canyon. It is located along another unnamed tributary of Grass Valley Canyon. The wetland is on both sides of a narrow unimproved road. Four data plots were set up DP K2 and K3 were within the wetland and DP K1 and K4 were upland.

Vegetation. Dominant species in Wetland K, DP K2 includes cattails and reed canarygrass: in DP K3, they include American speedwell, Canada thistle, and cattails. Both data plots had one hundred percent of dominant species FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP K2 includes a 10YR 2/1 muck at 0 to 12 inches with a restrictive layer at 12 inches. This soil has a hydric indicator of Hydrogen Sulfide (A2). Soil at DP K3 includes a 10 YR 2/1 at 0 to 16 inches with indicators of Hydrogen Sulfide (A4) and Depleted Matrix (F3). Both data plots meet the criteria of hydric soils.

Hydrology. Hydrology for Wetland K is associated with the drainage feature and a spring originating at the southeast end of the wetland. DP K2 had surface water, the water table at 1 inch, and surface saturation. DP K3 had surface water at a depth of one inch and saturation to the surface. These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland K is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. The NWI classified a POWHh

and a R45BC wetland near this location. Field observations did not verify impoundments or riverine conditions at this delineation site.

DP K1, an upland site, was dominated by cattails and Canada thistle. These species met the dominance criteria for wetland vegetation. However, soils were 10YR3/2 at 0 to 8 inches but without redox features. A restrictive layer was at eight inches. A hydric soil was not present. DP K1 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

DP K4, another upland site, was dominated by big sagebrush, cheatgrass, and intermediate wheatgrass. These species are not listed as a wetland plants. Soils were 10YR 3/2 silt at 0 to 18 inches. A hydric soil was not present. DP H2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland

Jurisdictional Determination. Because Wetland K is adjacent to Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.11 Wetland M

Wetland M is located two miles northeast of the City of Moro, near Monkland Road. The wetland is associated with the drainage feature of Grass Valley Canyon. Two data plots were set up east of the creek, DP M1 within the wetland and DP M2 located upslope and south.

Vegetation. Dominant species in Wetland M at DP M1 includes Wood's rose, reed canarygrass, and cattails. Seventy-five percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP M1 includes a 10YR 3/1 silty muck at a depth of 0 to 14 inches with a restrictive layer of gravel at 14 inches. Gravel may be fill material from the bridge. This soil has a hydric indicator of Depleted Matrix (F3). It meets the criteria of hydric soils.

Hydrology. Hydrology for Wetland M is associated with open water, the creek, and overland flow from surrounding areas. At DP M1, saturation occurred at surface level. Surface water was observed nearby. Indicators also included Water Marks (B1). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland M is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. NWI classified this wetland as PEMC.

DP M2, the upland site, was dominated by reed canary grass and intermediate wheatgrass. Soils were 10YR 3/3 loam at 0 to 14 inches. A hydric soil was not present. DP M2 had a dry soil pit and no indicators of wetland hydrology. Although nearly 50 percent of the vegetation was FAC or wetter, the prevalence index was not utilized as hydric soils and wetland hydrology was not present. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland M is adjacent to Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

7.3.12 Wetland N

Wetland N is located nearly six miles southeast of the City of Wasco, along the east side of Highway 206 in Grass Valley Canyon. The wetland is linear along both sides of the creek. Two data plots were set up east of the creek, DP N1 within the wetland and DP N2 located upslope and west.

Vegetation. Dominant species in Wetland N at DP N1 includes reed canarygrass, cattails, and intermediate wheatgrass. Sixty-six percent of dominant species are FAC or wetter, meeting the criteria for hydrophytic vegetation.

Soils. Soil at DP N1 includes a 10YR 4/2 loam at a depth of 0 to 8 inches and a 10YR 4/2 loam with depleted features at 8 to 18 inches. This soil has a hydric indicator of Depleted Matrix (F3). It meets the criteria of hydric soils. Additionally, the soil map unit for this area is Endersby-Hermiston complex (12A) where floodplains may meet hydric criteria.

Hydrology. Hydrology for Wetland N is associated with the creek, and overland flow from surrounding areas. At DP M1, saturation occurred at 16 inches. Indicators also included Sediment (B2) and Drift Deposits (B3). These indicators meet the criteria for wetland hydrology.

Wetland Classification. Wetland N is determined to be a palustrine emergent wetland following the USFWS classification system (Cowardin et. al., 1979). It meets the criteria through vegetation, hydrology, and soils. NWI classified this wetland as PEMIC.

DP N2, the upland site, was dominated by intermediate wheatgrass. This species is not listed as a wetland plant. Soils were 10YR loam at 0 to 16 inches. Redox concretions were present at 10 to 16 inches. There were no hydric indicators; therefore, hydric soil was not present. DP N2 had a dry soil pit and no indicators of wetland hydrology. Therefore, it did not meet the criteria as a wetland.

Jurisdictional Determination. Because Wetland N is adjacent to Grass Valley Canyon, it is likely jurisdictional under Section 404 of the Clean Water Act. The final jurisdictional determination is up to the ACOE.

8 DISCUSSION

The wetland analysis area is almost entirely under agricultural production except areas associated with the major drainage features. Twelve wetlands were identified during the field investigation associated with the drainage features of Mud Hollow, Spanish Hollow, China Hollow, and Grass Valley Canyon.

No other wetlands were delineated within the wetland analysis area. Other wetlands mapped by the NWI fell outside of the wetland analysis area with the exception of a mapped POWFh wetland in Section 33 T01N, R17E. This location of the NWI unit did not meet the criteria of a wetland, as detailed in data plot 2J in Appendix 1 of this report. A photograph of the site is contained in has been plowed through and no channel exists (see photograph in Appendix 2.)

No other waterways were identified, with the exception of the drainage features discussed in the above report. Other drainage features mapped on the USGS quadrangle maps that occur within the wetland analysis area were lacking in positive indicators to meet the criteria for jurisdictional wetlands. These features were often plowed through, lacking a channel, or wetland hydrology indicators. Photographs depicting these circumstances are also included in Appendix 2.

9 REGULATORY REQUIREMENTS AND IMPLICATIONS

Federal, state, and local governmental regulations control activities in and near wetlands and other water bodies. Therefore, the wetland analysis was undertaken to determine the location and extent of wetlands within the proposed project site (wetland analysis area specifically) that may be regulated. This analysis is intended to facilitate review of project plans by the applicant and the appropriate regulatory authorities in conjunction with any applicable permit applications.

This report documents the investigation, best professional judgment, and conclusions of the investigator. It should be considered a Preliminary Jurisdictional Determination until it has been reviewed and approved by the Oregon Energy Facility Siting Council as part of the energy facility siting process.

BIBLIOGRAPHY

Environmental Laboratory. 2006. *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region ERDC/EL TR-06-16*. Army Engineer Waterways Research and Development Center. Vicksburg, Mississippi.

- Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual*, Technical Report Y-87-1, U.S. Army Engineer Waterways Experiment Station, Vicksburg, Mississippi.
- Hitchcock, L.C., and A. Cronquist. 1973. *Flora of the Pacific Northwest*. University of Oregon Press.
- Munsell Color. 1990. Munsell Soil Color Charts, 1990 Edition. Baltimore, Maryland.
- National Technical Committee for Hydric Soils. 1991. *Hydric soils of the United States*. USDA Soil Conservation Service.
- Oregon Climate Service. 2007. Historic climate data for Moro, Oregon. Oregon State University. Available on internet at: http://www.ocs.oregonstate.edu/index.html
- Oregon Climate Service. 2007. Precipitation data for Pendleton, Oregon, for the month of May 2007. Available on internet at: http://www.ocs.orst.edu/pdt_dly.html
- U.S. Army Corps of Engineers (USACE). 1993. Supplement to National List of Plant Species That Occur in Wetlands: Northwest (Region 9).
- U.S. Department of Agriculture (USDA). 2005. Natural Resource Conservation Service WETS Table database for Sherman County, Oregon. Available on internet: ftp://ftp.wcc.nrcs.usda.gov/support/climate/wetlands/or/41055.txt
- U.S. Department of Agriculture (USDA). 1988. Hydric Soils of the State of Oregon. Soil Conservation Service, in cooperation with the National Technical Committee for Hydric Soils. Washington D.C.
- U.S. Department of Agriculture (USDA). 2007. *On-line Soil Survey of Sherman County Area, Oregon*. Soil Conservation Service.
- U.S. Department of Agriculture (USDA). 1994. *Hydric Soils of the State of Oregon, update to 1988 list.* Soil Conservation Service, in cooperation with the National Technical Committee for Hydric Soils. Washington, DC.
- U.S. Fish and Wildlife Service (USFWS). 1988. *National list of plant species that occur in wetlands: Northwest (Region 9)*. U.S.. Fish and Wildlife Service, Biological Report 88 (26.9).
- U.S. Fish and Wildlife Service (USFWS). 1981. National Wetlands Inventory, Wasco, Oregon quadrangle map. Office of Biological Services.
- U.S. Fish and Wildlife Service (USFWS). 1981. National Wetlands Inventory, Klondike, Oregon quadrangle map. Office of Biological Services.
- U.S. Fish and Wildlife Service (USFWS). 1981. National Wetlands Inventory, McDonald, Oregon quadrangle map. Office of Biological Services.
- U.S. Geological Service (USGS). 1987. Wasco, Oregon, 7.5 minute Quadrangle.
- U.S. Geological Service (USGS). 1971. Klondike, Oregon, 7.5 minute Quadrangle.
- U.S. Geological Service (USGS). 1975. McDonald, Oregon, 7.5 minute Quadrangle.

APPENDIX 1 - WETLAND DELINEATION DATA FORMS

metland WETLAND DETERMINATION DATA FORM - Arid West Region ___ Sampling Date: _6-11-07 city/County: Sherman Golden Hills Project/Site: State: OR Sampling Point: DP 1 A Applicant/Owner: vst, Slpa, Oar, jash, Sil Wection, Township, Range: 13and 14, TO2N, R16 E Investigator(s): Landform (hillslope, terrace, etc.): VIVETIAE Local relief (concave, convex, none): CONCAVE Slope (%): Datum: Lat: Soil Map Unit Name: Lickstillet very stony loam 7-401-160 NWI classification: P5.m 10 Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes _____ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes X No Is the Sampled Area Yes X___ No ____ Hydric Soil Present? within a Wetland? wetland, stream channel 6' wide + wetland 6' wide, vegetated Wetland Hydrology Present? **VEGETATION** Absolute Dominant Indicator **Dominance Test worksheet:** Tree Stratum (Use scientific names.) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: 1. Salix 500 2. Actimisia tridenta Total Number of Dominant (B) Species Across All Strata: Percent of Dominant Species 7*51*/_ (a/b) Total Cover: That Are OBL, FACW, or FAC: Sapling/Shrub Stratum 1. Artemisia tridentata Prevalence Index worksheet: Total % Cover of: ____ Multiply by: ___ _____ x1=____ OBL species FACW species x 2 = _____ FAC species _____ x3=____ FACU species x 4 = ____ Total Cover: __ x5=__ UPL species Column Totals: _____ (A) (B) Prevalence Index = B/A = ____ Hydrophytic Vegetation Indicators: Prevalence Index is ≤3.01 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Total Cover: 1001, Woody Vine Stratum ¹Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Total Cover: _____ Vegetation

% Cover of Biotic Crust

Present?

% Bare Ground in Herb Stratum

Remarks:

Depth Matrix (inches) Color (moist) %	Redox Features	·
0-6 104R 3/1	Color (moist) % Type ¹ Lo	c ² Texture Remarks
		Silty lorm
6+ rock		
<u> </u>		
	8 (A) 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
		· · · · · · · · · · · · · · · · · · ·
		
¹ Type: C=Concentration, D=Depletion, RM	#Reduced Matrix. ² Location: PL=Pore Lini	ng, RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to all		Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
X Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
➤ Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
Restrictive Layer (if present):		
Type: <u>bedrock</u>		
Depth (inches):		Hydric Soil Present? Yes No
Remarks:		
	,	
IYDROLOGY		
		Secondary Indicators (2 or more required)
Wetland Hydrology Indicators:	ficient)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf	•	Water Marks (B1) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1)	Salt Crust (B11)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12)	Water Marks (В1) (Riverine) Sediment Deposits (В2) (Riverine) Drift Deposits (В3) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (arry one indicator is suf	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Water-Stained Leaves (B9)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9)
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Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (E Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes ✓	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Strong Other (Explain in Remarks) No Depth (inches):	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
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Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (By Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe) Describe Recorded Data (stream gauge, manufactor)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Si Other (Explain in Remarks) No Depth (inches): No Depth (inches): nonitoring well, aerial photos, previous inspections	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suf Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (By Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes X Saturation Present? Yes X (includes capillary fringe) Describe Recorded Data (stream gauge, manufactor)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Si Other (Explain in Remarks) No Depth (inches): No Depth (inches): nonitoring well, aerial photos, previous inspections	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Wetland Hydrology Present? Yes No
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Lat:Lat:Lorthis time of year	Section, Township, Ra Local relief (concave)	Sampling Date: DPT State: WA Sampling Point: G/U/C nge: 13 and 14, TODN, R16 E convex, none): Slope (%): O- Long: Datum: 7-401 NWI classification: none
Lat: Stony lo r this time of yea	Section, Township, Ra Local relief (concave)	nge: 13 and 14, TO2N, R16 E convex, none): Slope (%): _O Long: Datum: 7-401 NWI classification:
Lat: Stony lo r this time of yea	Local relief (concave)	convex, none): Slope (%): O Long: Datum: 7 - 401 NWI classification: A A
Lat: Stony lo r this time of yea	Local relief (concave)	convex, none): Slope (%): O Long: Datum: 7 - 401 NWI classification: A A
Lat: Stony Lo r this time of yea	am - 16D, ar? Yes X No	Long: Datum: Datum:
stony lor this time of year	am -/6D, ar? Yes 🗶 No_	7-401 NWI classification: none
r this time of yea	ar? Yes 🌋 No _	
significantly o		(If no, explain in Remarks.)
		"Normal Circumstances" present? Yes No
riaturany proi		eeded, explain any answers in Remarks.)
ap snowing	sampling point i	ocations, transects, important features, et
No	Is the Sample	I Δrea
_ No		
50		
Absolute	Dominant Indicator	Dominance Test worksheet:
% Cover	Species? Status	Number of Dominant Species
		That Are OBL, FACW, or FAC: (A)
		Total Number of Dominant 7
		Species Across All Strata: (B)
		Percent of Dominant Species
over:		That Are OBL, FACW, or FAC: (A/E
50.	V NL	Prevalence index worksheet:
7 -		Total % Cover of: Multiply by:
· · · · · ·		OBL species x 1 =
)		FACW species x 2 =
TR	NL	FAC species x 3 =
over:		FACU species x 4 =
110	/	UPL species x 5 =
_ 유언	V NE	Column Totals: (A) (B
<u> 45</u>	V , VL	December of Indian - B/A -
10		Prevalence Index = B/A = Hydrophytic Vegetation Indicators:
		Dominance Test is >50%
1,1		Prevalence Index is ≤3.0 ^t
		Morphological Adaptations¹ (Provide supporting
		data in Remarks or on a separate sheet)
		Problematic Hydrophytic Vegetation¹ (Explain)
over:		
		¹Indicators of hydric soil and wetland hydrology must
		be present.
		Hydrophytic
		Vegetation
over or Blotic Ci	ust	Present? Yes No U
•		
	No V No V No V No V No V Absolute % Cover Over: 100 178 Cover:	So V NL Absolute % Cover Species? Status Sover: So V NL

US Army Corps of Engineers

CHINA HOllow

Remarks:

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Golden H//5 City/County: Shuri	man . (o Sampling Date: <u>lo/12/07</u>
Applicant/Owner: 89	
Investigator(s): S. Path nson \$5, Walkey Section, Township, Ran	
Landform (hillslope, terrace, etc.): WISO pe Local relief (concave)	convex, none): Slope (%): _30
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Walla Walla Silt loam 33 D	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation, Soil, or Hydrology significantly disturbed? Are "	Normal Circumstances" present? Yes X No
Are Vegetation, Soil, or Hydrology naturally problematic? ${\cal N}_{{\bf 0}}$ (If ne	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling point to	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Cry wash on Steep 5w facing.	nd? Yes No
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Indicator **Cover Species? Status**	Dominance Test worksheet: Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
2	Total Number of Dominant
3	Species Across All Strata: (B)
Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum	
1	Prevalence Index worksheet:
3.	OBL species x1 =
4.	FACW species x 2 =
5	FAC species x 3 =
Herb Stratum	FACU species x 4 =
1. tumple weld, SAKA 30: V FACU	UPL species x 5 =
2. Groundsel Seneciosp. 20 V NL	Column Totals: (A) (B)
3. 10 Pent on cky lettuce LASS 5 FACU	Prevalence Index = B/A =
4. Cheal gross BRTS 40. V NL	Hydrophytic Vegetation Indicators:
5. Dia when AMPS I FACU	Dominance Test is >50%
6.	Prevalence Index is ≤3.0¹ Morphological Adaptations¹ (Provide supporting
7	data in Remarks or on a separate sheet)
8	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum /	11. 11. 11. 11. 11. 11. 11. 11. 11. 11.
1	¹ Indicators of hydric soil and wetland hydrology must be present.
2	Hydrophytic
	Vegetation Present? Yes No
% Bare Ground in Herb Stratum	Liegelift 162 NO
Tremains.	·

Profile Description: (De	escribe to the dept	th needed to docu	ment the indicator	or confirn	n the absence	of indicator	·s.)	
	Matrix		x Features					
(inches) Color (m		Color (moist)	% Type ¹	_Loc ²	<u>Texture</u>	111	Remarks	1
0-11 10YR	<i>5/3</i>				Stony SI	H100.	m (lavae	NOCK
·					1		V	
		·				-		
								•
Type: C=Concentration,	D=Depletion RM=	Reduced Matrix	² Location: PL=Por	a Linina E	C:::Poot Chan	nel M-Matrix	·	
Hydric Soil Indicators:				e Limig, i			natic Hydric S	oils ³ :
Histosol (A1)		Sandy Red	•			luck (A9) (Li	-	
Histic Epipedon (A2)		Stripped M				/luck (A10) (L	,	
Black Histic (A3)			cky Mineral (F1)			ed Vertic (F1		
Hydrogen Sulfide (A4	·	Loamy Gle				arent Materia	• •	
Stratified Layers (A5)		Depleted M			Other	(Explain in R	emarks)	
1 cm Muck (A9) (LRI			k Surface (F6)					
Depleted Below Dark Thick Dark Surface (, ,		ark Surface (F7) ressions (F8)					
Sandy Mucky Minera	•	Vernal Poo			3Indicators	of hydrophyt	ic vegetation a	and
Sandy Gleyed Matrix		10///4/100	15 (1 0)				iust be presen	
Restrictive Layer (if pre					1	, , , , , , , , , , , , , , , , , , ,		
Type: ROCK								. /
Type: Lock Depth (inches):	llinches	<u> </u>			Hydric Soil	Present?	Yes	No X
	llinches				Hydric Soil	Present?	Yes	No
Depth (inches):	11 inches				Hydric Soil	Present?	Yes	No
Depth (inches):	11 inches	<u> </u>			Hydric Soil	Present?	Yes	No
Depth (inches):	11 inches				Hydric Soil	Present?	Yes	No
Depth (inches):Remarks:	II inches				Hydric Soil	Present?	Yes	No
Depth (inches):Remarks:								No
Depth (inches):Remarks:							Yes	No required)
Depth (inches):Remarks:	icators: none	cient)			Secon	ndary Indicate		
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1)	icators: ೧೦೧೬ ne indicator is suffic	cient)	: (B11)		<u>Secor</u> W	ndary Indicate	ors (2 or more)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o	icators: ೧೦೧೬ ne indicator is suffic				<u>Secor</u> W	ndary Indicate /ater Marks (ediment Dep	ors (2 or more) verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3)	icators: ೧೦೧೬ one indicator is suffice 2)	Salt Crust Biotic Cru			<u>Secor</u> W S D	ndary Indicate /ater Marks (ediment Dep	ors (2 or more (B1) (Riverine posits (B2) (Riv (B3) (Riverine) verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A3) Saturation (A3) Water Marks (B1) (N	icators: ೧೦೧೬ ne indicator is suffice 2) conriverine)	Salt Crust Biotic Cru Aquatic In	st (B12)		Secor W S D D	ndary Indicate /ater Marks (ediment Dep rrift Deposits rrainage Patte	ors (2 or more (B1) (Riverine posits (B2) (Riv (B3) (Riverine	verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3)	icators: ೧೦೧೬ ne indicator is suffice 2) conriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen	st (B12) vertebrates (B13)	Living Roc	Secor W S S D D D D D D D D D D D D D D D D D	ndary Indicate /ater Marks (ediment Dep rrift Deposits rrainage Patte	ors (2 or more (B1) (Riverine posits (B2) (Riv (B3) (Riverine erns (B10) Vater Table (C	/erine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (B3) (N	icators: ೧೦೧೦ one indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I	st (B12) overtebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4	4)	Secor	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W	ors (2 or more (B1) (Riverine cosits (B2) (Riverine (B3) (Riverine erns (B10) vater Table (Carrace (C7)	verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A: Saturation (A3) Water Marks (B1) (N Sediment Deposits (B3) (N Drift Deposits (B3) (N Surface Soil Cracks (B3)	icators: ೧೦೧೦ one indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine) (B6)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Iro	st (B12) ivertebrates (B13) Sulfide Odor (C1) Rhizospheres along	4)	Secor	ndary Indicate /ater Marks (ediment Deporift Deposits rrainage Patte rry-Season W hin Muck Surayfish Burro aturation Vis	ors (2 or more (B1) (Riverine posits (B2) (Riverine (B3) (Riverine erns (B10) /ater Table (C: rface (C7) ows (C8) ible on Aerial	verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (I) Drift Deposits (B3) (N Surface Soil Cracks (I) Inundation Visible on	icators: now ne indicator is suffic 2) ionriverine) B2) (Nonriverine) Nonriverine) (B6)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Iro	st (B12) overtebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4	4)	Secor W S D D D D C C C S C S S S	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W hin Muck Sun irayfish Burro aturation Vis hallow Aquita	ors (2 or more (B1) (Riverine cosits (B2) (Riverine erns (B10) Vater Table (C) rface (C7) ows (C8) ible on Aerial ard (D3)	verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (B) Drift Deposits (B3) (N Surface Soil Cracks (Inundation Visible on Water-Stained Leave	icators: now ne indicator is suffic 2) ionriverine) B2) (Nonriverine) Nonriverine) (B6)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Iro	st (B12) evertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4) on Reduction in Ploy	4)	Secor W S D D D D C C C S C S S S	ndary Indicate /ater Marks (ediment Deporift Deposits rrainage Patte rry-Season W hin Muck Surayfish Burro aturation Vis	ors (2 or more (B1) (Riverine cosits (B2) (Riverine erns (B10) Vater Table (C) rface (C7) ows (C8) ible on Aerial ard (D3)	verine)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (I) Drift Deposits (B3) (N Surface Soil Cracks (I) Inundation Visible on	icators: ೧೦೧೦ ne indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine) (B6) n Aerial Imagery (B7) es (B9)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Other (Ex	st (B12) Invertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4) In Reduction in Plow plain in Remarks)	4) ved Soils (Secor W S D D D D C C C S C S S S	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W hin Muck Sun irayfish Burro aturation Vis hallow Aquita	ors (2 or more (B1) (Riverine cosits (B2) (Riverine erns (B10) Vater Table (C) rface (C7) ows (C8) ible on Aerial ard (D3)	verine) (a)
Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (B) Drift Deposits (B3) (N Surface Soil Cracks (Inundation Visible on Water-Stained Leave	icators: ೧೦೧೦ ne indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine) (B6) n Aerial Imagery (B7) es (B9)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Other (Ex	st (B12) evertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4) on Reduction in Ploy	4) ved Soils (Secor W S D D D D C C C S C S S S	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W hin Muck Sun irayfish Burro aturation Vis hallow Aquita	ors (2 or more (B1) (Riverine cosits (B2) (Riverine erns (B10) Vater Table (C) rface (C7) ows (C8) ible on Aerial ard (D3)	verine)
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Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (B3) (N Surface Soil Cracks (Inundation Visible on Water-Stained Leave Field Observations: Surface Water Present? Water Table Present? Saturation Present?	icators: now ne indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine) (B6) n Aerial Imagery (B7 es (B9) Yes	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Other (Ex	st (B12) evertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (Can Reduction in Plov plain in Remarks)	4) ved Soils (Secor W S D D D D C C C S C S S S	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W hin Muck Sur rayfish Burro aturation Vis hallow Aquita AC-Neutral T	ors (2 or more (B1) (Riverine ossits (B2) (Riverine (B3) (Riverine erns (B10) /ater Table (C: rface (C7) ows (C8) ible on Aerial (D3) Fest (D5)	verine)
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Depth (inches): Remarks: IYDROLOGY Wetland Hydrology Indi Primary Indicators (any o Surface Water (A1) High Water Table (A) Saturation (A3) Water Marks (B1) (N Sediment Deposits (B3) (N Surface Soil Cracks of Inundation Visible on Water-Stained Leave Field Observations: Surface Water Present? Water Table Present? Saturation Present? (includes capillary fringe)	icators: NOW one indicator is suffice 2) conriverine) B2) (Nonriverine) Nonriverine) (B6) A Aerial Imagery (B7 es (B9) Yes! Yes!	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized I Presence Recent Irc Other (Ex	st (B12) Invertebrates (B13) Sulfide Odor (C1) Rhizospheres along of Reduced Iron (C4 on Reduction in Plov plain in Remarks) Inches): Inches): Inches):	wed Soils (Wetl spections),	Secor	ndary Indicate /ater Marks (ediment Dep rift Deposits rrainage Patte rry-Season W hin Muck Sur rayfish Burro aturation Vis hallow Aquita AC-Neutral T	ors (2 or more (B1) (Riverine cosits (B2) (Riv (B3) (Riverine erns (B10) Vater Table (C: rface (C7) ows (C8) dible on Aerial ard (D3) Fest (D5)	verine) verine) verine) verine) verine) verine)

WETLAND DETERMINAT	ION DATA	A FORM -	- Arid West Region wetland		
Project/Site: Golden Hills	_ City/County	: Shew	rman (o Sampling Date: 0/12/6-7		
Applicant/Owner: BP			State: OV Sampling Point: 1C-L		
Investigator(s): S. Pattinson & S. Walkey	_ Section, To	wnship, Ran	nge: 25, TO2N, R168 and 30, TO2N, R171		
Landform (hillslope, terrace, etc.): bottom of Steep drawlage	Local relief	(concave, c	convex, none): CONCAUS Slope (%): 10		
Subregion (LRR): Lat:			Long: Datum:		
Soil Map Unit Name: Enders by - Humiston complex of	<u> </u>	A also 3	33.0,212NWI classification: PEMIC		
Are climatic / hydrologic conditions on the site typical for this time of y	/ear? Yes	No	(If no, explain in Remarks.)		
Are Vegetation, Soil, or Hydrology significantly	y disturbed?	√6 Are "I	Normal Circumstances" present? Yes No		
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.)					
SUMMARY OF FINDINGS – Attach site map showing	g samplin	g point lo	ocations, transects, important features, etc.		
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Yes No No No Remarks:	- with	e Sampled in a Wetlan	. 🗸		
VEGETATION					
Absolute Tree Stratum (Use scientific names.) % Cove	e Dominant er Species?		Dominance Test worksheet: Number of Dominant Species		
1.			That Are OBL, FACW, or FAC:		
2			Total Number of Dominant		
3			Species Across All Strata: (B)		
4			Percent of Dominant Species		
Total Cover: Sapling/Shrub Stratum	_ ,		That Are OBL, FACW, or FAC: 66// (A/B)		
1. monion hemlack COMA 10	/_	FAC	Prevalence Index worksheet:		
2. Mars Rose Rowo 5	<u> </u>		Total % Cover of: Multiply by:		
			OBL species x1 =		
4			FACW species x 2 = FAC species x 3 =		
5Total Cover:			FACU species x4 =		
Herb Stratum		- 4.	UPL species x 5 =		
1. Curly dock RUCK Z		+AC	Column Totals: (A) (B)		
2 red canary PHAP 80 3. Collais TYLA \$2	,	FACW	Prevalence Index = B/A =		
3. Coltails TYLA 32 4. Warmlest Thiste Club, 2		FUCU.	Hydrophytic Vegetation Indicators:		
5. Water Cure Bo RONA' 5		OBL	✓ Dominance Test is >50%		
6. ducheused LEMI		OBL	Prevalence Index is ≤3.01		
7. 3mall Howerd book me not may 10		OBL	Morphological Adaptations¹ (Provide supporting		
8. Nettle URDI 5		FAC	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)		
Total Cover: 75	_		Problematic Hydrophytic Vegetation (Explain)		
1. Mahis Lening SOCU 100		FAC	¹ Indicators of hydric soil and wetland hydrology must be present.		
-Solanum du Camara Total Cover: 10	_		Hydrophytic		
% Bare Ground in Herb Stratum % Cover of Biotic	Crust		Vegetation Present? Yes No		
Remarks:					

Sampling Point: DPICI

(inches) Color (moist) % Color (moist) % Type¹ Loc² Texture	
10-10-10-10-10-10-10-10-10-10-10-10-10-1	Remarks
16/18 10462/1 70 1040725 30 Lamusand	
	\
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ² Location: PL=Pore Lining, RC=Root Channel, M=Matrix	
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problem	
Histosol (A1) Sandy Redox (S5) 1 cm Muck (A9) (L	
Histic Epipedon (A2) Stripped Matrix (S6) 2 cm Muck (A10) (I	
Black Histic (A3) Loamy Mucky Mineral (F1) Reduced Vertic (F	18)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2) Red Parent Materia	al (TF2)
Stratified Layers (A5) (LRR C)	Remarks)
1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) Thick Dark Surface (A12) Redox Depressions (F8)	
Thick Dark Surface (A12) Redox Depressions (F8) Sandy Mucky Mineral (S1) Vernal Pools (F9) Indicators of hydrophy	die vegetation and
Sándy Gleyed Matrix (S4) vernar roots (r.s) indicators of hydrophy wetland hydrology n	=
Restrictive Layer (if present):	ndor be present.
Type:	11.6
Depth (inches): Hydric Soil Present?	Yes No
Remarks:	**
IYDROLOGY	
\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	tors (2 or more required)
Wetland Hydrology Indicators: Secondary Indicat	tors (2 or more required) (B1) (Riverine)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks	
Wetland Hydrology Indicators: Secondary Indicator Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits	(B1) (Riverine)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Depth	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits Saturation (A3) Aquatic Invertebrates (B13) Drainage Patt	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits Saturation (A3) Aquatic Invertebrates (B13) Drainage Patt	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Nater Table (C2)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits Saturation (A3) Aquatic Invertebrates (B13) Drainage Patt Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Patt ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season W ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Su ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burro	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Patt ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season W ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Su ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burro	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) ows (C8) sible on Aerial Imagery (C9)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Sulfid	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3)
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Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Sulfid	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Sulfid	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Su ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burro — Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Soils (C6) Saturation Vis — Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Shallow Aquit — Water-Stained Leaves (B9) FAC-Neutral Field Observations: Surface Water Present? Yes No Depth (inches): Wetland Hydrology Present? Water Table Present? Yes No Depth (inches): Wetland Hydrology Present?	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits X Saturation (A3) Aquatic Invertebrates (B13) Drainage Path X Sediment Deposits (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V X Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Su Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burn Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Soils (C6) Saturation Vis Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Shallow Aquit Water-Stained Leaves (B9) FAC-Neutral Field Observations: Depth (inches): Wetland Hydrology Present? Saturation Present? Yes No Depth (inches): Wetland Hydrology Present?	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
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Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks Surface Water (A1) Salt Crust (B11) Sediment Deposits High Water Table (A2) Biotic Crust (B12) Drift Deposits X Saturation (A3) Aquatic Invertebrates (B13) Drainage Path X Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V X Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
Wetland Hydrology Indicators: Secondary Indicator Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits ✓ High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Water Marks (B1) (Nonriverine) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Color (C4) ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burro ✓ Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Soils (C6) Saturation Vis ✓ Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Shallow Aquit ✓ Water-Stained Leaves (B9) FAC-Neutral Field Observations: Surface Water Present? Yes No Depth (inches): Vistant Hydrology Present? Water Table Present? Yes No Depth (inches): Vistant Hydrology Present? Wetland Hydrology Present? Wetland Hydrology Present? (includes capillary fringe) Depth	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
Wetland Hydrology Indicators: Secondary Indicator Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits ✓ High Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Codor (C4) ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burro ✓ Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Soils (C6) Saturation Visible on Aerial Imagery (B7) ✓ Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Shallow Aquit ✓ Water-Stained Leaves (B9) FAC-Neutral Field Observations: Surface Water Present? Yes No Depth (inches): Wetland Hydrology Present? Water Table Present? Yes No Depth (inches): Wetland Hydrology Present? Vincludes capillary fringe) Depth (inches): Wetland Hydrology Present? Vincludes Capillary fringe) Depth (inches):	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)
Wetland Hydrology Indicators: Secondary Indicators Primary Indicators (any one indicator is sufficient) Water Marks ✓ Surface Water (A1) Salt Crust (B11) Sediment Deposits ✓ Surface Water Table (A2) Biotic Crust (B12) Drift Deposits ✓ Saturation (A3) Aquatic Invertebrates (B13) Drainage Path ✓ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season V ✓ Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living Roots (C3) Thin Muck Sulfide Odor (C4) ✓ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Crayfish Burra ✓ Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Soils (C6) Saturation Vis ✓ Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Shallow Aquit ✓ Water-Stained Leaves (B9) FAC-Neutral Field Observations: Surface Water Present? Yes No Depth (inches): Visual Inches Saturation Present? Yes No Depth (inches): Wetland Hydrology Present? Wetland Hydrology Present? Wetland Hydrology Present?	(B1) (Riverine) posits (B2) (Riverine) s (B3) (Riverine) terns (B10) Water Table (C2) urface (C7) rows (C8) sible on Aerial Imagery (C9) tard (D3) Test (D5)

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Golden Hills		(City/County:	Sho	sampling Date: 6/12/07
Applicant/Owner: BP					State: O/2 Sampling Point: 1-C-2
~	5. Walker	A 5			nge: 25 Tan R165 and 30 TW R178
					convex, none): Concoure Slope (%):
	•	()			Long: Datum:
					D, 21 E NWI classification: no re
<i>U</i>		P			-
Are climatic / hydrologic conditions on the					
					Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hy	drology na	iturally prot	blematic? ∧	lf ne) ن	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Atta	ach site map s	howing	sampling	g point lo	ocations, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes No		ls th	e Sampled	Area
Hydric Soil Present?	Yes No			in a Wetlan	
Wetland Hydrology Present?	Yes No				
Remarks: ~ 6' about w	alex - 4'	UEFICE	0		
VEGETATION		At 1 1	P	La Parata a	-
Tree Stratum (Use scientific names.)		Absolute % Cover	Dominant Species?		Dominance Test worksheet:
1. Black Locust	~ ~ ^			FACU	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2.					Total Number of Dominant
3					Species Across All Strata: (B)
4					Percent of Dominant Species
Sapling/Shrub Stratum	Total Cover:	<u> '207,</u>			That Are OBL, FACW, or FAC: 25 (A/B)
1. Wood rose	ROWD	50	\checkmark	FACU	Prevalence index worksheet:
2.	,				Total % Cover of: Multiply by:
3.		<u></u>		<u> </u>	OBL species x 1 =
4. Say &	ARTR	_5_		-AL	FACW species x 2 =
5					FAC species x 3 =
Herb Stratum	Total Cover:	<u>(e0</u>			FACU species x 4 =
1. Poisa heribet	c om A	40 -		FAC	UPL species x 5 = Column Totals: (A) (B)
2.			•	<u> </u>	Column Totals: (A) (B)
3. Canada thistle.	CLAR	30		FAC	Prevalence Index = B/A =
4. Common lister	NUIS	10		FACU	Hydrophytic Vegetation Indicators:
5. Promus Pectorum	<u>choot</u>	40		_NL_	Dominance Test is >50%
6. Hordeum Poporinum		_چ_	`		Prevalence Index is ≤3.0¹
7. <u>Nettlo</u> 8.	<u>URDI</u>	10		FAC	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
0	Total Cover:	90			Problematic Hydrophytic Vegetation¹ (Explain)
Woody Vine Stratum	1000 00101.				
1.					¹ Indicators of hydric soil and wetland hydrology must be present.
2	Total Cover:	-			Hydrophytic
% Bare Ground in Herb Stratum					Vegetation Present? Yes No
Daniel III					
Sicippus (Sp) Pridu	mmat@ WI	st sid	e qu	selland	
			Į	,	
1					

___ Vernal Pools (F9)

HYDROLOGY

Type:

Remarks:

___ Sandy Mucky Mineral (S1)

Restrictive Layer (if present):

Depth (inches): ___

Sandy Gleyed Matrix (S4)

Rocky 5"size

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)	Water Marks (B1) (Riverine)
Surface Water (A1) Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Water Table (A2) Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Saturation (A3) Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi	ng Roots (C3) Thin Muck Surface (C7)
Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6) Recent Iron Reduction in Plowed	Soils (C6) Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	FAC-Neutral Test (D5)
Field Observations:	
Surface Water Present? Yes No Depth (inches):	
Water Table Present? Yes No A Depth (inches):	
Saturation Present? Yes No _X Depth (inches): (includes capillary fringe)	Wetland Hydrology Present? Yes No
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspec	tions), if available:
Remarks:	
	•
Spanish Hollow	

³Indicators of hydrophytic vegetation and

wetland hydrology must be present.

Hydric Soil Present?

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Golden Hil	ils	(City/County:	She	rman Sampling Date: <u>0/12/07</u>
Applicant/Owner: BP	·				
Investigator(s): S. Pattunson	\$5. Wal	Key !			nge: 23,24,25,26; TOZN, RIGE
					convex, none): <u>POYICOUL</u> Slope (%): /D
					Long: Datum:
Subregion (LRR):	<u>)</u>	_ Lat	(O A		battom.
					NWI classification: roan P7.MIC 2
Are climatic / hydrologic conditions on th	=""		1		
As a second seco					"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or I	-lydrology na	aturally prol	blematic? 1	\ O (If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - A	tach site map s	howing	samplin	g point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present?	Yes X No				
Hydric Soil Present?			!	e Sampled	
Wetland Hydrology Present?	Yes 🗡 No		With	in a Wetlar	nd? Yes No
Remarks:					
VEGETATION	W-8				
		Absolute	Dominant		Dominance Test worksheet:
Tree Stratum (Use scientific names.)			Species?	Status	Number of Dominant Species 4
1.					That Are OBL, FACW, or FAC: (A)
2.					Total Number of Dominant
3.				 	Species Across All Strata: (B)
Sapling/Shrub Stratum	Total Cover:			<u>-</u>	Percent of Dominant Species, That Are OBL, FACW, or FAC: (A/B)
1. Hed Canun 9+455	PHAR	60	1/	FACW	Prevalence Index worksheet:
2. Caltail	TULA	40		OBL	Total % Cover of: Multiply by:
3.					OBL species x 1 =
4					FACW species x 2 =
5					FAC species x 3 =
	Total Cover:	40	•		FACU species x 4 = 2 2 2
Herb Stratum	11 11 1/10	NALA O'D		orsi	UPL species x5=
1. forgot-me not (Sau	MEAR	10LH 20	•	OBL	Column Totals: (A) (B)
2. mint 3. duck lufty	RUCE	7/5		OBL	Prevalence Index = B/A =
4. Small bod Straw	GAAP	20		FAC	Hydrophytic Vegetation Indicators:
5. Caviado Thistle	CIAD	30	- 	FAC	Dominance Test is >50%
6. April wied	COCA	**		11/6	Prevalence Index is ≤3.0¹
7.					Morphological Adaptations¹ (Provide supporting
8.			· .		data in Remarks or on a separate sheet)
	Total Cover:	60			Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum			. ,		
1					¹ Indicators of hydric soil and wetland hydrology must be present.
2					
)'1	Total Cover:			·	Hydrophytic Vegetation
% Bare Ground in Herb Stratum	Cover % Cover	of Biotic C	rust		Present? Yes No
Remarks:		[-11]	A •		
A few Excallered	Snull	(3")	7-455	Speci	l (S

Sampling	Point:	102
oampung	rom.	1

SOIL

Profile bescription. (bescribe to the depth needed to document the indicator	or committee appende of indicators.)
Depth Matrix Redox Features Color (moist) % Color (moist) % Type ¹	Loc ² Texture Remarks
and the state of t	<u> </u>
0 0 10 10 10 10 10 20	[Bany 3and
16-7 1048 211 100	Sanda, gravol, muck
¹ Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ² Location: PL=Por	e Lining, RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2) Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3) Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C) Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)	
Thick Dark Surface (A12) Redox Depressions (F8)	
✓ Sandy Mucky Mineral (S1) Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)	wetland hydrology must be present.
Restrictive Layer (if present):	
Type: large rocks	
Depth (inches): 9"	Hydric Soil Present? Yes X No
Remarks: larger Rocka nine inches Shovel topa	
· · · · · · · · · · · · · · · · · · ·	
HYDROLOGY	
Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)	Water Marks (B1) (Riverine)
Surface Water (A1) Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Water Table (A2) Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Saturation (A3) Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Water Marks (B1) (Nonriverine) — Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2) (Nonriverine) — Oxidized Rhizospheres along	· · · · · · · · · · · · · · · · · · ·
Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4	
Surface Soil Cracks (B6) Recent Iron Reduction in Plow	• • •
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)	FAC-Neutral Test (D5)
Field Observations:	/(18 ¹⁵)
Surface Water Present? Yes No Depth (inches): Warlow	1) \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
Water Table Present? Yes No Depth (inches):	
Saturation Present? Yes V No Depth (inches): 3	Wetland Hydrology Present? Yes No
(includes capillary fringe)	<u> </u>
Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous ins	spections), if available:
Remarks:	
_ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	
Spanish Hollow	
•	

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: Golden Hills	c	City/County	:_She	rmoun	Sampling Date: <u>6/12/07</u>
Applicant/Owner: <u>BP</u>				State: <u>OV</u>	Sampling Point: /-D-
Investigator(s): S. Pattinson & S. Wall	<u> Leu</u> 9	Section, To	wnship, Ra	nge: <u>23.24, 25.2</u> 6	: TOAN, RIGE
Landform (hillslope, terrace, etc.): hillslope	V	Local relief	(concave)	convex. none):	Slope (%): 20
• •					Datum:
Soil Map Unit Name: <u>Endersby · Hamistan Com</u>	 العاد (معلا)	k - 12	Δ	MM/I classifie	estion: 1) ANa
Are climatic / hydrologic conditions on the site typical for this	=		•		4.
Are Vegetation, Soil, or Hydrology s					
Are Vegetation, Soil, or Hydrology r			-		
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes N		ls th	e Sampled	l Area	/
Hydric Soil Present? Yes N			in a Wetlar		No
Wetland Hydrology Present? Yes N		بالي			
Remarks: Area located near edge	of wet	land			
VEGETATION					
Tree Stratum (Line ecientific names)	Absolute	Dominant		Dominance Test work	sheet:
Tree Stratum (Use scientific names.) 1. Sali x ≤ p.	% Cover		TFAQ.	Number of Dominant S That Are OBL, FACW,	
2.			1.11	Inac Are Obl., i ACVV,	011A0 (A)
3		·		Total Number of Domir Species Across All Stra	,
4				apecies Across Air otre	(D)
Total Cover	10			Percent of Dominant S That Are OBL, FACW,	
Sapling/Shrub Stratum 1.				Prevalence Index wo	ksheet:
2.	- 			Total % Cover of:	
3				'	x1 =
4				1	x2=
5.				· -	x 3 =
Total Cover	r:			FACU species	x 4 =
Herb Stratum	~~~	./	ا يسد	UPL species	x 5 =
1. Pood Canary arass PHAR	<u> 80</u>		FACH	Column Totals:	(A) (B)
2. conada Mistre CIAR	10		F#C	Duranta a va ta das	D/A -
3. Posion nember COMA	- 100		FAC	Hydrophytic Vegetati	c = B/A =
4. bed strow GAAP	<u> </u>			Dominance Test is	
5				Prevalence Index	
6				i	aptations ¹ (Provide supporting
7					s or on a separate sheet)
8Total Cover	- 70			Problematic Hydro	phytic Vegetation³ (Explain)
Woody Vine Stratum					•
1					il and wetland hydrology must
2.				be present.	
l .	r:			Hydrophytic	/
% Bare Ground in Herb Stratum/O % Cover	r of Biotic Cr	ust		Vegetation Present? Yes	es No
Remarks:					 -

	i needed to docum	ent the indicator	or confirm th	e absence	of indicators.)
Depth <u>Matrix</u>	Redox	Features			
(inches) Color (moist) %	Color (moist)	% Type ¹	_Loc ^z	Texture	Remarks
<u> </u>					siltusandy loam
<u>.</u>					i i
· ·					:
	· · · · · · · · · · · · · · · · · · ·				· · · · · · · · · · · · · · · · · · ·
		<u>'\</u>			
	_				
trans C-Composition D-Doubling Dhis		·		D 1 O/	
ype: C=Concentration, D=Depletion, RM≔F ydric Soil Indicators: (Applicable to all L					nei, ivi≕iviatrix. for Problematic Hydric Soils³:
_ Histosol (A1)	Sandy Redo	-		A.	Muck (A9) (LRR C)
_ Histic Epipedon (A2)	Sandy Redu				Muck (A9) (LRR B)
Black Histic (A3)	Loamy Muck	• •			ed Vertic (F18)
_ Hydrogen Sulfide (A4)	Loamy Gleye	• • •			arent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Ma				(Explain in Remarks)
_ 1 cm Muck (A9) (LRR D)	Redox Dark	Surface (F6)			
_ Depleted Below Dark Surface (A11)		rk Surface (F7)			
_ Thick Dark Surface (A12)	Redox Depre			•	
_ Sandy Mucky Mineral (S1)	Vernal Pools	(F9)			of hydrophytic vegetation and
_ Sandy Gleyed Matrix (S4)			····	wetland	hydrology must be present.
estrictive Layer (if present):					
Type:					
Depth (inches):			1	tydric Soil	Present? Yes NoX
emarks:			I		
emarks:					
'DROLOGY					
'DROLOGY				Secon	ndary Indicators (2 or more required
DROLOGY etland Hydrology Indicators:	ent)				ndary Indicators (2 or more required
DROLOGY etland Hydrology Indicators:	ent) Salt Crust (B11)		v	
DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is suffici		-		v _ s	Vater Marks (B1) (Riverine)
DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is suffici Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (Biotic Crust	-		v _ s b	Vater Marks (B1) (Riverine) ediment Deposits (B2) (Riverine)
DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is suffici Surface Water (A1) High Water Table (A2)	Salt Crust (Biotic Crust Aquatic Inv	(B12)		V s D	Vater Marks (B1) (Riverine) ediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine)
DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is suffici Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S	(B12) ertebrates (B13)	Living Roots (v s c c	Vater Marks (B1) (Riverine) ediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) brainage Patterns (B10)
TDROLOGY Tetland Hydrology Indicators: Timary Indicators (any one indicator is sufficit Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R	(B12) ertebrates (B13) Sulfide Odor (C1)	-	V S C C C	Vater Marks (B1) (Riverine) ediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) rry-Season Water Table (C2)
TDROLOGY Tetland Hydrology Indicators: Timary Indicators (any one indicator is sufficional control of the con	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized Ri	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along	4)	V S D D D D	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rainage Patterns (B10) ry-Season Water Table (C2) hin Muck Surface (C7)
TDROLOGY Tetland Hydrology Indicators: Timary Indicators (any one indicator is sufficionally indicator	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4	4)	V S C C C C C C C S	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rainage Patterns (B10) ry-Season Water Table (C2) hin Muck Surface (C7) rayfish Burrows (C8)
TDROLOGY Tetland Hydrology Indicators: Timary Indicators (any one indicator is sufficing to surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4) I Reduction in Plov	4)	V S D D D D D D D D S	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) ry-Season Water Table (C2) hin Muck Surface (C7) rayfish Burrows (C8) raturation Visible on Aerial Imagery (
TDROLOGY Tetland Hydrology Indicators: Timary Indicators (any one indicator is sufficing to surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4) I Reduction in Plov	4)	V S D D D D D D D D S	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) rry-Season Water Table (C2) hin Muck Surface (C7) rrayfish Burrows (C8) raturation Visible on Aerial Imagery (rhallow Aquitard (D3)
POROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator is sufficionally indicator indic	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Other (Expl	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4) I Reduction in Plov	4) wed Soils (C6)	V S D D D D D D D D S	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) rry-Season Water Table (C2) hin Muck Surface (C7) rrayfish Burrows (C8) raturation Visible on Aerial Imagery (rhallow Aquitard (D3)
TDROLOGY Tetland Hydrology Indicators: Imary Indicators (any one indicator is sufficionally indicator (any one indicator is sufficient (any one indicator is	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Other (Expl	(B12) ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4) Reduction in Plow ain in Remarks)	4) ved Soils (C6)	V S D D D D D D D D S	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) rry-Season Water Table (C2) hin Muck Surface (C7) rrayfish Burrows (C8) raturation Visible on Aerial Imagery (rhallow Aquitard (D3)
Petland Hydrology Indicators: Imary Indicators (any one indicator is sufficient of the sufficient of	Salt Crust (Biotic Crust Aquatic Inv Hydrogen S Oxidized R Presence o Recent Iror Other (Expl	ertebrates (B13) Sulfide Odor (C1) hizospheres along f Reduced Iron (C4) I Reduction in Plow ain in Remarks)	4) wed Soils (C6)	V S C C C C C C S S F	Vater Marks (B1) (Riverine) rediment Deposits (B2) (Riverine) rift Deposits (B3) (Riverine) rrainage Patterns (B10) rry-Season Water Table (C2) hin Muck Surface (C7) rrayfish Burrows (C8) raturation Visible on Aerial Imagery (rhallow Aquitard (D3)

SPANISH HOLLOW

6/12/07

WETLAND DETERMINATION DATA FORM - Arid West Region

Project/Site: Golden H	HIIS					
Applicant/Owner: BP					State: OR Samplir	
Investigator(s): S. Pattingo	1 45. h) a lkey s	Section, Tov	vnship, Ra	nge: 6, TOIN, RITE	
Landform (hillslope, terrace, etc.):	relativily flat		Local relief	(concave,	convex, none):	Slope (%):
Subregion (LRR):	J	Lat:			Long:	Datum:
Soil Map Unit Name: Licks ki						
Are climatic / hydrologic conditions						
Are Vegetation, Soil					Normal Circumstances" present?	
Are Vegetation, Soil					eded, explain any answers in Rer	
SUMMARY OF FINDINGS ·						
				, ро лист	oddiono, nanodio, impo	Tuni routuros, stor
Hydrophytic Vegetation Present? Hydric Soil Present?	Yes Yes	• 4		e Sampled		
Wetland Hydrology Present?		3 -	withi	n a Wetlar	nd? Yes No	,_
Remarks:	data plot	was	loca	ated	in a dry was	L
VEGETATION						
Tree Stratum (Use scientific na.	mes.)		Dominant Species?		Dominance Test worksheet: Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
2.					Total Number of Dominant	,
3					Species Across All Strata:	(B)
4					Percent of Dominant Species	
0 1' 70 1 01 1	Total Cov	/er:			That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
Sapling/Shrub Stratum					Prevalence Index worksheet:	
· ·					Total % Cover of:	Multiply by:
3.					OBL species x	
4.					FACW species >	
5.					FAC species 30	
	Total Cov	/er:			FACU species	(4=
Herb Stratum	Λ	· 0	. /	TAA	UPL species 40/BRTE)	
1. quaek awas		A 10		FAC	Column Totals: 70 (A	A) <u>290</u> (В)
2. Humblehalese	A	2 40		EACU NL	Prevalence Index = B/A =	4.1
3. chout awases		1/19		FACU	Hydrophytic Vegetation Indic	
5. 2000	10 -4	7.		<u> </u>	Dominance Test is >50%	
6	1100	<u> </u>			Prevalence Index is ≤3.0¹	
7					Morphological Adaptations	(Provide supporting
8					data in Remarks or on a	•
	Total Co	ver: 3 0			Problematic Hydrophytic Ve	egetation' (Explain)
Woody Vine Stratum		-			11_41_44_44_44_44	donal budeele en cont
1					Indicators of hydric soil and we be present.	uana nyarology must
2					<u> </u>	
% Bare Ground in Herb Stratum	90 %	ver: ver of Biotic C		· .	Hydrophytic Vegetation Present? Yes	No A
Remarks: blue lir	u stream	~ 0~	ma	o. Ve	ry dry	
			ų			

Depth	scription: (Describe t Matrix	- are asput		ox Features		o, commi	48361100	
(inches)	Color (moist)	 _	Color (moist)			Loc ²	Texture	Remarks
0-10	104123/2			- '`				FERENCE Sandy loain
<u> </u>	100 ((Gue too) 3	•						1 Same resemble to the first transmit to the first
					·			
								
		·	-					
								· ·
	Concentration, D=Depl					e Lining, R		nnel, M=Matrix.
lydric Soi	l Indicators: (Applica	ble to all LF	RRs, unless othe	rwise not	ed.)		Indicators	s for Problematic Hydric Soils ³ :
Histoso	• •		Sandy Red					Muck (A9) (LRR C)
	Epipedon (A2)		Stripped M					Muck (A10) (LRR B)
	Histic (A3)		Loamy Mu					ced Vertic (F18)
	gen Sulfide (A4)	· ·	Loamy Gle		(F2)			Parent Material (TF2)
 .	ed Layers (A5) (LRR C ⁄luck (A9) (L RR D)	*	Depleted M Redox Dar		(F6)		Otrier	(Explain in Remarks)
_	ed Below Dark Surface	(A11)	Depleted D					
	Dark Surface (A12)	, (, ,	Redox Dep					
	Mucky Mineral (S1)		Vernal Poo	-	,		3Indicators	s of hydrophytic vegetation and
Sandy	Gleyed Matrix (S4)						wetlan	d hydrology must be present.
	Layer (if present):							
Type: _	Rock laye	<u> </u>						
Depth (i	inches): Cut						Hydric Soi	il Present? Yes No
Remarks:							<u> </u>	
IYDROLO	OGV.							
				·			Cooc	ondary Indicators (2 or more required)
	ydrology Indicators:	torio oufficia	·m4\					
	dicators (any one indica	TOT IS SUTICIE						Water Marks (B1) (Riverine)
_	e Water (A1)		Salt Crus	• /				Sediment Deposits (B2) (Riverine)
	Vater Table (A2)		Biotic Cru		~ (D40)			Drift Deposits (B3) (Riverine)
	tion (A3)		Aquatic ļr					Drainage Patterns (B10)
	Marks (B1) (Nonriveri		Hydrogen			: Listina Pos		Dry-Season Water Table (C2)
	ent Deposits (B2) (Nor			of Reduce	_	=		Thin Muck Surface (C7)
	eposits (B3) (Nonriver	me)	Recent In		•	•		Crayfish Burrows (C8)
	e Soil Cracks (B6) ation Visible on Aerial Ir	magany (D7)				rea sons (Saturation Visible on Aerial Imagery (C9
	Stained Leaves (B9)	nagery (b/)	Other (Ex	pain in ite	illains)			Shallow Aquitard (D3) FAC-Neutral Test (D5)
water-						1		rac-ivedital fest (D3)
			Do-M- C-	ahea\.				
			Depth (ir					
) Depth (ir			I		
Saturation		es No	Depth (in	nches):		Wetl	and Hydrolog	gy Present? Yes No
	apillary fringe) Recorded Data (stream	gauge, moni	toring well, aerial	photos, pr	evious ins	pections).	if available:	
	,	.	<u>.</u>			. ,		
Remarks:				, t				£
			Į.		1 .	20		* * ***
	م ا ۸	Jan Land	11001K	すかわれて	ator	5 M	べきぐへへ	<u></u>
	No	hydn	210GH	INChic	ator	> P	でどくへ	\
	No	hydn	slogg	INCHIC	ator	s p	~> </td <td>_\</td>	_\
	No tollow	hydn	nogg	Indic	ator	SP	(E)36/A	~\ \

Prevalence Index worksheet: Total % Cover of:	WETLAND DETER	RMINATIO	ON DATA	FORM -	- Arid West Region wetlan
Absolute Dominant Indicator New Westand Pydrology Present? Yes No Is the Sampled Area within a Westand? Yes No Is the Sample of Dominant Species That Are OBL, FACW, or FAC Is the Sample of Dominant Species Across All State: Percent of Dominant Species Is that Are OBL, FACW, or FAC Is the Sample of Dominant Species Is the Sample of Dominant Species Is that Area OBL, FACW, or FAC Is the Sample of Dominant Species Is the Sample of Dominant Species Is that Area OBL, FACW, or FAC Is the Sample of Dominant Species Is that Area OBL, FACW, or FAC Is the Sample of Dominant Species Is that Area OBL, FACW, or FAC Is the Sample of Dominant Species Is that Area OBL, FACW, or FAC Is the Sample of Dominant Species Is the Sample of Dominant Specie	oject/Site: Golden H/ls		City/County	: Sher	mem (a Sampling Date: 6/12/07
## Properties of the present? Present.		•	,		State: OV Sampling Point: F
Local relief (concave, convex, none): CACCAUL Slope (%):	vestigator(s): S. Pattinson & S.				
Lat: Long: Dotum: Datum: Datum					
all Map Unit Name: Exidensist p-teant/extract Complex 0-3.7 (AA) colimate (hydrologic conditions on the site typical for his time of year? Yes					
e climatic / hydrologic conditions on the site hylical for this time of year? Yes \(\) No \(\) (if no, explain in Remarks.) e Vegetation \(\), Soil \(\), or Hydrology \(\) significantly disturbed? \(\) \(\) Are "Normal Circumstances" present? Yes \(\) No \(\) e Vegetation \(\), Soil \(\), or Hydrology \(\) naturally problematic? \(\) (if needed, explain any answers in Remarks.) UMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc Hydrophytic Vegetation Present? Yes \(\) No \(\) Is the Sampled Area within a Wetland? Yes \(\) No \(\) No \(\) Velland Hydrology Present? Yes \(\) No \(\) No \(\) Species? Species? Silisis: EGETATION Total Cover: \(\) Absolute Dominant Indicator Species That Are OBL, FACW, or FAC: \(\) (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: \(\) (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: \(\) (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: \(\) (A) Species Species? Silisis: \(\) Prevalence Index worksheet: \(\) Total Cover: \(\) OBL species \(\) A Species \(\) Silisis: \(\) (A) Species \(\) Silisis: \(\) (B) Prevalence Index worksheet: \(\) Total Cover: \(\) OBL species \(\) A Species \(\)		nolevi	0-3%	/12A	NWI classification: Near a PEMIC
e Vegetation					
Solf		-			
UMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No No Welland Hydrology Present? Yes No No Within a Wetland? Yes No Welland Hydrology Present? Yes No No Within a Wetland? Yes No Welland Hydrology Present? Yes No No Within a Wetland? Yes No Moritary No Wetland Hydrology Present? No Wes Area Worksheet: Total Yes Gover of Mullion by: OBL species X = FAC Within a Wetland Prevalence Index S A = Within a Wetland? Yes No Moritary No Within a Wetland? Yes No Moritary No Moritary No Mediand Hydrology Present? No Model Within a Wetland? Yes No Model Area Within a Wetland				_	. /\
Hydrophytic Vegetation Present? Yes No No within a Wetland? Wetland Hydrology Present? Yes No Within a Wetland? Wetland? Wetland? Wetland? Wetland? Yes No Mo Within a Wetland? Yes No Mo Mithin a Wetland? Yes No Mo Metland? Yes No Mo Metland? Yes No Mollish Present? No Mollish Area (Astallar) Yes No Mollish Present? Yes No Mollish Present? No Mollish Area (Astallar) No Mollish Area (Astallar) Indicators of hydric soil and wetland hydrology must be present. Hydrophytic				_	
Absolute Dominant Indicator No Within a Wetland? Yes No No Within a Wetland hydrology must be present. Wydrophytic	OWNMAKT OF FINDINGS - Attach site map	Snowing	Sampan	g point it	bcations, transects, important features, etc.
Within a Wetland? Yes No Within a Wetland? Yes Yes No Within a Wetland? Yes	-lydrophytic Vegetation Present? Yes N	o <u> </u>	ls th	e Samoled	Area .
Absolute Dominant Indicator Species? Status Status Status Species Status Status Status Species Status Status Species				-	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \
### Absolute % Cover Species? Status Dominant Indicator Species Status Number of Dominant Species That Are OBL, FACW, or FAC: (A) ### Total Cover: Total Number of Dominant Species That Are OBL, FACW, or FAC: (A) ### Total Cover: Total Number of Dominant Species That Are OBL, FACW, or FAC: (B) ### Percent of Dominant Species A		o			
Absolute % Cover Status Cover Cov	FGETATION				
Number of Dominant Species Number of Dominant Species That Are OBL, FACW, or FAC: A	- COLIATION	Absolute	Dominant	Indicator	Dominance Test worksheet:
That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strate: Percent of Dominant Species Across All Strate: Total Cover: Total Are OBL, FACW, or FAC: Percent of Dominant Species That Are OBL, FACW, or FAC: Total Cover: Total Cov	ree Stratum (Use scientific names.)				
Species Across All Strata: (B) Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B) Prevalence Index worksheet: Total Cover: OBL, species 1 = FACW species 1 = F	•				
Total Cover: Percent of Dominant Species That Are OBL, FACW, or FAC: 100 (A/B)	•				Total Number of Dominant
Total Cover: That Are OBL, FACW, or FAC: 100 (A/B) Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x1 = FACW species x2 = FAC species x3 = FACU species x4 = UPL species x5 = Column Totals: (A) (B) Prevalence Index worksheet: Total Cover: FACW species x2 = FAC species x3 = FACU species x4 = UPL species x5 = Column Totals: (A) (B) FACU species x5 = Column Totals: (B) FACU species x5	•				Species Across All Strata: (B)
Prevalence Index worksheet: Total % Cover of:		:			
OBL species x1 = FACW species x2 = FACW species x3 = FACU species x3 = FACU species x4 = UPL species x5 = Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is \$3.01 Prevalence Ind	,				Prevalence Index worksheet:
FACW species x2 =	-				Total % Cover of: Multiply by:
Total Cover: FAC species	· <u></u>				OBL species x 1 =
Total Cover: PHAR G5					1
PHAR 65 FACU See Stratum Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators:					<u></u>
PHAR 65 FACU Seasona Column Totals: (A) (B) FACU FACU FACU FACU FACU FACU FACU FAC		·			1
FACU Prevalence Index = B/A =		65	1/	FACW	l '
Hydrophytic Vegetation Indicators: Dominance Test is >50%		>5		FAC	Column Totals (A) (B)
Voody Vine Stratum Total Cover: Total Cover: Total Cover: Total Cover: Hydrophytic Hy		<u>>5</u>		FACU	Prevalence Index = B/A =
Total Cover: T		<u> </u>		FACC	'/ ' '
Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Total Cover: OO		<u>, > 호</u>			I
data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Voody Vine Stratum Indicators of hydric soil and wetland hydrology must be present. Total Cover: Hydrophytic	1	15.		FACU/	l —
Total Cover: 100 Total Cover: 100 Indicators of hydric soil and wetland hydrology must be present. Total Cover: Hydrophytic					Morphological Adaptations* (Provide supporting data in Remarks or on a separate sheet)
Voody Vine Stratum I otal Cover:	***************************************	100			
	Total Cover <u>Voody Vine S</u> tratum	:			
Total Cover:					
					be present.
	Total Cover	:			
6 Bare Ground in Herb Stratum % Cover of Biotic Crust Present? Yes No	% Bare Ground in Herb Stratum % Cover	r of Biotic C	rust		Vegetation Present? Yes X No No
Remarks:					

Sampling Point: 1F

Depth Matrix Redox Features (inches) Color (moist) % Color (moist) % Type ¹	Loc ² Texture Remarks
2 1950 10 Va D	, !!
D-10 10/k -71 109/k 2/21/20 large clump	The state of the s
· · · · · · · · · · · · · · · · · · ·	
Type: C=Concentration, D=Depletion, RM=Reduced Matrix. *Location: PL=Pore	Lining PC-Poot Channel M-Matrix
ydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
_ Histosol (A1) Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2) Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3) Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C) Depleted Matrix (F3)	Other (Explain in Remarks)
_ 1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)	
Thick Dark Surface (A12) Redox Depressions (F8)	•
Sandy Mucky Mineral (S1) Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
_ Sandy Gleyed Matrix (S4)	wetland hydrology must be present.
estrictive Layer (if present):	
Type:	t 4
••	
Depth (inches):	Hydric Soil Present? Yes No
Depth (inches):emarks:	Hydric Soil Present? Yes No No
Depth (inches):emarks: 'DROLOGY	£
Depth (inches):emarks: DROLOGY etland Hydrology Indicators:	Secondary Indicators (2 or more required)
Depth (inches):emarks: DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Depth (inches): emarks: DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Depth (inches): emarks: DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12)	Secondary Indicators (2 or more reguired) Water Marks (B1) (Riverine)
Depth (inches): emarks: DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is sufficient) Surface Water (A1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10)
Depth (inches):emarks: DROLOGY etland Hydrology Indicators: imary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
Depth (inches): emarks: DROLOGY DROLOGY Determined Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) d Soils (C6) Saturation Visible on Aerial Imagery (C
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) d Soils (C6) Saturation Visible on Aerial Imagery (Can Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) d Soils (C6) Saturation Visible on Aerial Imagery (Can Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) iving Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) d Soils (C6) Saturation Visible on Aerial Imagery (Can Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Candidate) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) Indicators (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Caster of the company of th
Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) In Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Caster of the company of the co
Port (inches): Comparison	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) In Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Caster of the company of the co
Port (inches): Comparison	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) Indicators (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Caster of the company of th
POROLOGY Tetland Hydrology Indicators: rimary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Teld Observations: Water Table Present? Yes No Depth (inches): Journal of the Marks (B1) (Nonriverine) Depth (inches): Journal of the Marks (B1) (Nonriverine) Depth (inches): Journal of the Marks (B1) Depth (inches): Depth (inches): Journal of the Marks (B1) Drift Deposits (B1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) Indicators (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Caster of the company of th

WETLAND DETERMINATION DATA FORM - Arid West Region Project/Site: Aolden HIS city/County: Sherman Co. sampling Date: 6/12/07 State: Sampling Point: 1-F-2 Applicant/Owner: Investigator(s): S. Pattinson & S. Walkey Section, Township, Range: 1, TOIN, RIGE and 36, TOZN, RIGE Landform (hillslope, terrace, etc.): MISLope Local relief (concave, convex, none): CONVEX Slope (%): 35 ______ Lat: ______ Long: ______ Datum: _____ Soil Map Unit Name: Endersby Hermiston Complex 0-31./12 A NWI classification: none Are climatic / hydrologic conditions on the site typical for this time of year? Yes ______ No _____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? No Are "Normal Circumstances" present? Yes ____ No Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? \mathcal{N}_0 (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes _____ No <u>V</u> Is the Sampled Area Hydric Soil Present? within a Wetland? Yes _____ No ____ Wetland Hydrology Present? Remarks: Plot ~ 3' higher in elevation (up stope) from 1-F-1. feed Canary grass does not go past this point. VEGETATION Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Use scientific names.) % Cover Species? Status Number of Dominant Species 1. __ _ That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species Total Cover: That Are OBL, FACW, or FAC: (A/B) Sapling/Shrub Stratum Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = ___ FAC species _____ x 3 = ____ FACU species _____ x 4 = _____ Total Cover: UPL species _____ x 5 = ____ rood carara avass Column Totals: _____ (A) _____ (B) Bromus tectarum BRTE 60 V Prevalence Index = B/A = ____ 4. Hordeum Hydrophytic Vegetation Indicators: Dominance Test is >50% 6. crested wheat arass Prevalence Index is ≤3.0¹ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Total Cover: 90 Woody Vine Stratum 1Indicators of hydric soil and wetland hydrology must be present. Total Cover: Hydrophytic Vegetation % Bare Ground in Herb Stratum ____/ O______ % Cover of Biotic Crust ____ Present? Remarks:

Depth	 Matrix	•	eeded to document the indicator o Redox Features		i.	•
nches)	Color (moist)	%	Color (moist) % Type¹	Loc ²	Texture_	Remarks
>-12	104R3/3	100 -		- 10	am	
						
			· · · · · · · · · · · · · · · · · · ·	····	 	
_						
•						
",						
			duced Matrix. ² Location: PL=Pore			
		able to all LRI	Rs, unless otherwise noted.)	ı		for Problematic Hydric Soils ³ :
_ Histosol	• /		Sandy Redox (S5)	=		Muck (A9) (LRR C)
	pipedon (A2)		Stripped Matrix (S6)	-		Muck (A10) (LRR B)
_ Black Hi	istic (A3) en Sulfide (A4)		Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2)	-		ed Vertic (F18) arent Material (TF2)
	d Layers (A5) (LRR (2)	Depleted Matrix (F3)	-		(Explain in Remarks)
	uck (A9) (LRR D)	. ,	Redox Dark Surface (F6)	**		(2.plain ii) (comano);
	d Below Dark Surfac	e (A11)	Depleted Dark Surface (F7)			
Thick Da	ark Surface (A12)		Redox Depressions (F8)			
_ Sandy N	/Jucky Mineral (S1)		Vernal Pools (F9)	: 8		of hydrophytic vegetation and
	Gleyed Matrix (S4)				wetland	l hydrology must be present.
estrictive	Layer (if present):					
Type:			_			24
Type: Depth (in				Н	lydric Soil	I Present? Yes No
Type: Depth (in				Н	lydric Soil	I Present? Yes No X
Type: Depth (in emarks:	ches):		_	Н	lydric Soil	I Present? Yes No X
Type: Depth (in emarks:	ches):			Н		I Present? Yes No
Type: Depth (in emarks: /DROLO	ches):			Н	Seco	ndary Indicators (2 or more required)
Type: Depth (in emarks: /DROLO /etland Hy	ches): OGY rdrology Indicators: cators (any one indic		nt)	Н	<u>Seco</u> V	ndary Indicators (2 or more required) Vater Marks (B1) (Riverine)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi	oches): OGY Idrology Indicators: cators (any one indicators)		nt) Salt Crust (B11)	Н	<u>Seco</u> V §	ndary Indicators (2 or more required)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi Surface High Wa	oches): OGY odrology Indicators: cators (any one indicators) Water (A1) ater Table (A2)		nt)	H	<u>Seco</u> 	ndary Indicators (2 or more required) Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi _ Surface _ High Wa _ Saturati	oches): OGY odrology Indicators: cators (any one indicators) Water (A1) ater Table (A2)	ator is sufficie	nt) Salt Crust (B11) Biotic Crust (B12)	H	<u>Seco</u> 	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi _ Surface _ High Water Mater Ma	oddy drology Indicators: cators (any one indicators) Water (A1) ater Table (A2) ion (A3)	ator is sufficie	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13)		Seco V S C	ndary Indicators (2 or more required) Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
Type: Depth (in lemarks: /DROLO Vetland Hy rimary Indi Surface High Wa Saturati Water M Sedime	ches):	ator is sufficier ine) nriverine)	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Living Roots (Secon	ndary Indicators (2 or more required) Vater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
Type: Depth (in lemarks: /DROLO /etland Hy /fimary Indi Surface High Wa Saturati Water M Sedime Drift De	oches): ordrology Indicators: cators (any one indic water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver int Deposits (B2) (No	ator is sufficier ine) nriverine)	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along l	Living Roots (Seco V S [[[C3) 1	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Thin Muck Surface (C7)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi Surface High Wa Saturati Water N Sedime Drift De Surface	oches): orderology Indicators: cators (any one indicators) Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver int Deposits (B2) (No	ator is sufficier ine) nriverine) rine)	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along l	Living Roots (Seco V S [[[] C3) 1	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Type: Depth (in emarks: /DROLO / Etland Hy fimary Indi Surface High Water Mater M	ches): OGY Idrology Indicators: cators (any one indicators) Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver int Deposits (B2) (No posits (B3) (Nonrive es Soil Cracks (B6)	ator is sufficier ine) nriverine) rine)	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along the presence of Reduced Iron (C4) Recent Iron Reduction in Plow	Living Roots (Seco V _ S _ C _ C _ C _ C	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Fhin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi _ Surface _ High Wa _ Saturati _ Water N _ Sedime _ Drift De _ Surface _ Inundat _ Water-S	ches):	ator is sufficier ine) nriverine) rine) Imagery (B7)	Salt Crust (B11) Solic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along to Presence of Reduced Iron (C4) Recent Iron Reduction in Plow Other (Explain in Remarks)	Living Roots () ed Soils (C6)	Seco V _ S _ C _ C _ C _ C	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
Type: Depth (in emarks: /DROLO /etland Hy rimary Indi Surface High Water M Saturati Water M Sedime Drift De Surface Inundat Water-S ield Obser	ches):	ator is sufficier ine) nriverine) rine) Imagery (B7)	Salt Crust (B11) Solic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along to Presence of Reduced Iron (C4) Recent Iron Reduction in Plow Other (Explain in Remarks)	Living Roots () ed Soils (C6)	Seco V _ S _ C _ C _ C _ C	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
Type: Depth (in emarks: /DROLO Vetland Hy rimary Indi Surface High Water Now Sedime Drift De Surface Inundat Water-Stield Observanted Courface Water-Stield Observanted Water-Stield Water-Stield Water-Stield Water-Stield Water-Stield Water-Stield Water-Stield Water-Stield	ches):	ator is sufficier ine) nriverine) rine) Imagery (B7)	Salt Crust (B11) Solic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along to Presence of Reduced Iron (C4) Recent Iron Reduction in Plow Other (Explain in Remarks)	Living Roots () ed Soils (C6)	Seco V _ S _ C _ C _ C _ C	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
Type: Depth (in lemarks: /DROLO /etland Hy rimary Indi Surface High Water N Sedime Drift De Surface Inundat Water-S ield Obset Surface Water Table	rdrology Indicators: cators (any one indicators) Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver int Deposits (B2) (No posits (B3) (Nonriver soil Cracks (B6) ion Visible on Aerial Stained Leaves (B9) rvations: ter Present?	ine) nriverine) rine) Imagery (B7) 'es No	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along the presence of Reduced Iron (C4) Recent Iron Reduction in Plow	Living Roots (Seco V S [[[] C3) 1 S S F	ndary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
Type: Depth (in lemarks: YDROLO Vetland Hy Inimary Indi Surface High Water N Sedime Drift De Surface Inundat Water-S Tield Obset Surface Water Table Saturation Fincludes ca	ches): ches): ches): chespire drology Indicators: cators (any one indicators): Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver): ion Usible on Aerial Stained Leaves (B9) rvations: ter Present? Present? pilllary fringe)	ine) nriverine) rine) lmagery (B7) ves No ves No ves No	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along I Presence of Reduced Iron (C4 Recent Iron Reduction in Plow Other (Explain in Remarks) Depth (inches): Depth (inches):	Living Roots () ed Soils (C6)	Seco - V - S - C - C - C - C - S - S - S	ndary Indicators (2 or more required) Nater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Fhin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Type: Depth (in lemarks: /DROLO /etland Hy rimary Indi Surface High Water N Sedime Drift De Surface Inundat Water-S rield Obset Surface Water Table Saturation F includes ca	ches): ches): ches): chespire drology Indicators: cators (any one indicators): Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver): ion Usible on Aerial Stained Leaves (B9) rvations: ter Present? Present? pilllary fringe)	ine) nriverine) rine) lmagery (B7) ves No ves No ves No	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along I Presence of Reduced Iron (C4 Recent Iron Reduction in Plow Other (Explain in Remarks) Depth (inches):	Living Roots () ed Soils (C6)	Seco - V - S - C - C - C - C - S - S - S	ndary Indicators (2 or more required) Nater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Fhin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Type: Depth (in emarks: /DROLO Vetland Hy rimary Indi Surface High Water Marks Sedime Drift De Surface Inundat Water-Sirield Obser Surface Water Table saturation Fincludes can	ches): dGY drology Indicators: cators (any one indicators) Water (A1) ater Table (A2) ion (A3) Marks (B1) (Nonriver int Deposits (B2) (No posits (B3) (Nonriver ion Visible on Aerial Stained Leaves (B9) rvations: ter Present? Present? Present? Stained Leaves (B9) rvations:	ine) nriverine) rine) lmagery (B7) /es No /es No /es No	nt) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along I Presence of Reduced Iron (C4 Recent Iron Reduction in Plow Other (Explain in Remarks) Depth (inches): Depth (inches):	Living Roots (**) ed Soils (C6) Wetland pections), if a	Secon	ndary Indicators (2 or more required) Nater Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Orift Deposits (B3) (Riverine) Orainage Patterns (B10) Ory-Season Water Table (C2) Fhin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3) FAC-Neutral Test (D5)

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WETLAND DETERMINATION DATA FORM – Arid West Region

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		5)	_	chales
Project/Site: Golden Hills				
Applicant/Owner: RP				Sampling Point: 16-1
Investigator(s): Slpa, SW	S	Section, Township, Rai	nge: 2, TOIN, (<16E
Landform (hillslope, terrace, etc.):	ige teature i	Local relief (concave	convex none):	Slope (%):5_
Subregion (LRR):	Lat:		_ Long:	Datum:
Soil Map Unit Name: Endersby Horm	istmComplex 0-	31./12,A	NWI classifi	cation:
Are climatic / hydrologic conditions on the site	typical for this time of year	r? YesNo	(If no, explain in f	Remarks.)
Are Vegetation, Soil, or Hydro	ology significantly d	listurbed? No Are "	'Normal Circumstances"	present? Yes/ No
Are Vegetation, Soil, or Hydro	ology naturally prob	olematic? No (If ne	eded, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attack				
Hydrophytic Vegetation Present? Yes	es No			
	es No	Is the Sampled		1/
	es No	within a Wetlan	nd? res	No
Remarks: see remanks below)			
VEGETATION				
To Charles (Use establish names)		Dominant Indicator	Dominance Test work	ksheet:
Tree Stratum (Use scientific names.)	Salix Cover	Species? Status	Number of Dominant S	
2			That Are OBL, FACW,	
3			Total Number of Domii Species Across All Str	
4.				
	Total Cover:		Percent of Dominant S That Are OBL, FACW,	
Sapling/Shrub Stratum	AOTO LES	/ A11		
1. <u>50 a/s</u>	ARTR 100		Prevalence Index wo	
2				Multiply by: x 1 =
3				x1 x2=
5				x 3 =
	Total Cover: 30			x 4 =
Herb Stratum		ALL		x 5 =
1. photorass	<u>BRIZ</u> 90 SIAL 10	NL	Column Totals:	(A) (B)
2. himble mustered			Prevalence Inde	x = B/A =
ł .			Hydrophytic Vegetati	
5			Dominance Test is	
6			Prevalence Index	
7			Morphological Ada	aptations ¹ (Provide supporting
8.			i	ks or on a separate sheet)
	Total Cover:	·	Problematic Hydro	ophytic Vegetation¹ (Explain)
Woody Vine Stratum			Indicators of budge of	oil and wetland hydrology must
1			be present.	in and wettand hydrology must
2	Total Cover:		Hydrophytic	. ,
% Bare Ground in Herb Stratum			Vegetation	
	% Cover of Biotic Cru	 	Present? Ye	9S NO <u>V</u>
Remarks:	Ci Ann	was sell		
1000				
Arthral reveal (seed 14)	然外 有一个自己	71 pr - 10	N. C.	
E. Kright E. Ville		ŧ		

Sampling Point: /-6-Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.) Denth Matrix Redox Features Color (moist) % Type¹ Loc² Texture (iriches) Color (moist) ¹Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ²Location: PL=Pore Lining, RC=Root Channel, M=Matrix. Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.) Indicators for Problematic Hydric Soils³: Sandy Redox (S5) Histosol (A1) 1 cm Muck (A9) (LRR C) Histic Epipedon (A2) Stripped Matrix (S6) ___ 2 cm Muck (A10) (LRR B) ___ Loamy Mucky Mineral (F1) Black Histic (A3) ___ Reduced Vertic (F18) ___ Loamy Gleyed Matrix (F2) ___ Red Parent Material (TF2) Hydrogen Sulfide (A4) _ Stratified Layers (A5) (LRR C) ___ Depleted Matrix (F3) Other (Explain in Remarks) ___ 1 cm Muck (A9) (LRR D) __ Redox Dark Surface (F6) ___ Depleted Below Dark Surface (A11) Depleted Dark Surface (F7) __ Thick Dark Surface (A12) Redox Depressions (F8) _ Sandy Mucky Mineral (S1) __ Vernal Pools (F9) ³Indicators of hydrophytic vegetation and Sandy Gleyed Matrix (\$4) wetland hydrology must be present. Restrictive Layer (if present): Type: ___ Hydric Soil Present? Depth (inches): Remarks: **HYDROLOGY** Wetland Hydrology Indicators: n600 Secondary Indicators (2 or more required) Primary Indicators (any one indicator is sufficient) Water Marks (B1) (Riverine) ___ Sediment Deposits (B2) (Riverine) Surface Water (A1) Salt Crust (B11) ___ High Water Table (A2) ___ Drift Deposits (B3) (Riverine) ___ Biotic Crust (B12) ___ Drainage Patterns (B10) __ Saturation (A3) Aquatic Invertebrates (B13) ___ Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Dry-Season Water Table (C2) ___ Sediment Deposits (B2) (Nonriverine) ___ Oxidized Rhizospheres along Living Roots (C3) ___ Thin Muck Surface (C7) ___ Crayfish Burrows (C8) ___ Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Soils (C6) Surface Soil Cracks (B6) Saturation Visible on Aerial Imagery (C9) _ Inundation Visible on Aerial Imagery (B7) ___ Shallow Aquitard (D3) ___ Other (Explain in Remarks) FAC-Neutral Test (D5) Water-Stained Leaves (B9) Field Observations: Yes _____ No ____ Depth (inches): _____ Surface Water Present? Yes _____ No ____ Depth (inches): _____ Water Table Present? Saturation Present? Yes _____ No ____ Depth (inches): _____ Wetland Hydrology Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Remarks:

WEILAND DETERMINATION DATA	A FORM – Arid West Region $wetlanc$
Project/Site: Golden Hils City/County: 5	Sherman Co. Sampling Date: Co-14-0
Applicant/Owner: BP	State: OR Sampling Point: 3 M
Investigator(s): 5. Pattinson + S. Walkey Section, Towns	ship, Range: 10, TOIS, RITE
Landform (hillslope, terrace, etc.): +emace Local relief	incave/convex, none):Slope (%): 5
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Lickskillet very stony loam/160	NWI classification: PEMC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	
Are Vegetation, Soll, or Hydrology significantly disturbed?	Are "Normal Circumstances" present? Yes No
Are Vegetation $\underline{N}_{\mathfrak{F}}$, Soil $\underline{N}_{\mathcal{E}}$, or Hydrology $\underline{N}_{\mathcal{E}}$ naturally problematic?	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling p	point locations, transects, important features, etc.
I Mydric Soil Present? Yes X No I	ampled Area Wetland? Yes / No
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Inc. Species? S 1.	
2.	Total Number of Dominant
3	Species Across All Strata: (B)
4	Percent of Dominant Species
Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
, · · · · · · · · · · · · · · · · · · ·	ACM Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species <u>30</u> x1 = <u>20</u> FACW species <u>70</u> x2 = <u>140</u>
4. 5.	FACW species / O x2 = 140 FAC species / D x3 = 30
Total Cover: <5	FACU species _5 _ x4 = _ 20
Herb Stratum	UPL species $2 \text{ (AIL)} \times 5 = 10$
1. radads TYLA 10 V 0	Column Totals: 107 (A) 220 (B)
3. CONTRACTOR CLAR	Prevalence Index = B/A = 107
4. 0\0000 MSSA 5	Hydrophytic Vegetation Indicators:
	FAC pominance Test is >50%
4,14	Prevalence Index is ≤3.0¹
7	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet)
Woody Vine Stratum	Problematic Hydrophytic Vegetation¹ (Explain)
	¹Indicators of hydric soil and wetland hydrology must be present.
Total Cover: % Bare Ground in Herb Stratum / C % Cover of Biotic Crust	Hydrophytic Vegetation Present? Yes No
Pamarko:	103 / 110
$\frac{\partial \mathcal{F}}{\partial \mathcal{F}} = \frac{\partial \mathcal{F}}{\partial \mathcal{F}} = \partial $	7.90

DIL	arintians (Describe to the decate	uppeded to decrement the last arter and	anfirm the	obossis -	Sampling Point: 3M-
		needed to document the indicator or o	confirm the	absence o	f indicators.)
epth	Matrix Color (moist) %	Redox Features Color (moist) % Type ¹ L	_oc²	exture	Remarks
nches)	104R3/1	Color (moist) /6 Type L		CXIOIC	AUCK SILLY MUC
<u> </u>	104 10 - 1				MEGER DITTO LINE
114	Starel Whisal.	avovel			1
	•				
	<u> </u>				-
	· ·	·			w. 1304.c.
	4	•			
					
				<u> </u>	
		*			
ivne: C=C	Concentration, D=Depletion, RM=R	educed Matrix. ² Location: PL=Pore L	ining RC≡R	oot Channe	ol M=Matrix
	Indicators: (Applicable to all LF				or Problematic Hydric Soils ³ :
	• • • •		••		uck (A9) (LRR C)
Histoso		Sandy Redox (S5)	-		
_	Epipedon (A2)	Stripped Matrix (S6)	_		tck (A10) (LRR B)
	Histic (A3)	Loamy Mucky Mineral (F1)	-		d Vertic (F18)
	en Sulfide (A4)	Loamy Gleyed Matrix (F2)	-		rent Material (TF2)
	ed Layers (A5) (LRR C)	Depleted Matrix (F3)	_	Other (E	xplain in Remarks)
	luck (A9) (LRR D)	Redox Dark Surface (F6)			
-	ed Below Dark Surface (A11)	Depleted Dark Surface (F7)			÷
	Park Surface (A12)	Redox Depressions (F8)	9.		
	Mucky Mineral (S1)	Vernal Pools (F9)	3		f hydrophytic vegetation and
	Gleyed Matrix (S4)			wetland h	ydrology must be present.
estrictive	Layer (if present):	•			
Type:	large aravel				\
Depth (in	nches) 14"		H	ydric Soil F	Present? Yes X No
		· · · · · · · · · · · · · · · · · · ·			
YDROLO					(2)
	ydrology Indicators:				dary Indicators (2 or more required)
	licators (any one indicator is suffici-	<u>ent)</u>		. <u> </u>	ater Marks (B1) (Riverine)
imes Surface	e Water (A1) Near by	Salt Crust (B11)		Se	diment Deposits (B2) (Riverine)
	/ater Table (A2)	Biotic Crust (B12)	•	Dri	ift Deposits (B3) (Riverine)
Satura	fion (A3)	Aquatic Invertebrates (B13)		Dra	ainage Patterns (B10)
	Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)			y-Season Water Table (C2)
	ent Deposits (B2) (Nonriverine)	Oxidized Rhizospheres along Liv	ina Roots ((
		Presence of Reduced Iron (C4)	ing roote (ayfish Burrows (C8)
	eposits (B3) (Nonriverine)		10-! - (00)		
	e Soil Cracks (B6)	Recent Iron Reduction in Plowed	1 Solis (Cb)		turation Visible on Aerial Imagery (C
inunda	ition Visible on Aerial Imagery (B7)	Other (Explain in Remarks)			allow Aquitard (D3)
Water-	Stained Leaves (B9)	•		FA	C-Neutral Test (D5)
ield Obse	ervations: শুরু তব্দ ১০৬	y naprhy			
Surface Wa	ater Present? Yes N	Depth (inches):	1		•
	•	Depth (inches):			
			Wotlond	Underloan	Present? Yes X No
Saturation	apillary fringe)	o Depth (inches):	vvetiano	пусноюцу	Plesein? tes No
Describe R	lecorded Data (stream gauge, mon	itoring well, aerial photos, previous inspe	ections), if av	/ailable:	
Remarks:					
rtemarks:					
		·			
		-			
p	ال ب مم				
(p.f	RASS Valley				

WEILAND DETERMIN	ATION DATA FOR	lM – Arid West Reg	ion
Project/site: Golden Hills	City/County: SNOT	man	Sampling Date: <u>6/14/07</u>
Applicant/Owner: BP		State: OR	Sampling Point: 3-M-2
Investigator(s): S. Pattinson & S. Walkey	Section, Township, Ra	nge: <u>/0, T 615</u> ,	RI7F
Landform (hillslope, terrace, etc.): RIVENINE	_ Local relief (concave),	convex, none):	Slope (%): <u>30</u>
Subregion (LRR): Lat:		_ Long:	Datum:
Soil Map Unit Name: Lickskillet very stony loan	n/16D	NWI classific	cation:
Are climatic / hydrologic conditions on the site typical for this time of ye	•		•
Are Vegetation, Soil, or Hydrology significantly			
Are Vegetation, Soil, or Hydrology naturally pr			
SUMMARY OF FINDINGS – Attach site map showing	g sampling point l	ocations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes No V Hydric Soil Present? Yes No V Wetland Hydrology Present? Yes No V Remarks:	Is the Sampled within a Wetlar	Area nd? Yes	No
VEGETATION			
Absolute Tree Stratum (Use scientific names.)	Dominant Indicator Species? Status	Dominance Test work Number of Dominant S	
1	<u> </u>	That Are OBL, FACW,	
2		Total Number of Domin	iant (
3		Species Across All Stra	_ /
Sapling/Shrub Stratum Total Cover:	_	Percent of Dominant S That Are OBL, FACW,	or FAC: (A/B)
1		Prevalence Index wor	
2		"	<u>Multiply by:</u> x 1 =
3. 4.			x 2 =
5		Į.	x3 =
Total Cover:		•	x 4 =
1. Kurch County Grass PHAR 49	TACUL		x 5 =
2. Cottat Rassian Park	FACW	Column Totals:	(A) (B)
3. Agreeman intermedius 49	NI-	Prevalence Index	: = B/A =
4.		Hydrophytic Vegetation	
5		Dominance Test is	>50%
6		Prevalence Index i	s≤3.0¹ NA
7		Morphological Ada	ptations ¹ (Provide supporting s or on a separate sheet)
8		i	s or on a separate sneet) phytic Vegetation¹ (Explain)
Woody Vine Stratum	`	i toblematic riyulo	bulling rederation (Exhiain)
1		¹ Indicators of hydric soi be present.	il and wetland hydrology must
Total Cover:		Hydrophytic	
% Bare Ground in Herb Stratum % Cover of Biotic 0	$_{ ext{Crust}}$	Vegetation Present? Ye	s No_/
Remarks:			
Cuttle have been in this area	Trails The	my h vieg	

SOIL	A ·		Sampling Point: 3-M-2
Profile Desc	ription: (Describe to the depth r	eeded to document the indicator or conf	
Depth	Matrix	Redox Features	
(inches)		Color (moist) % Type ¹ Loc ²	Texture Remarks
1-10	10 4R 3/3 -		loan
<u>U_11</u>			
	<u> </u>		
			
	•		
¹Tuno: C=C	oncentration, D=Depletion, RM=Re	duped Matrix 2 continue DI Pero Lining	g, RC=Root Channel, M≈Matrix.
	Indicators: (Applicable to all LR		Indicators for Problematic Hydric Soils ³ :
		, ,	· · · · · · · · · · · · · · · · · · ·
Histosol	•	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
	pipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Hi		Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
	en Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
	d Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
	ıck (A9) (LRR D)	Redox Dark Surface (F6)	
	d Below Dark Surface (A11)	Depleted Dark Surface (F7)	
	ark Surface (A12)	Redox Depressions (F8)	3.
	Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
	Bleyed Matrix (S4)		wetland hydrology must be present.
Restrictive	Layer (if present):		
Type:	Kock	_	, ,
Depth (in	ches): 14"		Hydric Soil Present? Yes No
Remarks:		1	
1340*	Rock / Showel He	tusal@ 14"	
-			
HYDROLO	GY		
			Secondary Indicators (2 or more required)
i -	drology Indicators:		
	cators (any one indicator is sufficie	•	Water Marks (B1) (Riverine)
	Water (A1)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Wa	ater Table (A2)	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Saturati	on (A3)	Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Water M	farks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
1	nt Deposits (B2) (Nonriverine)	Oxidized Rhizospheres along Living	Roots (C3) Thin Muck Surface (C7)
1	posits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
	Soil Cracks (B6)	Recent Iron Reduction in Plowed Soi	· · · · · · · · · · · · · · · · · · ·
	ion Visible on Aerial Imagery (B7)	Other (Explain in Remarks)	Shallow Aquitard (D3)
	Stained Leaves (B9)	Other (Explain in Remarks)	·
	<u> </u>		FAC-Neutral Test (D5)
Field Obser			
Surface Wat	ter Present? Yes No	Depth (inches): 314"	
Water Table	Present? Yes No	Depth (inches):	,
Saturation P	resent? Yes No	Depth (inches): V	Netland Hydrology Present? Yes No
(includes ca	pillary fringe)		
Describe Re	corded Data (stream gauge, monit	oring well, aerial photos, previous inspection	ns), if available:
Remarks:	-		
	5.1 +- m	ot salurated at 14"	
	Low must 1	of successfully of	
		-	
684	tss valla		
	~~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~		

WETLAND DET	TERMINA	TION D	ATA FOR	KM - Arid West Region Wetland
Project/Site: Golden 141/18		City/County	r. She	rman Co Sampling Date:
Applicant/Owner: 3 P				State OR Sampling Point Z - N - 1
Investigator(s): S. Pattinson & S. Walk	2ey	Section To	wnshin Ra	nge: 30 and 21 TOWN PIRE
Landform (hillslope, terrace, etc.): <u>drainage botho</u>	m	Local relies	f (concave	CORNOY POPO):
Subregion (LRR):	_ Lat:	Local relie	r (concave,	Slope (%): _ Long: Datum:
Soil Map Unit Name: Endersby-Hamiston Con	uplex c	0-31.	12 A	NWI classification: PEMIC
Are climatic / hydrologic conditions on the site typical for this	time of ve	ar? Yes	1/ No	(If no explain in Remarks)
Are Vegetation, Soil, or Hydrology si				
Are Vegetation, Soil, or Hydrology na			4.4	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map s	showing	samplin		•
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No.)	ls th	ne Sampled in a Wetlar	Area
VEGETATION				
	Absolute	Dominant	Indicator	Dominance Test worksheet:
1 (Use scientific names.)	% Cover	Species?	Status	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2				Total Number of Dominant
3				Species Across All Strata: (B)
Total Cover: Sapling/Shrub Stratum		,		Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
1				Prevalence Index worksheet:
2				Total % Cover of:Multiply by:
3				OBL species x 1 =
4				FACW species x 2 =
5	-			FAC species x3 =
Total Cover: Herb Stratum				FACU species x 4 =
1. Revol conums PHAR	4/1)	/	FACW	UPL species x 5 =
2. Agropyton Interduorship	25.0		<u> </u>	Column Totals: (A) (B)
3. alfalfa medical	F7.		All	Prevalence Index = B/A =
4. conadidhistle CIAR			FAC	Hydrophytic Vegetation Indicators:
5. horseweed coch			1/0_	✓ Dominance Test is >50%
6. JUNCIAS SOP (large) JULG	1		(FAC)	Prevalence Index is ≤3.0¹
7. Caffals	20	V	OBL	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8				Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover: Woody Vine Stratum				
1 2.				¹ Indicators of hydric soil and wetland hydrology must be present.
2Total Cover:				Hydrophytic /
% Bare Ground in Herb Stratum % Cover	of Biotic Cr	ust		Vegetation Present? Yes No
Remarks:				
				·

ØIL	. * 							Sampling Point: 301
Profile Desc	cription: (Describe to	the depth ned	eded to docum	ent the i	ndicator	or confirm	n the abse	ence of indicators.)
Depth	<u>Matrix</u>			Features				
inches)	Color (moist)		olor (moist)	 _	Type ¹	Loc ²	Textur	e Remarks
<u> </u>	1011212	17-15	5416410	<u>a 10</u>	_ (_,_		1000	<u> </u>
		- 10 ⁽	12/1	15		M	100	(M
1-92	1048 # 12	 					1000	
	10 10 pp						1004	<u> </u>
							-	
						•		
	AN ARTHUR AND A TOTAL AND A SECOND ASSECTION ASSECTI	<u> </u>	***					
	oncentration, D=Deple					e Lining, F		
	Indicators: (Applica	ble to all LRRs			∋d.)			ators for Problematic Hydric Soils ³ :
Histosol			_ Sandy Redo					cm Muck (A9) (LRR C)
	pipedon (A2)	_	Stripped Mat	, ,	(E4)			cm Muck (A10) (LRR B)
	istic (A3) en Sulfide (A4)	_	Loamy Mu c k /Loamy Gleye	-				educed Vertic (F18) ed Parent Material (TF2)
	d Layers (A5) (LRR C	_	Depleted Ma		(1 ~)			ther (Explain in Remarks)
	uck (A9) (LRR D)	, –	_ Redox Dark		F6)		_ `	are (=/prain in (tername))
	d Below Dark Surface	(A11) _	Depleted Da	,	•			
	ark Surfa c e (A12)	. , _	Redox Depre		, ,			
Sandy N	Mucky Mineral (S1)	_	_ Vernal Pools	s (F9)			³Indica	ators of hydrophytic vegetation and
	Gleyed Matrix (S4)						we	tland hydrology must be present.
Restrictive	Layer (if present):							
Туре:								
Depth (in	iches):							Soil Present? Yes X No
YDROLO								
-	drology Indicators:		ē					Secondary Indicators (2 or more required)
<u>Primary Indi</u>	icators (any one indica	tor is sufficient)						Water Marks (B1) (Riverine)
	: Water (A1)		Salt Crust					Sediment Deposits (B2) (Riverine)
High W	ater Table (A2)		Biotic Crus				4	Drift Deposits (B3) (Riverine)
Saturati	• •		Aquatic Inv				· -	Drainage Patterns (B10)
	Marks (B1) (Nonriveri	•	Hydrogen :				<u>-</u>	Dry-Season Water Table (C2)
	ent Deposits (B2) (Non	-	Oxidized R				ots (C3) _	Thin Muck Surface (C7)
	posits (B3) (Nonriver	ine)	Presence of				-	Crayfish Burrows (C8)
	e Soil Cracks (B6)		Recent Iron			ved Soils ((C6) _	Saturation Visible on Aerial Imagery (C
	tio n Visi b le on Aerial Ir	nagery (B7)	Other (Exp	olain in Re	emarks)		-	Shallow Aquitard (D3)
	Stained Leaves (B9)							FAC-Neutral Test (D5)
Field Obser		`	Mr.					
Surface Wa	•		Depth (ind			-		
Water Table	e Present? Ye	∍s No	Depth (inc	5.1	16	<u> </u>		/
Saturation F		es <u>.</u> No	Depth (ind	ches): 🚣	10	Wet	land Hydi	rology Present? Yes 🖊 No
(includes ca Describe Pa	apillary fringe) ecorded Data (stream	gauge monitor	ing well serial r	ohotos n	evious ins	spections)	ı. if availah	le:
PESCHIE IV	Sociaca pala (Sileani	gaago, momon	y mon, aonai j	p.101001 p1	211000 1110		n n aranab	•••
Domorko	,100 ₄	. 1						
Remarks:	Physicine	, Sheck	4 19 m	000				
	1 10 10 10 10 10 10 10 10 10 10 10 10 10	· · · · · · · · · · · · · · · · · · ·		:				
		•	-					
يد	A II		•					
<u> </u>	iass Valley	Canun						

WEILAND DETERMINATION DATA FO	/
Project/Site: Golden Hul/S City/County: St	rerman Co. Sampling Date: 6/14/8
Applicant/Owner: 15P	State: O'R Sampling Point: 31 - 7
Investigator(s): S. Pathinson & S. Walkey Section, Township, F.	Range: 30 and 31, TOW, RIRE
Landform (hillslope, terrace, etc.): hulls/ope Local relief (concave	e, convex none): Slope (%): 20
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Fuders by - Henmisten Complex /12A	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No	
	e "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? N_0 (If I	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling point	locations, transects, important features, etc.
	the state of the s
Hydrophytic Vegetation Present? Hydric Soil Present? Yes No X Is the Sample	
Wetland Hydrology Present? Yes No within a Wetl.	and? Yes No
Remarks:	
	•
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? Status	Number of Dominant Species
1. None	That Are OBL, FACW, or FAC: (A)
3	Total Number of Dominant
4	Species Across All Strata: (B)
Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum 1. Sage ARTR 5 V NL	
1. Sage ARTR 5 V NL	Prevalence Index worksheet:
3.	OBL species x1 =
4.	FACW species x 2 =
5.	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Agropyron intermedia 57 / NL	UPL species x 5 =
2. Red Canaly 97655 FACU	Olumn Totals: (A) (B)
3. alfalfa	Prevalence Index = B/A =
4. horse wird	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.0 ¹ Morphological Adaptations ¹ (Provide supporting
7. 8.	data in Remarks or on a separate sheet)
Total Cover:	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	
1	¹Indicators of hydric soil and wetland hydrology must be present.
2	
Total Cover: % Bare Ground in Herb Stratum 30 % Cover of Biotic Crust	Hydrophytic Vegetation
78 Sorel of Blodd Grast	Present? Yes No
Remarks:	
	• :
·	
•	

OIL							·	5	Sampling Point:	3N2
Profile Desc	ription: (Describe t	o the dep	th needed to docur	nent the i	ndicator	or confirm	the absen	ce of indicat	ors.)	•
Depth	Matrix			x Feature:						
(inches)	Color (moist)	<u>%</u>	Color (moist)	- %	_Type ¹	<u>Loc²</u>	<u>Texture</u>	_	Remarks	
<u>U-1()</u>	10484/2						1000	<u> </u>	10am	
1D-16	109R4/2	•	70 JULY 3/4	20	\mathbb{C}	14	loar	と	_	
			104/2/1	10		$\overline{\mathcal{N}}$	10 animal	-chay		
			<u> </u>	· <u> </u>		/ \	<u> </u>	_ (<u>////////</u>	(1)1 - 5	
	oncentration, D=Deple			² l ocation	· DI -Poi	re Linina P	C-Root Ch	— ———— annel, M=Ma	triv	
	Indicators: (Applica					e Lining, ix			ematic Hydric	Soils ³ :
Histosol			Sandy Redo		,			n Muck (A9)	_	
	oipedon (A2)		Stripped Ma					n Muck (A10)	•	
Black Hi			Loamy Muc	٠,	l (F1)			luced Vertic (
Hydroge	en Sulfide (A4)		Loamy Gley		(F2)		Red	l Parent Mate	erial (TF2)	
	d Layers (A5) (LRR C)	Depleted M				Oth	er (Explain in	Remarks)	
	ıck (A9) (LRR D)		Redox Dark							
	d Below Dark Surface	(A11)	Depleted Da							
	ark Surface (A12) /lucky Mineral (S1)		Redox Depi Vernal Pool		r 6)		3Indicate	ore of hydroni	nytic vegetation	and
	Bleyed Matrix (S4)	•	vernan oor	3 (1 3)					must be prese	
	Layer (if present):			•			1			
						•				
Depth (in	ches):						Hydric S	oil Present?	Yes	No 😾
γ.c	ches): Charcol, pos Xt to Itu									
YDROLO	GY									
Wetland Hy	drology Indicators:						Se	condary Indic	ators (2 or mor	e required)
Primary India	cators (any one indica	tor is suffi	cient)					Water Mark	s (B1) (Riverin	e)
Surface	Water (A1)		Salt Crust	(B11)					eposits (B2) (R	
	ater Table (A2)		Biotic Crus						its (B3) (Riveri	
Saturatio	on (A3)		Aquatic In		s (B13)			=	atterns (B10)	•
Water M	larks (B1) (Nonriveri	ne)	Hydrogen	Sulfide O	dor (C1)		-	Dry-Seasor	n Water Table (C2)
Sedimer	nt D eposits (B2) (N or	riverine)	Oxidized F	Rhizosphe	res along	Living Roc	ots (C3)	Thin Muck	Surface (C7)	
Drift Dep	posits (B3) (Nonriv er	ine)	Presence	of Reduce	ed Iron (C	4)		Crayfish Bu	ırrows (C8)	
Surface	Soil Cracks (B6)		Recent Iro	n Reducti	on in Plo	wed Soils (C6)	Saturation '	Visible on Aeria	l imagery (C9)
Inundati	on Visible on Aerial Ir	nagery (B	7) Other (Exp	olain in Re	emarks)			Shallow Aq	uitard (D3)	
Water-S	tained Leaves (B9)						_	_ FAC-Neutra	al Test (D5)	
Field Obser	vations:								· · · · · · · · · · · · · · · · · · ·	- · · · · · · · · · · · · · · · · · · ·
Surface Wat	er Present? Ye	es	No 🌉 Depth (in	ches):		1				. 1
Water Table	Present? Ye	es	No 🔼 Depth (in	ches):					-	W
Saturation P (includes cap	resent? Yo pillary fringe)	es	No Depth (in	ches):		Wetl	land Hydrol	ogy Present	? Yes	_ No
	corded Data (stream	gauge, mo	onitoring well, aerial	photos, pi	evious in	spections),	if available:			
Remarks:			· · · · · · · · · · · · · · · · · · ·							
							21			
~	.> 11	_	•							

WETLAND DETER	RMINATIO	ON DATA	FORM -	– Arid West Region	upland
Project/Site: 60/don Hills		City/County	. Sha	mon County Sampling	
Applicant/Owner: SP Alternative	Ener	Jity/Courty		State TO Sampling	Date:
Investigator(s): 6 Rand I. Shanna	200	93 -			2 1/2 15
Landform (hillslope, terrace, etc.):				~~	
				Long:	
Soil Map Unit Name: Walla Walla Silt loa	m 127	7. /31.	کا	NWI classification:	
Are climatic / hydrologic conditions on the site typical for this	time of year	ar? Yes	<u> </u>	(If no, explain in Remarks.)	
Are Vegetation, Soil, or Hydrologys	ignificantly o	disturbed?\	ີໄ ດ Are "	"Normal Circumstances" present? Y	es/_ No
Are Vegetation, Soil, or Hydrologyn	aturally prol	blematic?	N _e (if ne	eeded, explain any answers in Remar	ks.)
SUMMARY OF FINDINGS – Attach site map	showing	samplin	g point le	ocations, transects, importa	int features, etc.
Hydrophytic Vegetation Present? Yes No	0/_	10.45		1.4	
Hydric Soil Present? Yes No	,	1	e Sampled in a Wetlar	nd? YesNo	
Wetland Hydrology Present? Yes No	o,				
Remarks: Drainage bottom with	nin W	iheat	field.	Transme Run 1	3, section 2,
				•	
VECETATION		· .			
VEGETATION					
Tree Stratum (Use scientific names.)	Absolute <u>% Cover</u>	Dominant Species?		Dominance Test worksheet:	
1				Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
2					
З				Total Number of Dominant Species Across All Strata:	(В)
4				Percent of Dominant Species	
Total Cover: Sapling/Shrub Stratum	!			That Are OBL, FACW, or FAC:	(A/B)
1				Prevalence Index worksheet:	· · · · · · · · · · · · · · · · · · ·
2				Total % Cover of:	Multiply by:
3				OBL species x 1 :	= .
4				FACW species x 2	=
5	· 			FAC species X3	
Total Cover:	·			FACU species x 4 :	
1. Triticon gestivum TRAE	95%	V	NI	UPL species x 5	
2		***************************************		Column Totals: (A)	(B)
3.				Prevalence Index = B/A = _	
4				Hydrophytic Vegetation Indicato	rs:
5				Dominance Test is >50%	
6				Prevalence Index is ≤3.01	
7				Morphological Adaptations ¹ (P	
8			·	data in Remarks or on a seg	· ' '
Total Cover:	·			Froblematic Hydrophytic vege	tation (Explain)
Woody Vine Stratum				¹ Indicators of hydric soil and wetlar	nd hydrology must
1. 2.				be present.	ia nyarology mase
, Total Cover:				Hydrophytic	
<i>−</i> t/				Vegetation	
	of Biotic Cr	ust		Present? Yes	No L
Remarks: Cityudad what fold	,			•	
Committed many hall	•				
				``	

Sampling Point: <u>DP 2 A</u>	-
of indicators.)	-
Remarks	
	•
	•
,	٠,
	•
el, M=Matrix. for Problematic Hydric Soils³:	
luck (A9) (LRR C)	, .
luck (A10) (LRR B)	
ed Vertic (F18)	
arent Material (TF2)	
Explain in Remarks)	
•	
4. ·	
authorities to	
of hydrophytic vegetation and	
hydrology must be present.	
	-
Present? Yes No	
don Indicators (2 or more required)	
dary Indicators (2 or more required)	
/ater Marks (B1) (Riverine)	
ediment Deposits (B2) (Riverine)	
rift Deposits (B3) (Riverine)	
rainage Patterns (B10)	
ry-Season Water Table (C2)	
hin Muck Surface (C7)	
roufich Durrouse (CS)	

SOIL

Depth <u>Matrix</u>		ox Features		•	and the second s
inches) Color (moist)	% Color (moist)	<u> </u>	Loc ²	<u>Texture</u>	Remarks
0-16"+ 109R3/A	<u> </u>			siltloom	
			 	 	
				·	The second secon
.			· · · · · · · · · · · · · · · · · · · 		A Comment of the Comm
**			*		
Type: C=Concentration, D=Depleti	on DM=Doduced Matrix	² Location: PL=Po	ro Lining (PC=Poot Channe	J. M=Matrix
ydric Soil Indicators: (Applicabl			re camig, s		or Problematic Hydric Soils ³ :
				1.00 Tel	
_ Histosol (A1)	Sandy Re				ick (A9) (LRR C) ick (A10) (LRR B)
Histic Epipedon (A2)	Stripped N	nauix (36) icky Mineral (F1)	•		d Vertic (F18)
Black Histic (A3)		- , -			ent Material (TF2)
_ Hydrogen Sulfide (A4)		eyed Matrix (F2)			xplain in Remarks)
_ Stratified Layers (A5) (LRR C)		Matrix (F3)		Other (E	xpiain in Remarks)
1 cm Muck (A9) (LRR D) Depleted Releve Dark Surface (A)		rk Surface (F6)			
 Depleted Below Dark Surface (A) Thick Dark Surface (A12) 		Dark Surface (F7) pressions (F8)			
Mick Dark Sunace (A12) Sandy Mucky Mineral (S1)	Kedox De			3Indicators o	f hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		013 (1 3)			ydrology must be present.
estrictive Layer (if present):				Wouldn't I	yerorogy meet 20 process.
				-	
Туре:					
Donth (inches):					
Depth (inches):				Hydric Soil F	resent? Yes No
emarks:				Hydric Soil F	resent? Yes No
emarks:			,	Hydric Soil F	resent? Yes No
remarks:					ary Indicators (2 or more required)
Pemarks: POROLOGY Vetland Hydrology Indicators:	r is sufficient)			Second	
emarks: /DROLOGY /etland Hydrology Indicators: rimary Indicators (any one indicato		st (B11)		Second	ary Indicators (2 or more required) ter Marks (B1) (Riverine)
emarks: /DROLOGY /etland Hydrology Indicators: rimary Indicators (any one indicato _ Surface Water (A1)	Salt Crus	•		Second Wa	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine)
POROLOGY Vetland Hydrology Indicators: Inimary Indicators (any one indicato Surface Water (A1) High Water Table (A2)	Salt Crus Biotic Cr	ust (B12)	-	Second Wa Sec	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine)
POROLOGY Vetland Hydrology Indicators: Inimary Indicators (any one indicato Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crus Biotic Cr Aquatic I	ust (B12) nvertebrates (B13)		Second We See Dri	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine) ainage Pattems (B10)
PROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicato Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine	Salt Crus Biotic Crus Aquatic I) Hydroger	ust (B12) nvertebrates (B13) n Sulfide Odor (C1)	a Living Ro	Second We Second Dri	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine) ainage Pattems (B10) r-Season Water Table (C2)
POROLOGY Vetland Hydrology Indicators: Inimary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine	Salt Crus Biotic Crus Aquatic I) Hydrogen verine) Oxidized	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along		Second We Second Dri Dri Dri Drots (C3) Thi	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Injury Patterns (B10) Injury P
rDROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine	Salt Crus Biotic Cn Aquatic I Hydroger verine) Oxidized e) Presence	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C	4)	Second Wa Second Dri Dri Dri Dry oots (C3) Thi Cre	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine) ainage Pattems (B10) /-Season Water Table (C2) n Muck Surface (C7) ayfish Burrows (C8)
POROLOGY Vetland Hydrology Indicators: Inimary Indicators (any one indicato Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6)	Salt Crus Biotic Cn Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo	4)	Second Wa Sea Dri Drg Drg Drg Cra (C6) Sa	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine) ainage Pattems (B10) y-Season Water Table (C2) n Muck Surface (C7) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
POROLOGY Vetland Hydrology Indicators: Inmary Indicators (any one indicato Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6) Inundation Visible on Aerial Ima	Salt Crus Biotic Cn Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C	4)	Second Wa See Dri Drg Drg cots (C3) Thi Cra (C6) Sa Sh	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C8 Inager (C9) In Muck Aquitard (D3)
POROLOGY Vetland Hydrology Indicators: Inimary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imater Water-Stained Leaves (B9)	Salt Crus Biotic Cn Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo	4)	Second Wa See Dri Drg Drg cots (C3) Thi Cra (C6) Sa Sh	ary Indicators (2 or more required) ter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) ft Deposits (B3) (Riverine) ainage Pattems (B10) y-Season Water Table (C2) n Muck Surface (C7) ayfish Burrows (C8) turation Visible on Aerial Imagery (C9)
POROLOGY Vetland Hydrology Indicators: Immary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imate Water-Stained Leaves (B9) Tield Observations:	Salt Crus Biotic Crus Aquatic I Hydroget verine) Oxidized e) Presence Recent I ngery (B7) Other (E	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo	(4) wed Soils	Second Wa See Dri Drg Drg cots (C3) Thi Cra (C6) Sa Sh	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C8 Inager (C9) In Muck Aquitard (D3)
POROLOGY Vetland Hydrology Indicators: Immary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imate Water-Stained Leaves (B9) Tield Observations:	Salt Crus Biotic Cn Aquatic I) Hydroges verine) Oxidized e) Presence Recent Is	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo	(4) wed Soils	Second Wa See Dri Drg Drg cots (C3) Thi Cra (C6) Sa Sh	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C8 Inager (C9) In Muck Aquitard (D3)
rDROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) iteld Observations: surface Water Present? Yes	Salt Crus Biotic Crus Aquatic I Hydroget verine) Oxidized e) Presence Recent I ngery (B7) Other (E	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo explain in Remarks)	e4) wed Soils	Second Wa See Dri Drg Drg cots (C3) Thi Cra (C6) Sa Sh	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C8 Inager (C9) In Muck Aquitard (D3)
Vetland Hydrology Indicators: rimary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imale Water-Stained Leaves (B9) iteld Observations: surface Water Present? Yes	Salt Crus Biotic Cn Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plo explain in Remarks) nches):	:4) wed Soils	Second Wa Second Dri Dri Dry Oots (C3) Thi Cra (C6) Sa' Sh. FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C
Vetland Hydrology Indicators: rimary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) Veter Table Present? Ves Vater Table Present?	Salt Crus Biotic Crus Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) Idiment Deposits (B2) (Riverine) If Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C8 Inager (C9) In Muck Aquitard (D3)
POROLOGY Vetland Hydrology Indicators: Inmary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) Veter Table Present? Ves Vater Table Present? Ves Saturation Present? Ves	Salt Crus Biotic Crus Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C
Vetland Hydrology Indicators: rimary Indicators (any one indicator Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine Sediment Deposits (B2) (Nonriverine Drift Deposits (B3) (Nonriverine Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) Veter Table Present? Ves Vater Table Present?	Salt Crus Biotic Crus Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C
Por Company Indicators: Inimary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes	Salt Crus Biotic Cn Aquatic I Hydrogen Presence Recent In No Depth (i No	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C
Por Company Indicators: Inimary Indicators (any one indicators) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Ima Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes	Salt Crus Biotic Cn Aquatic I Hydrogen Presence Recent In No Depth (i No	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C
ronarks: //DROLOGY //etland Hydrology Indicators: rimary Indicators (any one indicator) _ Surface Water (A1) _ High Water Table (A2) _ Saturation (A3) _ Water Marks (B1) (Nonriverine) _ Sediment Deposits (B2) (Nonriverine) _ Drift Deposits (B3) (Nonriverine) _ Surface Soil Cracks (B6) _ Inundation Visible on Aerial Image Water-Stained Leaves (B9) ield Observations: surface Water Present? Yes vater Table Present? Yes vater Table Present? Yes recludes capillary fringe) rescribe Recorded Data (stream gatemarks:	Salt Crus Biotic Crus Aquatic I)	ust (B12) nvertebrates (B13) n Sulfide Odor (C1) Rhizospheres along e of Reduced Iron (C ron Reduction in Plor explain in Remarks) nches):	(4) wed Soils	Second Wa Second Wa Second Dri Dra Dri Cra Cra (C6) Sa' Sh FA	ary Indicators (2 or more required) Iter Marks (B1) (Riverine) diment Deposits (B2) (Riverine) It Deposits (B3) (Riverine) Inage Pattems (B10) Inage Pattems (B10) Inage Pattems (C2) In Muck Surface (C7) In Muck Surface (C7) In Muck Surface (C8) Iteration Visible on Aerial Imagery (C5) In Muck Aquitard (D3) Inager C5 Inager C6 Inager C7 Inager C

WETLAND DETERMINATION DATA FORM	M – Arid West Region
Project/Site: Golden Hills City/County: Sh	sampling Date: 4/12/07
Applicant/Owner:	State: OR Sampling Point: DP-2-L
Investigator(s): OLR TASH Section, Township, F	•
Landform (hillslope, terrace, etc.): Drainage Local relief (concave	e convex, none): Slope (%): 45°
Subregion (LRR):	Long: Datum:
Soil Map Unit Name: Anderly Sittleam 1-71, /1B	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
	re "Normal Circumstances" present? Yes No
	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point	
Sommart Of Findings - Attach site map showing sampling point	riocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sample	ed Area
Hydric Soil Present? Yes No within a West	land? Yes No
Wetland Hydrology Present? Yes No	
Daya Plan located in 301000 med 17,	in blue line drainegt, within
cultivated wheat field	
VEGETATION	
Absolute Dominant Indicato Tree Stratum (Use scientific names.)	
1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	
3	Total Number of Dominant Species Across All Strata: (B)
4	
Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum	Prevalence Index worksheet:
2.	Total % Cover of: Multiply by:
3.	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Trit. aest. (wheat) 95% ML	UPL species x 5 =
	— Column Totals: (A) (B)
3	Prevalence Index = B/A =
4	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.0¹
7	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8	Problematic Hydrophytic Vegetation (Explain)
Total Cover: <u>95%</u> <u>Woody Vine Stratum</u>	rroblematic riyorophytic vegetation (Explain)
1.	¹ Indicators of hydric soil and wetland hydrology must
2	be present.
, Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Vegetation Present? Yes No
Describe	Liegelii: Lés NO /
Cultivated wheat field.	
	·

_	_	
c	•	•
J		-

	ription: (Describe to	the depth r				o r confirm	the absence of indicato	rs.)
Depth	Matrix (maint)			ox Feature:		Loc ²	Toytura	Romarka
(inches)	Color (moist).	<u> </u>	Color (moist)	_ <u> </u>	_Type ¹	LOC-		Remarks
010	109R3/2		<u> </u>				Silt loam	No and the second secon
				- ' 				
								
		* * *					1.0	
	•				· 	- 1 - 1 - 1 .		
						2"		
								·
¹Type: C=Co	oncentration, D=Deple	etion, RM=Re	duced Matrix.	² Location	: PL=Por	e Lining, R	C=Root Channel, M=Matr	ix.
	ndicators: (Applica			erwise not	ed.)		Indicators for Proble	natic Hydric Soils³:
Histosol	(A1)		Sandy Red	lox (S5)			1 cm Muck (A9) (L	RR C)
_	pipedon (A2)		Stripped M	latrix (S6)			2 cm Muck (A10) (LRR B)
Black Hi				cky Minera	I (F1)		Reduced Vertic (F	18)
	n Sulfide (A4)			yed Matrix			Red Parent Mater	al (TF2)
	Layers (A5) (LRR C)	Depleted N				Other (Explain in I	
_	ick (A9) (LRR D)	•	Redox Dat	k Surface ((F6)			•
	i Below Dark Surface	(A11)	Depleted [Dark Surfac	e (F7)			
	ark Surface (A12)	, ,		oressions (-			*
	lucky Mineral (S1)	•	Vernal Poo	ols (F9)			3Indicators of hydrophy	tic vegetation and
	leyed Matrix (S4)			* *			wetland hydrology r	nust be present.
	_ayer (if present):				·			
Type:			•	•			•	
Depth (inc	rhee).		-				Hydric Soil Present?	Yes No
Remarks:								
HYDROLO	GV .		•					
							Connedent Indian	tors (2 or more required)
_	drology Indicators:						·	tors (2 or more required)
Primary Indic	cators (any one indica	tor is sufficier	it)		· · · · · · · · · · · · · · · · · · ·	•		(B1) (Riverine)
Surface	Water (A1)		Salt Crus	t (B11)				posits (B2) (Riverine)
High Wa	iter Table (A2)		Biotic Cru	ıst (B12)			Drift Deposits	(B3) (Riverine)
Saturation	on (A3)		Aquatic la	nvertebrate	s (B13)		Drainage Pat	tems (B10)
Water M	arks (B1) (Nonriverir	ie)	Hydroger	n Sulfide O	dor (C1)	• •	Dry-Season \	Water Table (C2)
	nt Deposits (B2) (Non		Oxidized	Rhizosphe	res along	Living Roo	ots (C3) Thin Muck Si	urface (C7)
	osits (B3) (Nonriveri		Presence	of Reduce	d Iron (C	4)	Crayfish Burr	ows (C8)
-	Soil Cracks (B6)			on Reducti	-	•	C6) Saturation Vi	sible on Aerial Imagery (C9)
	on Visible on Aerial In	nagery (B7)		φlain in Re			Shallow Aqui	
	tained Leaves (B9)	nagery (Dr)	00101 (E)	финт	arionoy		FAC-Neutral	
							I AC-IVEUIIAI	
Field Obser		sNo	Depth (i	nohoo):				
Surface Wat				nches):		-		
Water Table						-		No. Market Control
	rocont? Vo	s No	Depth (i	nches):		vveti	and Hydrology Present?	Yes No <u>//</u>
Saturation P								·
(includes car	oillary fringe)	gauge, monito		photos, pr	evious ins	pections).	if available:	
(includes car		gauge, monito		photos, pr	evious ins	spections),	if available:	
(includes car Describe Re	oillary fringe) corded Data (stream		oring well, aeria			spections),	if available:	
(includes car	oillary fringe) corded Data (stream		oring well, aeria			spections),	if available:	
(includes car Describe Re	oillary fringe)		oring well, aeria			pections),	if available:	
(includes car Describe Re	oillary fringe) corded Data (stream		oring well, aeria			pections),	if available:	
(includes car Describe Re	oillary fringe) corded Data (stream		oring well, aeria			pections),	if available:	
(includes car Describe Re	corded Data (stream of the Corded Data (stream of the Corded Data (stream of the Corded Data Se		oring well, aeria			pections),	if available:	

WETLAND DETERMINATION DATA FORM - Arid West Region Sampling Date: 6/12/10 city/County: Sherman (a) Project/Site: State: OP Sampling Point: DB-2 Applicant/Owner: , 1. Shannon Section, Township, Range: 24, TOW, RIGE Investigator(s): Landform (hillslope, terrace, etc.): Talable Local relief (concave, convex, none): Subregion (LRR): __ Lat: Soil Map Unit Name: Walla Walla SIL+ Loam 1-71, 1313 ___ NWI classification: ___ Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? 🎵 a Are "Normal Circumstances" present? Yes ____ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? 1/0 (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Yes No Remarks: Survey areas, 14 and 11 Middle, NW of the intersection of Foss Lame and VEGETATION Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Use scientific names.) % Cover Species? Status **Number of Dominant Species** That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: Percent of Dominant Species Total Cover: That Are OBL, FACW, or FAC: Sapling/Shrub Stratum Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species _____ x1=___ FACW species ____ x 2 = _ FAC species Total Cover: FACU species x 4 = UPL species Column Totals: Prevalence Index = B/A = _ Hydrophytic Vegetation Indicators: 5. Dominance Test is >50% Prevalence Index is ≤3.0¹ Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Total Cover: 2096 Woody Vine Stratum ¹Indicators of hydric soil and wetland hydrology must be present. Total Cover: __ Hydrophytic Vegetation 2010 % Cover of Biotic Crust _ % Bare Ground in Herb Stratum Present? Remarks:

SOIL PROPERTY OF THE PROPERTY	"连续"的"4"。	1. 1. 2. 4. 1.	Sampling Point: DP20
Profile Description: (Describe to the depth needed to document the in	ndicator or confirm	n the absence of i	ndiçators.)
Depth Matrix Redox Features	<u> </u>	٠.	
(inches) Color (moist) % Color (moist) %	Type ¹ Loc ²	<u>Texture</u>	Remarks
0-16 104KSQ		51/1100m	
		·	· · · · · · · · · · · · · · · · · · ·
			<u> </u>
			
	·		to the second se
Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ² Location:	: PL=Pore Lining, F	C=Root Channel	M-Matrix
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise note			Problematic Hydric Soils ³ :
	:u.)		and the second of the second o
Histosol (A1) Sandy Redox (S5)			((A9) (LRR C)
Histic Epipedon (A2) Stripped Matrix (S6)	(54)		(A10) (LRR B)
Black Histic (A3) Loamy Mucky Mineral			/ertic (F18)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix	(F2)		nt Material (TF2) Plain in Remarks)
Stratified Layers (A5) (LRR C) Depleted Matrix (F3) 1 cm Muck (A9) (LRR D) Redox Dark Surface (EC)	Office (Ext	man in Remarks)
	•		
Depleted Below Dark Surface (A11) Depleted Dark Surface			
Thick Dark Surface (A12) Redox Depressions (F Sandy Mucky Mineral (S1) Vernal Pools (F9)	-0)	3Indicators of h	ydrophytic vegetation and
Sandy Mucky Mineral (S1) Vernal Pools (F9) Sandy Gleyed Matrix (S4)			Irology must be present.
Restrictive Layer (if present):		Wedana nye	mology made be present.
		-	
Type:			
Depth (inches):	•	Hydric Soil Pre	esent? Yes No
YDROLOGY	٠		
Wetland Hydrology Indicators:	-	Secondar	y Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		Wate	r Marks (B1) (Riverine)
Surface Water (A1) Salt Crust (B11)		Sedir	nent Deposits (B2) (Riverine)
High Water Table (A2) Biotic Crust (B12)		- 	Deposits (B3) (Riverine)
Saturation (A3) Aquatic Invertebrates	e (R13)		age Patterns (B10)
			Season Water Table (C2)
	, -		Muck Surface (C7)
Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospher		· · —	, ,
Drift Deposits (B3) (Nonriverine) Presence of Reduce			ish Burrows (C8)
Surface Soil Cracks (B6) Recent Iron Reduction		. ,	ration Visible on Aerial Imagery (C
Inundation Visible on Aerial Imagery (B7) Other (Explain in Re	marks)		ow Aquitard (D3)
Water-Stained Leaves (B9)		FAC-	Neutral Test (D5)
Field Observations:			
Surface Water Present? Yes No/Depth (inches):			
Water Table Present? Yes NoDepth (inches):			
	Mot	land Hydrology Pr	resent? Yes No
Saturation Present? Yes No Depth (inches): (includes capillary fringe)		ianu nyurology Fi	esenti res no
Describe Recorded Data (stream gauge, monitoring well, aerial photos, pre	evious inspections),	, if available:	
	,	•	
		· · · · · · · · · · · · · · · · · · ·	· · · · · · · · · · · · · · · · · · ·
Remarks:	•	2	
Dry opnomial channel	•		
			•
1			
Locust Grove			

Project/Site: Oddon Site: Oddon Site: Oddon Site: Oddon Sampling Date: Office Applicant/Owner: Applicant/Own	WETLAND DETER	MINATION D	ATA FORM	– Arid West Region	upland
Applicant/Owner: SQ Sampling Point DP = 2 Investigator(s): G. Rond, J. Samman Section, Township, Range: M, TOLN, R. 128 Investigator(s): G. Rond, J. Samman Section, Township, Range: M, TOLN, R. 128 Subregion (LRR): Long: Datum: Datum: Soil Map Unit Name: Walla (Mallo Sit H. 1974). 31 R Are climator / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soil or Hydrology significantly disturbed? Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any assers in Remarks.) Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any assers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland hydrology Present? Yes No So D Kyh Image Soil North Prevalence North North Prevalence North	Project/Site: Golden Hills	City/C	unto She	man Ca	Sampling Date: 6/12/09
Investigator(s): 6 Rend I Shamon Section, Township, Range: 19, TOLN, RISE Landform (fillislope, terrace, etc.): 10 Patricia C. Local relief (concave, convex, none): 10, TOLN, RISE Subtregion (LRR): Long: Datum: Slope (%): 5 Subtregion (LRR): Long: Datum: Slope (%): 5 Subtregion (LRR): Long: Datum: Datum: Datum: Long: Datum: Datum: Long: Datum: Datum: Datum: Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No anturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Is the Sampled Area within a Wetland? Yes No Indicator Yes No Indicator Status No Indicat	Applicant/Owner SP	City/Ct	ounty.	State: OR	Sampling Date: 100-2-
Landform (hillslope, terrace, etc.): Catroge Lat Long: Datum: Slope (%): 5		a Contin	a Toumahin Da	TO TOTAL	Q 196
Subregion (LRR): Lat: Long: Datum: Soll May Unit Name: Dalla Wallo Si H 107m. 31 R Are climatic / hydrologic conditions on the site typical for this time of year? Yes Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain in Remarks.) Are "Normal Circumstances" present? Yes No Weltand Hydrology Are Normal Circumstances present? Yes No Weltand Hydrology Present? Yes No Weltand Hydrology Present? Yes No Weltand Hydrology Present? Yes No Weltand Hydrology Present? Yes No Weltand Hydrology Present? Yes No Absolute Socret Species Section Absolute Socret Species Sapling/Shrub Stratum Total Cover: Total C					
Soll Map Unit Name: Walla Wallo Sit Total Trown 31 (8) Are climatic / hydrologic conditions on the site typical for this time of year? Yes No (If no, explain in Remarks.) Are Vegetation Soll or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are "Normal Circumstances" present? Yes No Are "Normal Circumstances" present? Yes No (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No within a Wetland? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No No No Hydrology Present? Yes No No Wetland Hydrology Present? Yes No No No No Hydrology Present? Yes No N					
Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No (If no, explain in Remarks.) Are vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, et Hydrophytic vegetation Present? Yes No Is the Sampled Area within a Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology Present? Yes No No Wetland Hydrology Present? Yes No No Wetland Hydrology Present? Yes No No No Hydrology Present? Yes No	Sail Man Unit Name: 10 all a 112 No. 5:14 1	_ Lat	-	_ Long:	Datum:
Are Vegetation Soil or Hydrology significantly disturbed? Are "Normal Circumstances" present? Yes No Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No	,				
Are Vegetation, Soil, or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No					
SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, et Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Wetland Hydrology Present? Westland Hydrology Present? Westland Hydrology Present? Westland Hydrology Present? Yes No Wetland Hydrology Present? No Wetland Hydrology Present? Yes No Wetland Hydrology Present? No Wetland Hydrology Present		•			
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Wetland Hydrology Present? Wetland Hydrology Present? Remarks: Located in name drainage below SOO KVH lines wetshees Mindell's survey area, and edge of Section. VEGETATION Tree Stratum (Use scientific names.) Absolute % Cover Species? Status 1. 2. 3. 4. Sapiling/Shrub Stratum Total Cover: Total Cover of: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover of: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover of: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover: Total Cover of: Total Cover: Tota	Are Vegetation, Soil, or Hydrology na	aturally problemat	tic? (If ne	eeded, explain any answe	ers in Remarks.)
Hydric Soil Present? Wetland Hydrology Present? Remarks: Located in narrow drainage below SOO Kyth Inacques Lab Worth en of I middle survey area and edge of section. VEGETATION Tree Stratum (Use scientific names.) Absolute Species? Status 1. 2. 3. 4. 5. Sapling/Shrub Stratum Total Cover: Total Cover:	SUMMARY OF FINDINGS – Attach site map s	howing sam	pling point l	ocations, transects	, important features, etc.
Absolute Cover Species? Status Status Status Species S	Hydric Soil Present? Yes No Wetland Hydrology Present? Yes No Remarks:	aíngae be	within a Wetlan	o KyH linesure	
Tree Stratum (Use scientific names.)	VEGETATION		· · · · · · · · · · · · · · · · · · ·	 	
1				Dominance Test work	sheet:
2	· · · · · · · · · · · · · · · · · · ·	<u>% Cover Spec</u>	ies? Status		
Species Across All Strata:	2			I nat Are OBL, FACW,	or FAC: (A)
Percent of Dominant Species That Are OBL, FACW, or FAC: (A/E	3.				
That Are OBL, FACW, or FAC:	4	-		Species Across Air Stra	(B)
Prevalence Index worksheet: Total % Cover of:				Percent of Dominant S That Are OBL FACW	pecies or FAC: (A/B)
2					
3	1				·
5.	2	· · ·		· '	
5	3.			OBL species	X1=
Total Cover: FACU species x 4 = UPL species x 5 = Column Totals: (A) (B)	4			1	
Herb Stratum 1. Trut G Stratum 1. Trut G Stratum 1. Trut G Stratum S	Total Cover				•
1.					
2. Volugo nom 50. (avic.) 5% FAW- 3. Cong phallom 50. (avic.) 5% Prevalence Index = B/A =		30%	NJ		· ·
4 Hydrophytic Vegetation Indicators: 5 Dominance Test is >50%	2 Polygonom so (aux.)	<u> 5% </u>	<u> FACW-</u>		(7,9)
5 Dominance Test is >50%	3. Gong phallum so	_ 50/3			
Dunders Induit and	4				
December 2 December 2 December 3 Decem	5			_ 	the state of the s
	6			Prevalence Index i	*
7 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)				Morphological Ada	ptations¹ (Provide supporting
8 Problematic Hydrophytic Vegetation ¹ (Explain)			·		
Woody Vine Stratum					priyate togetation (Explain)
1 ¹ Indicators of hydric soil and wetland hydrology must	· · · · · · · · · · · · · · · · · · ·				and wetland hydrology must
2 be present.	2			be present	
Total Cover: Hydrophytic Vegetation	1 - A			Vegetation	. /
% Bare Ground in Herb Stratum 60% % Cover of Biotic Crust Present? Yes No		of Biotic Crust		Present? Ye	s No
Flat are at bodien of dramage that receives periodic venoff	Remarks: Flat are at bodion of vonoff	dramag	e dal e	eceives bei	iode

	ription: (Describe to	the depth needed	to document the indicato	or confirm the	absence of indi	cators.)
Depth	Matrix		Redox Features			
inches)	Color (moist)	% Color (r	moist) % Type ¹	Loc ²	Texture	Remarks
7-16_((109R3/2		<u> </u>	ای	1+10am	
			•			
						
	·			 		
 .						
	-			·		
	:	•		·		
					<u> </u>	。 《大学》(1981年)(1981年)(1981年)
	oncentration, D=Depleti					
	Indicators: (Applicabl		•		4.4%	blematic Hydric Soils ³ :
_ Histosol	, ,		andy Redox (S5)		1 cm Muck (A	
- '	oipedon (A2)	•	ripped Matrix (S6)	-	2 cm Muck (A	
_	stic (A3)		pamy Mucky Mineral (F1)	-	Reduced Verti Red Parent Ma	•
	en Sulfide (A4) d Layers (A5) (LRR C)		pamy Gleyed Matrix (F2) epleted Matrix (F3)		Other (Explain	The state of the s
	ick (A9) (LRR D)		edox Dark Surface (F6)	-	00101 (Explain	, in reduction
_	d Beiow Dark Surface (/		epleted Dark Surface (F7)			
	ark Surface (A12)		edox Depressions (F8)			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1
_	lucky Mineral (S1)	Ve	ernal Pools (F9)	3	indicators of hydro	ophytic vegetation and
_ Sandy G	Bleyed Matrix (S4)		•		wetland hydrolo	ogy must be present.
estrictive	Layer (if present): 🦯					
				1		
Туре:		<u> </u>	•		-	
7				н	ydric Soil Preser	nt? Yes No
Туре:		· · · · · · · · · · · · · · · · · · ·	·	н	ydric Soil Preser	nt? Yes No
Type: Depth (in				н	ydric Soil Preser	nt? Yes No
Type: Depth (in				н	ydric Soil Preser	nt? Yes No
Type: Depth (in			· · · · · · · · · · · · · · · · · · ·		ydric Soil Preser	nt? Yes No V
Type: Depth (in				н	ydric Soil Preser	nt? Yes No
Type: Depth (in emarks:	ches):			н	ydric Soil Preser	nt? Yes No
Type: Depth (in emarks:	ches):			н		nt? Yes No
Type: Depth (incernarks: DROLO etland Hy	ches):	or is sufficient)		н	Secondary In	
Type: Depth (incomarks: DROLO etland Hy imary India	GY drology Indicators:		Salt Crust (B11)	н	Secondary In	dicators (2 or more required)
Type: Depth (incomprise for the compression of	GY drology Indicators: cators (any one indicato Water (A1)	8	Salt Crust (B11) Biotic Crust (B12)	н	Secondary In Water Ma	dicators (2 or more required) arks (B1) (Riverine)
Type: Depth (incernarks: DROLO etland Hydical Mary Indical Mary Indical Mary Markett Ma	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2)	S E	Biotic Crust (B12)	н	Secondary In Water Ma Sedimen Drift Dep	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine)
Type: Depth (incemarks: DROLO etland Hydimary India _ Surface _ High Wa _ Saturation	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3)	S E #	Biotic Crust (B12) Aquatic Invertebrates (B13)	н	Secondary In Water Ma Sedimen Drift Dep	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10)
DROLO etland Hydimary India Surface High Water Mater M	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) larks (B1) (Nonriverine	S E #	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)		Secondary In Water Mater Mate	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine)
Depth (incernarks: DROLO etland Hy imary India Surface High Wa Saturati Water M Sedimer	ches):	S E F verine) C	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon	g Living Roots (Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) e Patterns (B10) son Water Table (C2)
Type: Depth (incemarks: DROLO etland Hy imary India _ Surface _ High Wa _ Saturati _ Water M _ Sedimen _ Drift De	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) larks (B1) (Nonriverine int Deposits (B2) (Nonriverine cosits (B3) (Nonriverine	S E F verine) C e) F	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alon Presence of Reduced Iron (C	g Living Roots (CA)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas Thin Muc	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) e Patterns (B10) son Water Table (C2) ck Surface (C7)
Type: Depth (incernarks: DROLO etland Hy imary India _ Surface _ High Wa _ Saturati _ Water M _ Sedimel _ Drift Del _ Surface	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) darks (B1) (Nonriverine int Deposits (B2) (Nonriverine Soil Cracks (B6)	S E F verine) C e) F	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon Presence of Reduced Iron (C	g Living Roots (CA)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (C
Type: Depth (incernarks: DROLO etland Hy imary India _ Surface _ High Wa _ Saturatia _ Water M _ Sedimel _ Drift Del _ Surface _ Inundati	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) darks (B1) (Nonriverine nt Deposits (B2) (Nonriverine cosits (B3) (Nonriverine Soil Cracks (B6) on Visible on Aerial Ima	S E F verine) C e) F	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres alon Presence of Reduced Iron (C	g Living Roots (CA)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8)
Type: Depth (incemarks: TDROLO Tetland Hyrimary India Surface High Wa Saturati Water M Sedimel Drift Del Surface Inundati Water-S	drology Indicators: cators (any one indicators) water (A1) ater Table (A2) on (A3) darks (B1) (Nonriverine at Deposits (B2) (Nonriverine cosits (B3) (Nonriverine Soil Cracks (B6) on Visible on Aerial Ima	S E F verine) C e) F	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon Presence of Reduced Iron (C	g Living Roots (CA)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (CA)
Type: Depth (internance: POROLO Vetland Hyrimary India Surface High Water M Saturati Water M Sedimen Drift Depth Surface Inundati Water-Steld Observation	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) larks (B1) (Nonriverine int Deposits (B2) (Nonriverine Soil Cracks (B6) on Visible on Aerial Imalitatined Leaves (B9) vations:	S E A verine) C e) F F agery (B7) C	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alone Presence of Reduced Iron (CRecent Iron Reduction in Plotter (Explain in Remarks)	g Living Roots (CA)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (CA)
Type: Depth (incemarks: DROLO etland Hyrimary India Surface High Water M Sedimel Drift Del Surface Inundati Water-Seld Obser	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) larks (B1) (Nonriverine int Deposits (B2) (Nonriverine Soil Cracks (B6) on Visible on Aerial Ima stained Leaves (B9) vations: er Present? Yes	S E P verine) C e) F F agery (B7) C	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon Presence of Reduced Iron (CRecent Iron Reduction in Plo Other (Explain in Remarks) Depth (inches):	g Living Roots (CA) wed Soils (C6)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (CA)
Type: Depth (incernarks: DROLO etland Hydimary India Surface High Water M Sedimer Drift Del Surface Inundati Water-Seld Obser	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) darks (B1) (Nonriverine nt Deposits (B2) (Nonriverine cosits (B3) (Nonriverine cosits (B6) on Visible on Aerial Ima stained Leaves (B9) vations: er Present? Yes Present? Yes	S E P verine) C e) F F agery (B7) C	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres along Presence of Reduced Iron (CRecent Iron Reduction in Plotother (Explain in Remarks) Depth (inches):	g Living Roots (CA) wed Soils (C6)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio Shallow A FAC-Neu	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (CA) Aquitard (D3) utral Test (D5)
Type: Depth (incernarks: DROLO etland Hy imary India Surface High Wa Saturatia Water M Sedimel Drift Del Surface Inundatia Water-Sedi Obser urface Water Table aturation P	GY drology Indicators: cators (any one indicato Water (A1) ater Table (A2) on (A3) darks (B1) (Nonriverine nt Deposits (B2) (Nonriverine cosits (B3) (Nonriverine cosits (B6) on Visible on Aerial Ima stained Leaves (B9) vations: er Present? Yes Present? Yes	S E P verine) C e) F F agery (B7) C	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Dxidized Rhizospheres alon Presence of Reduced Iron (CRecent Iron Reduction in Plo Other (Explain in Remarks) Depth (inches):	g Living Roots (CA) wed Soils (C6)	Secondary In Water Ma Sedimen Drift Dep Drainage Dry-Seas C3) Thin Muc Crayfish Saturatio	dicators (2 or more required) arks (B1) (Riverine) t Deposits (B2) (Riverine) osits (B3) (Riverine) Patterns (B10) son Water Table (C2) ck Surface (C7) Burrows (C8) on Visible on Aerial Imagery (CA) Aquitard (D3) utral Test (D5)

WETLAND DETERMINATION DATA FOR	M – Arid West Region upland
Project/Site:Golden Hills City/County: _Sh	erman County Sampling Date: 6/12/07
	State: NR Sampling Point: DP-2 =
Investigator(s): 6 Race 3 Shanna Section, Township,	
Landform (hillslope, terrace, etc.): Local relief (conca	
	Long: Datum:
Soil Map Unit Name: Walla Walla Silt John 7-151, /310	
	in the second se
Are climatic / hydrologic conditions on the site typical for this time of year? YesN	· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology significantly disturbed? No A	
Are Vegetation, Soil, or Hydrology naturally problematic? $\mathcal{N}_{\mathfrak{d}}$ (I	
SUMMARY OF FINDINGS – Attach site map showing sampling poir	nt locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Samp	aled Area
Hydric Soil Present? Yes No within a We	stland? Yes No
Wetland Hydrology Present? Yes No No	
Remarks: Cultivated when tield along nor	th side of Bordon Ridge,
cast of VanGilder Road, in Si	icroin Area .11.
Com of Annal Control of	
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Indicate Species? Status	
1,	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	Total Number of Dominant
3	Species Across All Strata: (B)
4	Percent of Dominant Species
Total Çover: Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	
3	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Tris- assl TRAE 80% NIL	UPL species x 5 =
2	— Column Totals: (A) (B)
3	Prevalence Index = B/A =
4	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.0 ¹
7	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)
Woody Vine Stratum	Toblemade Hydrophydic Vegetation (Explain)
1	¹ Indicators of hydric soil and wetland hydrology must
2	be present.
Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum 3040 % Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	1 tesent: 1es No/
Cultivador wheat field	
COLLINGACE MUCHA LIBROR	:

Profile Description: (Describe to the depth Depth Matrix		x Feature	ا د د د ي		
(inches) Color (moist) %	Color (moist)	<u> %</u>	<u>Type¹</u>	_Loc²	Texture Remarks
0-10" 104R3/2					511+loam
		· ——			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
		·		-	
					<u></u>
		,			
	· · ·		. —		
		·	1	J 	to the state of th
¹ Type: C=Concentration, D=Depletion, RM=R	Reduced Matrix.	² Location	ı: PL=Poi	e Lining, I	RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to all Li					Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redo	ox (S5)			1 cm Muck (A9) (LRR C)
Histic Epipedon (A2)	Stripped Ma	trix (S6)			2 cm Muck (A10) (LRR B)
Black Histic (A3)	Loamy Mucl	ky Minera	il (F1)		Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gley	ed Matrix	(F2)		Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Ma				Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark				
Depleted Below Dark Surface (A11)	Depleted Da				
Thick Dark Surface (A12)	Redox Depr		⊢8)		3Indicators of budranhudia constation and
Sandy Mucky Mineral (S1)	Vernal Pools	s (F9)			³ Indicators of hydrophytic vegetation and wetland hydrology must be present.
Sandy Gleyed Matrix (S4) Restrictive Layer (if present):	 	 			wedand nydrology must be present.
Resultaive Layer (a present).					
Time					
Type:					Hydric Soil Present? Yes No
Type: Depth (inches): Remarks:					Hydric Soil Present? Yes No
Depth (inches):Remarks:					Hydric Soil Present? Yes No
Depth (inches):Remarks:					
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators:					Secondary Indicators (2 or more required)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient					Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1)	Salt Crust				Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Depth (inches):	Salt Crust	st (B12)			Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Depth (inches):	Salt Crust Biotic Crus Aquatic Inv	st (B12) vertebrate			Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust Biotic Crus Aquatic Inv Hydrogen	st (B12) vertebrate Sulfide O	dor (C1)		Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust Biotic Crus Aquatic Inv Hydrogen Oxidized R	st (B12) vertebrate Sulfide O Rhizosphe	dor (C1) eres along	-	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) oots (C3) Thin Muck Surface (C7)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crus Aquatic Inv Hydrogen Oxidized R Presence of	st (B12) vertebrate Sulfide O Rhizosphe of Reduce	dor (C1) eres along ed Iron (C	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crus Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti	dor (C1) eres along ed Iron (C ion in Ploy	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crus Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti	dor (C1) eres along ed Iron (C ion in Ploy	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Salt Crust Biotic Crus Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti	dor (C1) eres along ed Iron (C ion in Ploy	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence conduction Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reduce n Reducti blain in Re	dor (C1) eres along ed Iron (C ion in Ploy	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reduce in Reducti plain in Re	dor (C1) eres along ed Iron (Ci ion in Plov ermarks)	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reduce in Reducti plain in Re	dor (C1) eres along ed Iron (Ci ion in Plov ermarks)	4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti plain in Re ches): ches): ches):	dor (C1) eres along ed Iron (Ci ion in Plov ermarks)	4) wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti plain in Re ches): ches): ches):	dor (C1) eres along ed Iron (Ci ion in Plov ermarks)	4) wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes No Saturation Present? Yes No (includes capillary fringe)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reducti n Reducti plain in Re ches): ches): ches):	dor (C1) eres along ed Iron (Ci ion in Plov ermarks)	4) wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes No Saturation Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, monione)	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp	st (B12) vertebrate Sulfide O Rhizosphe of Reducti blain in Re ches): ches): photos, pi	dor (C1) eres along ed Iron (C- ion in Plov ermarks)	wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficie Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes No Water Table Present? Yes No (includes capillary fringe) Describe Recorded Data (stream gauge, monioned) Remarks:	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp Depth (inc	st (B12) vertebrate Sulfide O Rhizosphe of Reducti blain in Re ches): ches): photos, pi	dor (C1) eres along ed Iron (C- ion in Plov ermarks)	wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
Depth (inches): Remarks: HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient	Salt Crust Biotic Crust Aquatic Inv Hydrogen Oxidized R Presence of Recent Iron Other (Exp Depth (inc	st (B12) vertebrate Sulfide O Rhizosphe of Reducti blain in Re ches): ches): photos, pi	dor (C1) eres along ed Iron (C- ion in Plov ermarks)	wed Soils (Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)

WETLAND DETERMINATION DATA FORM	- Arid West Region
Project/Site: 6den Hills city/County: She	man Co. Sampling Date: 6/14/0
	State: OP Sampling Point: DO-2-/
Investigator(s): 6. Rand, J. Shannan Section, Township, Rai	
Landform (hillslope, terrace, etc.):	convex. none): Concare Slope (%): 2
Subregion (LRR): Lat:	
Soil Map Unit Name: 11) all a Walla Sil Hours 7-151./31 C	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _	· · · · · · · · · · · · · · · · · · ·
Var	Normal Circumstances" present? Yes No //
	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point le	
Hydrophytic Vegetation Present? Yes No	
Hydric Soil Present? Yes No.	
Wetland Hydrology Present? Yes No within a Wetlan	rid? Yes No No
Remarks: Data plot in dramage workout of West	——————————————————————————————————————
east of lan Gilder Road Vegetation not	hydrophylishydrology by law
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) <u>% Cover Species? Status</u>	Number of Dominant Species
2	That Are OBL, FACW, or FAC: (A)
3.	Total Number of Dominant Species Across All Strata: (B)
4	
Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC:
Sapling/Shrub Stratum 1. 4550 GV. 20 FAC	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3.	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. The Clan & NL	UPL species x 5 =
2. ROMUS JOES, Charteness 10 J NL	Column Totals: (A) (B)
3. Fechira, magajura foxtail 20 VI	Prevalence index = B/A =
4. Plg weed - Amaranthu: Rd 20 - FACU!	Hydrophytic Vegetation Indicators:
5. Volugo and more eablithout grown FARW	Dominance Test is >50%
6. Mondria spicata spannet 2 Facu	Prevalence Index is ≤3.0¹
7	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Total Cover:	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	
1	¹ Indicators of hydric soil and wetland hydrology must
2	be present.
Total Cover:	Hydrophytic Vegetation
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Present? Yes No
Remarks: Vegetation produmate Data plat none crossing ound of con	needer, out wetland
	3 Just upsdroom.
don't die manifer plans	
- France arranded by mowing.	Rose nouted outside chancel.
US Army Corps of Engineers	Arid West – Version 11-1-2006

Mudroau stops a bit downstream

WETLAND DETERMINATION DATA FORM - Arid West Region

Applicativo was ampling Point DPS- investigatoric; G. R. A. J. Secretary Section, Township, Range: 1. Investigatoric; G. R. A. J. Secretary Section, Township, Range: 1. Investigatoric; G. R. A. J. Section, Township, Range: 1. Investigatoric; G. R. A. J. Section, Township, Range: 1. Investigatoric; G. R. A. J. Section, Township, Range: 1. Investigatoric; G. R. A. J. Section, Township, Range: 1. Investigatoric; G. R. A. J. Section, Township, Range: 1. Investigatoric; G. R. J.	Project/Site: Coldon Hills	City/0	County: Sh	rermon Co.	_ Sampling Date: 6/12/00
Investigator(s): A. Landom (illistope, terrace, etc.) As a function of the site bytical for this time of year? Yes	Applicant/Owner:	- 1			
Landtom (Pillolope, terrace, etc.) Subregion (LRR): Lat Lat Lat Long: Daton: Daton: Subregion (LRR): Lat Long: Daton: Daton: Daton: Daton: Subregion (LRR): Long: Daton: Daton: Da		no Section	on, Township, Ra	ange: 12. To 17	V.R.DE
Submigning Lickschild - Sake as 2201. and Usalin Walls sith Tow 7-15 NWI classification: Are Vegetation Soil or Hydrology significantly disturbed? Are Vegetation Remarks. Are Normal Circumstances in Remarks. Are					
Soit Map Unit Name: Licks (sellet - Bake on 2-20), and Walla sith law 7-15 NNI classification: Are climate: hydrologic conditions on the site typical for this time of year? Yes					
Are Vegetation Soll or Hydrology significantly disturbed? Are Noma Circumstances present? Yes No Hardward or Hydrology and Soll or Hydrology Present? Yes No Within a Wettand? Yes No Within a Wettand hydrology must be present. Yes No Within a Wettand hydrology must be present. Yes No Within a Wettand Plank S Within a Wettand hydrology must be present. Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand December of North Yes No Within a Wettand Plank S Within a Wettand Plank S Within a Wettand Pl					
Are Vegetation Soil or Hydrology significantly disturbed? Are Normal Circumstances' present? Yes No Are Vegetation Soil or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No within a Wetland? Yes No within a Wetland? Yes No Wetland Hydrology Present? Yes No Prevalence Index worksheet: Total % Cover of Multiply by: Oct Species X4 = UPL species X5 = PAC species X4 = UPL species X5 = PAC Species X5 = Dominance Test to 50% Prevalence Index is 3.0' Hydrophytic Vegetation indicators: Dominance Test to 50% Prevalence Index is 3.0' Hydrophytic Vegetation indicators: Dominance Test to 50% Prevalence Index is 3.0' Hydrophytic Vegetation (Explain) Indicators of hydric soil and wetland hydrology must be present? Yes No Prevalence Index Store Science S				=	
Are Vegetation Soll or Hydrology naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland Pydrology Present? Yes No Wetland Pydrology P				•	
SUMMARY OF FINDINGS — Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Yes No Is the Sampled Area within a Wetland? Yes No Wetland Hydrology Present? Yes No Wetland Hydrology must be present? Yes No Wetland Hydrology must with Mydrology must and wetland hydrology must have an Archard Pland Farnack it was absenced in Many Wetland Hydrology must was all farnack and wetland hydrology must be present? Yes No Wetland Hydrology must was all farnack and wetland hydrology must have the Mydrology must was all farnack and wetland hydrology must was all farnack and wetland hydrology must was all farnack and wetland hydrology must was all farnack and wet	· · · · · · · · · · · · · · · · · · ·	-			
Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Weltand Hydrology Present? West Absolute Absolute Absolute Species? Status (Use scientific names.) Total Cover: Total Cover: Total Cover: Total Cover: Status Total Cover:				-	•
Hydrosol Present? Welland Hydrology Present? West No West No Welland Hydrology Present? West No West No Welland Hydrology Present? West No Welland No Welland No West No Welland			- Prince Prince		s, important routeres, etc.
Wetand Hydrology Present? No Remarks: Data portic located in Crainage agarent to Haven Road, where Lamborn (Candoch) ourned to Country of March 1975. VEGETATION Tree Stratum (Use scientific names.) Absolute Dominant Indicator Species? Status 1. Data Cover: Species? Status 1. Data Cover: Species? Status Assolute Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species That Are OBL, FACW, or FAC: (A) Percent of Dominant Species That Are OBL, FACW, or FAC: (A) Total Scover of Multiply by: OBL species x1 = FACW species x2 = FACW species x3 = FACU species x3 = FACU species x4 = UPL species x5 = Column Totals: (A) (B) Prevalence Index = BIA = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index = BIA = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index = BIA = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is 3.0 (B) Prevalence			Is the Sample	l Area	
Remarks: Data plot is located in drainage adjacent to Haven Road, where Lamborn (Sawtooth) durns and toward UKGD. VEGETATION Tree Stratum (Use scientific names.) 1. Absolute Dominant Indicator Species? Status 1. Absolute Dominant Indicator Species? Status 1. Absolute Dominant Indicator Number of Dominant Species 1. Number of Dominant Species 1. Total Number of Dominant Species 1. Act or Company of FAC. (A) 1. Act or Company of Company of FAC. (A) 1. Act or Company of FAC. (A) 1. A	Wetland Hydrology Present?	No Z	within a Wetla	nd? Yes	No
VEGETATION Tree Stratum (Use scientific names.) Absolute Dominant Indicator % Cover Species? Status 1.	Domontos				
Absolute Dominant Indicator Species 7 Status Number of Dominant Species That Are OBL FACM, or FAC: (A) 1.	Lamborn (Sandroch) dunc a	and govern	d octob	icera to Hai	ren Koad, Where
Tree Stratum (Use scientific names.) 1.	VEGETATION	+		·	
1	Troo Stratum (I los coinctificación)			Dominance Test wor	ksheet:
Total Number of Dominant Species Across All Strata: ### Percent of Dominant Species Across All Strata: ### Percent of Dominant Species Across All Strata: ### Percent of Dominant Species That Are OBL, FACW, or FAC: A		% Cover Spe	cies? Status		
3			, <u></u>	inat Are OBL, FACW,	or FAC: (A)
A. Sapling/Shmb Stratum 1. ACC TIME 2. 3.					2
Sapling/Shrub Stratum 1. ACC TICL 1. ACC Species	4.				
1. Act Williams Prevalence Index worksheet: Total % Cover of: Multiply by: OBL species x1 = FACW species x2 = FACW species x2 = FACW species x3 = FACW species x4 = UPL species x4 = UPL species x5 = Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index = B/A = Hydrophytic Vegetations' (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation' (Explain) Woody Vine Stratum Total Cover: Str. Woody Vine Stratum 10	Total Cove	er:			
Total % Cover of: Multiply by: 3.	1 1	15% v	/ WI	Prevalence Index wo	rksheet:
FACW species x2 = FAC species x3 = FACW species x3 = FACW species x3 = FACW species x4 = UPL species x4 = UPL species x5 = Column Totals: (A) (B) 2. Francis Acctorum 10% AII 3. AMSMCNIA Macrocalia 5% NII 4. Carum Carvi 15% NII 5. Dominance Test is >50% 6. Prevalence Index is 3.0' 7. Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation '(Explain) Woody Vine Stratum 1. Total Cover: 45% Woody Vine Stratum 1. Total Cover: 45% What he became a factorial for ward for wa	3			j .	
5. Total Cover: St. FAC species x2 = FAC species x3 = FAC species x4 = UPL species x4 = UPL species x5 = Column Totals: (A) (B) 3. Amamanian week (no flower) 20% Y Column Totals: (A) (B) 4. Carium Carv) IST NT Prevalence Index = B/A = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is 3.0¹ P	3		·	OBL species	x1=
Total Cover: St. St. FACU species x4 = UPL species x5 = Column Totals: (A) (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is 33.0' Prevalence Index is 33.0' Prevalence Index is 33.0' Prevalence Index is 33.0' Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation' (Explain) Woody Vine Stratum Total Cover: Hydrophytic Vegetation Total Cover: Hydrophytic Vegetation Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation Present? Yes No Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation' (Explain) Total Cover: Hydrophytic Vegetation Present? Yes No Morphological Adaptations' (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation Prosent? We getation Present? Yes No Morphological Adaptations' (Explain)	4			FACW species	x2=
Herb Stratum 10% 1	5			FAC species	x 3 =
1. Unknown weed (no flower) 20% 2. Brow's dectorum 10% N/I Prevalence Index = B/A = 4. Carum Carvi 15% N/I Hydrophytic Vegetation Indicators: 5. Dominance Test is >50% Prevalence Index is \$3.0¹ 7. Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Woody Vine Stratum 1. 'Indicators of hydric soil and wetland hydrology must be present. We Bare Ground in Herb Stratum 4046 % Cover of Biotic Crust Present? Yes No Present? Remarks: Unid herb recembed frewed, but had no inflores cances (dow young) Likely not a westland plant since it was observed in many		er: <u>15%</u>		1 ' 	
2. Somus tectorum 3. James Maria Merenadia 50% MT 4. Carum Carvi 1506 NT 5. Dominance Test is >50% 6. Prevalence Index is \$3.01 7. Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation (Explain) Woody Vine Stratum 1. Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Vegetation 1. Hydrophytic Vegetation Total Cover: Bare Ground in Herb Stratum Total Cover of Biotic Crust Hydrophytic Vegetation Present? Yes No Lifely not a westland plant SMOCE it was observed in Menny		20%	· ?	1	*
Prevalence Index = B/A =	2. Bomus dectorum		- UI	Column Totals:	(A) (B)
Hydrophytic Vegetation Indicators: Dominance Test is >50%		5%		Prevalence Index	x = B/A =
Prevalence Index is \$3.01 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Indicators of hydric soil and wetland hydrology must be present. Wydrophytic Vegetation be present. Wydrophytic Vegetation Present? Yes No Remarks: Wid. heck recembed firewed, but had no inflorescences (thou young) Wolf y not a westland plant, since it was observed in many		15%	NI	Hydrophytic Vegetati	on Indicators:
Morphological Adaptations (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation (Explain) Indicators of hydric soil and wetland hydrology must be present. Woody Vine Stratum	5			Dominance Test is	s >50%
Solution Total Cover: Logical Problematic Hydrophytic Vegetation (Explain)	6			Prevalence Index	is ⊴3.0¹
Total Cover: 45% Woody Vine Stratum 1	7			Morphological Ada	aptations ¹ (Provide supporting
Woody Vine Stratum 1	8	- 	<u> </u>	1	
1	Total Cove	er: 45%		Flobletilatic Hydro	phytic vegetation (Explain)
2	1	·		¹ Indicators of hydric so	nil and wetland hydrology must
% Bare Ground in Herb Stratum 4006 % Cover of Biotic Crust Vegetation Present? Yes No Remarks: Unid herb recembed forcused, but had no inflores cences (thou young) Likely not a westland plant, since it was observed in many	2				ii and wedand nydrology mast
Remarks: Unid herb recember forward, but had no inflorescences (thou young) Likely not a westland plant, since it was observed in many	Total Cove			Hydrophytic	
Unid herb recembed freweed, but had no inflorescences Cobuyung). Likely not a westland plant, since it was observed in many	la d.			Vegetation	es No
Likely not a westland plant, since it was observed in many	Unid her recentled to	ine wood.	but had .	no infloresce	[pmay ust) 20gn
dichirhod modeide areas	Likely not a undlan	d plants	since id	-was observe	d in many
	dischibed roadside	oreal	- 188 <u>0</u> /A		

Depth Matrix	Redox Fea				
(inches) Color (moist) %	Color (moist) %	Type ¹	_Loc ²	Texture , /	Remarks
0-16" <u>1043/2 </u>				Damusyt_	
		•		7	
	· · · · · · · · · · · · · · · · · · · 	 			
					22 Th g 1 1 th g 1 t
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Type: C=Concentration, D=Depletion, RM=F	Reduced Matrix. ² Loca	ation: PL=Por	e Lining, F	RC=Root Channel, M=	Matrix.
lydric Soil Indicators: (Applicable to all L		noted.)		Indicators for Pr	oblematic Hydric Soils ³ :
_ Histosol (A1)	Sandy Redox (S5	5)		1 cm Muck (A	(LRR C)
Histic Epipedon (A2) Stripped Matrix (S6)			2 cm Muck (A10) (LRR B)		
Black Histic (A3)	Loamy Mucky Mi	neral (F1)		Reduced Ver	tic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed M				Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (Other (Explai	n in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surfa			-	
Depleted Below Dark Surface (A11)	Depleted Dark St				
Thick Dark Surface (A12)	Redox Depression			3	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)			rophytic vegetation and
Sandy Gleyed Matrix (S4)				wetland hydro	ogy must be present.
Restrictive Layer (if present):				_	
Type:					
Depth (inches):	- 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1	in the second		Hydric Soil Prese	nt? Yes No
Remarks:					
	•				
:					
YDROLOGY			·		
	·			Secondary I	ndicators (2 or more required)
Vetland Hydrology Indicators:			·		ndicators (2 or more required)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic	and the second second		·	Water N	farks (B1) (Riverine)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1)	Salt Crust (B11)			Water N	farks (B1) (Riverine) nt Deposits (B2) (Riverine)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic	and the second second			Water M Sedime Drift De	farks (B1) (Riverine) nt Deposits (B2) (Riverine) posits (B3) (Riverine)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1)	Salt Crust (B11)	2)		Water N Sedime Drift De	farks (B1) (Riverine) nt Deposits (B2) (Riverine)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B1	2) orates (B13)		Water M Sedime Drift De Drainag	farks (B1) (Riverine) nt Deposits (B2) (Riverine) posits (B3) (Riverine)
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet	2) orates (B13) le Odor (C1)	Living Roo	Water M Sedime Drift De Drainag Dry-Sea	darks (B1) (Riverine) nt Deposits (B2) (Riverine) posits (B3) (Riverine) e Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet Hydrogen Sulfic	2) orates (B13) le Odor (C1) spheres along	-	Water M Sedime Drift De Drainag Dry-Sea	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficed Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos	2) orates (B13) le Odor (C1) spheres along duced Iron (C	4)	Water M Sedime Driff De Drainag Dry-Sea ots (C3) Thin Mu Crayfist	Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Plo	4)	Water M Sedime Drift De Drainag Dry-Sea ots (C3) Thin Mu Crayfish C6) Saturati	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
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Netland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9)	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Plo	4)	Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow	Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interpolate (B10) Inte
Netland Hydrology Indicators: Primary Indicators (any one indicator is suffic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations:	Salt Crust (B11) Biotic Crust (B1 Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Piox n Remarks)	4) ved Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Int Patterns (B10) Int Patterns (B10) Int Surface (C7) Int Burrows (C8) Int On Visible on Aerial Imagery (C8) Int Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficed Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes N	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Plot n Remarks)	4) wed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Int Person (B10) Int Person Water Table (C2) Int Surface (C7) Int Burrows (C8) Int Person (C8) Int Aquitard (D3)
Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes N	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks)	4) wed Soils (Water M Sedime Drift De Drainag Dry-Sea ots (C3) Thin Mu Crayfish C6) Saturati Shallow FAC-Ne	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Note that the suffice of the surface	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks)	4) wed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Primary Indicators (any one indicator is sufficed Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Noncomment of the present of the prese	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks)	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow FAC-Ne	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficed Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Notes Table Present?	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks)	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow FAC-Ne	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Primary Indicators (any one indicator is sufficed Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Noncomment of the present of the prese	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) orates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks)	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish C6) Saturati Shallow FAC-Ne	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Water Table Present? Yes Nonline Saturation Present? Ves Nonline Saturation Present? Describe Recorded Data (stream gauge, more	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i Depth (inches) Depth (inches) Depth (inches) hitoring well, aerial photo	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks) : : : : s, previous in:	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish Saturati Shallow FAC-Ne	darks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits
Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Ves Notes Capillary fringe) Describe Recorded Data (stream gauge, more	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i Depth (inches) Depth (inches) Depth (inches)	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks) : : : : s, previous in:	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish Saturati Shallow FAC-Ne	Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interpose (B10) Interpose (C7) Interpose (C8) Interpose (C8) Interpose (C8) Interpose (C9) I
Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Ves Notes Table Present? Nater Table Present?	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks) : : : : s, previous in:	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish Saturati Shallow FAC-Ne	Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits (B10) Interposits (C2) Interposits (C3) Inte
Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffice Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes None of the control of the co	Salt Crust (B11) Biotic Crust (B11) Aquatic Invertet Hydrogen Sulfic Oxidized Rhizos Presence of Re Recent Iron Rec Other (Explain i Depth (inches) Depth (inches) Depth (inches)	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Ploy n Remarks) : : : : s, previous in:	4) yed Soils (Water M Sedime Drift De Drainag Dry-Sea Dts (C3) Thin Mu Crayfish Saturati Shallow FAC-Ne	Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B3) (Riverine) Interposits (B10) Interposits (B10) Interposits (C2) Interposits (C3) Interposits (C4) Interposits (C5) Inte

WETLAND DETERMINATION DATA FORM – Arid West Region

Project/Site: 60 den till City/County:	Sherman (O. Sampling Date: 6/13/05
Applicant/Owner: 450	
Investigator(s): 6. Rand, J. Shannon Section, Township, I	
/)/	e, convex, none): Wing Slope (%):
Subregion (LRR):	
Soil Map Unit Name: Walla Walla Sill Journ 7-15/31 C	Long: Datum:
and the same of	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation, Soil, or Hydrology significantly disturbed? No Ar	· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology naturally problematic? N_0 (If	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sample	
Hydric Soil Present? Yes No Visite Sample	
Wetland Hydrology Present? Yes No within a Wetl	and? Yes No
Remarks:	0 0
Dramage ordering connector culc	ing to 23 Kanabadween
survey areas 11 middle + 12.	
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.)	
1	That Are OBL, FACW, or FAC:(A)
2	Total Number of Dominant
3	Species Across All Strata: (B)
4	Percent of Dominant Species
Total Cover: Sapling/Shrub Stratum	That Are OBL, FACW, or FAC:(A/B)
1	Prevalence Index worksheet:
2	Total % Cover of:Multiply by:
3.	OBL species x1=
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Samus democin 300 NI	UPL species x 5 =
2. Lactica serrida 10% FACI	Column Totals: (A) (B)
3. Ago, inde. 10% NI	Prevalence Index = B/A =
4.	Hydrophytic Vegetation Indicators:
5.	Dominance Test is >50%
6.	Prevalence Index is ≤3.01
7	Morphological Adaptations ¹ (Provide supporting
8	data in Remarks or on a separate sheet)
Total Cover: 50%	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	
1	¹Indicators of hydric soil and wetland hydrology must be present.
7.10	-
Total Cover:	Hydrophytic Vegetation
% Bare Ground in Herb Stratum <u>SD%</u> % Cover of Biotic Crust	Present? Yes No
Remarks:	
Bohemeral drainage	
	·

Locust Grove

WEILAND DETERMINATION DATA FORM	
Project/Site: Golden Hills City/County: She	rman County Sampling Date: 6/14/09
Applicant/Owner: 3P	State: DR Sampling Point:
Investigator(s): 6 Rand, J. Shannon Section, Township, Ra	
Landform (hillslope, terrace, etc.): Damage Local relief (concave,	
Subregion (LRR): Lat:	
Soil Map Unit Name: Lickskillet Bake wen/ 170 and Walla Walla silt	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
	"Normal Circumstances" present? YesNo
	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Phyllocal Manage West of the Manage	than 90 + Narchal Hama Road
Plot located in low area b/n new 97.	+ old parement the
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet:
Tree Stratum (Use scientific names.) <u>% Cover Species? Status</u> 1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2.	
3	Total Number of Dominant Species Across All Strata: (B)
4	Percent of Dominant Species
Total Cover:	That Are OBL, FACW, or FAC:
1,	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Poly pogan monspoliencis ratifat 50% / FACW	UPL species x5 =
2. Juneus buttonius gras Only / FACILITY	Column Totals: (A) (B)
3. Agostis (Apena) interpreta, 10to MC	Prevalence Index = B/A =
4. Agrapyron in termodic int what 15% NI	Hydrophytic Vegetation Indicators:
5. Trit. aged. wheat 20 NI	⊥ Dominance Test is >50%
6. Wild caraway CACA 10% M	Prevalence Index is ≤3.01
7. Lacture servicia lettuce 5% FOCU	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8. Agropyron repens quarkaras 5% Parco	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	
1	Indicators of hydric soil and wetland hydrology must be present.
7	Hydrophytic
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	
	e served
1	

SOIL	an shekara a na datawan bes	Sampling Point: H
Profile Description: (Describe to the dep	th needed to document the indicator or con	firm the absence of indicators.)
Depth Matrix	Redox Features	<u>. </u>
(inches) Color (moist) %	Color (moist) % Type ¹ Loc ²	
D-1 104K3/2		claylon
12-4		sand
9-8" V 95/1	109-46 Sto C N	canloam
	WILLIAM ON C II	Clambourn
XX KOW		
·	. ,	
# 1		
¹ Type: C=Concentration, D=Depletion, RM=		g, RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to all		Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2) Black Histic (A3)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B) Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Mucky Mineral (F1) Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
Restrictive Layer (if present):		
Type: KOUN		
Depth (inches): 3 WONCS	en e	Hydric Soil Present? Yes No
Remarks:	A more	
Remarks: Ondized Rivized	The same	
HYDROLOGY		
Wetland Hydrology Indicators:	·	Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is suffi	cient)	Water Marks (B1) (Riverine)
		Sediment Deposits (B2) (Riverine)
Surface Water (A1)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
High Water Table (A2)	Biotic Crust (B12)	
Saturation (A3)	Aquatic Invertebrates (B13)	✓ Drainage Patterns (B10) Dry-Season Water Table (C2)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1) L Oxidized Rhizospheres along Living	
Sediment Deposits (B2) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Drift Deposits (B3) (Nonriverine)	Recent Iron Reduction in Plowed Soi	
Surface Soil Cracks (B6)		Shallow Aquitard (D3)
Inundation Visible on Aerial Imagery (B)	Unit (Explain in Remarks)	FAC-Neutral Test (D5)
Water-Stained Leaves (B9)		FAC-Neutral Test (D3)
Field Observations:		
Surface Water Present? Yes		
	No Depth (inches):	
Saturation Present? Yes	No Depth (inches): W	Vetland Hydrology Present? Yes No
(includes capillary fringe) Describe Recorded Data (stream gauge, mo	onitoring well, aerial photos, previous inspection	ns), if available:
gauge, me		
Remarks:		, A
l. a	1 5- b. and m.	downess. Water also Spanish Hollow duainage
White a	var in 1941 Than	The first of the second of the second
1	1 - Lond h	Socials Hollow Assisses
1 . Onads in	DOX COMOLD VOGO ON	- Downman water commende
Spanish	· .	

WETLAND DETERMINATION DATA FORM	I – Arid West Region upland
Project/Site: Golden Hills City/County: She	exman (a. Samolina Date: 10/4/DC
Applicant/Owner: 3P	10.04
Investigator(s): 6. Rand, J. Shannan Section, Township, R	
Landform (hillslope, terrace, etc.): 2 Camage Local relief (concave	
Subregion (LRR): Lat:	
Soil Map Unit Name: Lickskille & Bakeoven compllen/17c and	3 c NIMI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
	e "Normal Circumstances" present? Yes No
· · · · · · · · · · · · · · · · · · ·	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sample within a Wetland Hydrology Present? Yes No	
Remarks: Upland plot for westland A	Alaro boundary
VEGETATION	3
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? Status	Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
2	Total Number of Dominant
4	Species Across All Strata: (B)
Total Cover:	Percent of Dominant Species
Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
4	OBL species x 1 =
5	FACW species x 2 = FAC species x 3 =
Total Cover:	FACU species x4 =
Herb Stratum	UPL species x 5 =
1. BRTE - cheatgrass SO / NIV	Column Totals: (A) (B)
2. the Saat 20 V NV	
3. DO a Secon Sandhong b-g 20 / NI	Prevalence Index = B/A =
4. Haro, INDP. Int. wheata 30 / NI	Dominance Test is >50%
C	Prevalence Index is ≤3.0¹
7	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet)
Total Cover: <u>95</u>	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	1-0-4-1
1	¹ Indicators of hydric soil and wetland hydrology must be present.
, Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum / Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	
	:

(inches) Color (moist) , %	Color (moist) % T	ype ¹ Loc ²	/ Texture	Remarks
2-604 109/3/2		San	dulsam	
Da M			6 (21000) —	
0,9 1000			· · · · · · · · · · · · · · · · · · ·	
			·	<u> </u>
	•		•	
			- 1	
			· · · · · · · · · · · · · · · · · · ·	
		······································		
C. Considering Department Did	-Dadused Matrix 2 section: D	I –Doro Linina I	RC=Root Channel, M	-Natriy
Type: C=Concentration, D=Depletion, RM-ydric Soil Indicators: (Applicable to all				roblematic Hydric Soils ³ :
_ Histosol (A1)	Sandy Redox (S5)	.54	1 cm Muck (
Histic Epipedon (A2)	Stripped Matrix (S6)			A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F	1)	Reduced Ve	
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2	-		Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	•		in in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	i		,
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F			
Thick Dark Surface (A12)	Redox Depressions (F8)	·		ALL THE COLUMN
Sandy Mucky Mineral (S1)	Vemal Pools (F9)		3Indicators of hyd	Irophytic vegetation and
Sandy Gleyed Matrix (S4)			wetland hydro	logy must be present.
Restrictive Layer (if present);				
Type: Koch	<u> </u>			
Depth (inches): (a Workes)	S. S		Hydric Soil Prese	ent? Yes No
Depul (inches).				
Remarks:	·			
Remarks:		:		
YDROLOGY		:		
YDROLOGY Vetland Hydrology Indicators:		:	Secondary	ndicators (2 or more required)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suff			Secondary Water I	ndicators (2 or more required) Marks (B1) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suff Surface Water (A1)	Salt Crust (B11)		Secondary Water ! Sedime	ndicators (2 or more required) Marks (B1) (Riverine) int Deposits (B2) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12)		Secondary Water I Sedime	ndicators (2 or more required) Marks (B1) (Riverine) ant Deposits (B2) (Riverine) posits (B3) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B		Secondary Water I Sedime Drift De	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Inposits (B3) (Riverine) Inposits (B3) (Riverine) Inposits (B10)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suff Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor	(C1)	Secondary Water I Sedime Drift De	ndicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Iposits (B3) (Riverine) Iposits (B10) Iposon Water Table (C2)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres	(C1) along Living Ro	Secondary Water I Sedime Drift De Drainag Dry-Se ots (C3) Thin Me	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Iposits (B3) (Riverine) Iposits (B10)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suff Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres Presence of Reduced In	(C1) along Living Ro on (C4)	Secondary Water I Sedime Drift De Drainag Dry-Se ots (C3) Thin Me	ndicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Iposits (B3) (Riverine) Ipe Patterns (B10) Interpretation (B10) Interpreta
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is sufformation (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres	(C1) along Living Ro on (C4)	Secondary Water Water Sedime Drift De Drainag Dry-Se Ots (C3)	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Iposits (B3) (Riverine) Ipe Patterns (B10) Ison Water Table (C2) Ick Surface (C7) In Burrows (C8) Ion Visible on Aerial Imagery (C9)
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Print Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water Table Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres Presence of Reduced In Recent Iron Reduction in Other (Explain in Remain) No Depth (inches):	(C1) along Living Roon (C4) n Plowed Soils (rks)	Secondary Water Sedime	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Int Patterns (B10) Interposits (B2) Interposits
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YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficiency line) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Saturation Present? Yes Includes capillary fringe) Describe Recorded Data (stream gauge, me	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres Presence of Reduced In Recent Iron Reduction in Other (Explain in Remain No Depth (inches): No Depth (inches): No Depth (inches): onitoring well, aerial photos, previous	(C1) along Living Roon (C4) n Plowed Soils (rks) Wet	Secondary Water I Sedime Drift De Drainag Dry-Se ots (C3) Thin Me Crayfis (C6) Saturat Shallov FAC-Ne	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Int Patterns (B10) Interposits (B2) Interposits
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficiency line) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Saturation Present? Yes Includes capillary fringe) Describe Recorded Data (stream gauge, me	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres Presence of Reduced In Recent Iron Reduction in Other (Explain in Remain No Depth (inches): No Depth (inches): No Depth (inches): onitoring well, aerial photos, previous	(C1) along Living Roon (C4) n Plowed Soils (rks) Wet	Secondary Water I Sedime Drift De Drainag Dry-Se ots (C3) Thin Me Crayfis (C6) Saturat Shallov FAC-Ne	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B3) (Riverine) Int Patterns (B10) Interposits (B2) Interposits
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is sufficiency Indicators (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes Saturation Present? Yes Includes capillary fringe) Describe Recorded Data (stream gauge, meaning the surface of th	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B Hydrogen Sulfide Odor Oxidized Rhizospheres Presence of Reduced In Recent Iron Reduction in Other (Explain in Remain No Depth (inches): No Depth (inches): No Depth (inches): onitoring well, aerial photos, previous	(C1) along Living Roon (C4) n Plowed Soils (rks) Wet	Secondary Water I Sedime Drift De Drainag Dry-Se ots (C3) Thin Me Crayfis (C6) Saturat Shallov FAC-Ne	Indicators (2 or more required) Marks (B1) (Riverine) Int Deposits (B2) (Riverine) Int Deposits (B10) Int Part (B10) Interpose (B10) Interpose (B10) Interpose (C2) Interpose (C7) Interpose (C8) Interpose (C8) Interpose (C9) Interpo

WETLAND DETE	RMINATI	ON DATA	A FORM	- Arid West Region upland
Project/Site: Goldon Will S		City/County	r. Sher	MAN CO. Sampling Date (13/6)
Applicant/Owner:				State: OR Sampling Point: DP-3
	√	Section, To	wnship, Ra	ange: 29, 701N, RIDE ATE
Landform (hillslope, terrace, etc.): Danage				· · · · · · · · · · · · · · · · · · ·
Subregion (LRR):				Long: Datum:
Soil Map Unit Name: Lickskillet Bakenen/				
Are climatic / hydrologic conditions on the site typical for th				
Are Vegetation, Soil, or Hydrology:		-	-	
Are Vegetation, Soil, or Hydrology			_	
SUMMARY OF FINDINGS – Attach site map				
Comment of Findbirds - Attach site map	SHOWING	Sampini	g ponit i	ocanons, transects, important leatures, er
Hydrophytic Vegetation Present? Yes N	10 1	ls th	e Sampled	1 Area
1 · · · · · · · · · · · · · · · · · · ·	₩ <u>.//</u>	1	in a Wetlar	
	₩ <u></u>			7
Remarks: Data plot located in drain	age th	at cri	29 22	middle of 11 Bact surres an
			. 6.	The second of th
				the state of the s
VEGETATION		i.		
Troo Chahain What astautic	Absolute			Dominance Test worksheet:
<u>Tree Stratum</u> (Use scientific names.)	<u> % Cover</u>	Species?	Status	Number of Dominant Species
1		 		That Are OBL, FACW, or FAC: (A)
3.		•		Total Number of Dominant Species Across All Strata: (B)
4.	- 			
Total Cove	r:			Percent of Dominant Species That Are OBL, FACW, or FAC: (A/E
Sapling/Shrub Stratum		•		
1				Prevalence Index worksheet:
2				Total % Cover of: Multiply by:
4		*	· .	OBL species
5				FAC species x 3 =
Total Cove		. ———		FACU species x 4 =
Herb Stratum				UPL species x 5 =
1. Noc Dascum theosis	24		WI	Column Totals: (A) (B)
2. Landura Serripla	_ 30 %		FAW	
3 Sieg att.	_ <u>10</u> 16_		1XXV	Prevalence Index = B/A =
4. Bonus doctorum	1048	-	NI	Hydrophytic Vegetation Indicators: Dominance Test is >50%
5. Pag sociala 6. Bomos japonicos	- 101g 101s		UPL	Prevalence Index is ≤3.0¹
7. Meli officianalis	- 70% ⊋४०		FACU	Morphological Adaptations¹ (Provide supporting
8.	- जर ्ग	***************************************	1.000	data in Remarks or on a separate sheet)
	r: <u>~)59</u> 0			Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum				
1	- ——	***************************************		¹ Indicators of hydric soil and wetland hydrology must be present.
2			•	
Total Cover	r:			Hydrophytic Vegetation
% Bare Ground in Herb Stratum % Cover	r of Biotic Cr	ust		Present? Yes No
Remarks:	-	···		1
Dry drainage.	ž.			
2.2				
·				•

	confirm the absence of indicators.)
Depth Matrix Redox Features	
14444	oc² Texture Remarks
D-12" 109R3/2	sandy barn
Mad Rock	
	The second secon
	
	ning, RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2) Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3) Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4) Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C) Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)	- ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' ' '
Depleted Below Dark Surface (A11) Depleted Dark Surface (F7)	
Thick Dark Surface (A12) Redox Depressions (F8)	
Sandy Mucky Mineral (S1) Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)	wetland hydrology must be present.
Restrictive Layer (if present):	
Type: Koch	
Depth (inches): 12:00/CS	Hydric Soil Present? Yes No
Remarks:	
Tremains.	
!	
HYDROLOGY	
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Wetland Hydrology Indicators:	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Water Marks (B1) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Salt Crust (B11) Biotic Crust (B12)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Aquatic Invertebrates (B13)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Fainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Primary Indicators: Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livi	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Pfainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi Presence of Reduced Iron (C4)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Mainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Plowed	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Prainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Soils (C6) Saturation Visible on Aerial Imagery (C9)
Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Mainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Plowed	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Prainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Soils (C6) Saturation Visible on Aerial Imagery (C9)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Hydrogen Sulfide Odor (C1) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Pfainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Soils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B7) Water Marks (B1) Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed Other (Explain in Remarks) Water-Stained Leaves (B9)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Pfainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Soils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11) High Water Table (A2) Biotic Crust (B12) Saturation (A3) Aquatic Invertebrates (B13) Water Marks (B1) (Nonriverine) Drift Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Livi Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4) Surface Soil Cracks (B6) Recent Iron Reduction in Plowed Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes No Depth (inches):	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Pfainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Soils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
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upland WETLAND DETERMINATION DATA FORM - Arid West Region Sherman Sampling Date: 061307 Applicant/Owner: OR Sampling Point: DP-Shannon Section, Township, Range: Landform (hillslope, terrace, etc.): Damage Local relief (concave, convex, none): Subregion (LRR): Lat: Datum: Soil Map Unit Name: 🔟 NWI classification: Are climatic / hydrologic conditions on the site typical for this time of year? Yes (If no, explain in Remarks.) Are Vegetation ______, Soil ______, or Hydrology ______ significantly disturbed? Are "Normal Circumstances" present? Yes Are Vegetation <u>no</u>, Soil <u>no</u>, or Hydrology <u>no</u> naturally problematic? (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: drainage ditch

GETATION	-	131	eser in the second	No. 3
		Dominant		Dominance Test worksheet:
ee Stratum (Use scientific names.)	% Cover	Species?	Status_	Number of Dominant Species
	_			That Are OBL, FACW, or FAC: (A)
				Total Number of Dominant
				Species Across All Strata: (B)
Total Cove	 er:			Percent of Dominant Species
pling/Shrub Stratum	۶۱			That Are OBL, FACW, or FAC: (A/B
				Prevalence Index worksheet:
				Total % Cover of: Multiply by:
- TOTAL CONTROL CONTRO	·		·	OBL species x 1 =
				FACW species x 2 =
				FAC species x 3 =
Total Cove	er:	•		FACU species x 4 =
Jim Hill Mustard STAL	40	Α	FALU	UPL species x 5 =
Cheat Grass BRIE	30		AIT	Column Totals: (A) (B)
Fiddlenech AMIN		<u></u>	70 1-	Prevalence Index = B/A =
cultivated wheat TRAE		<u>n</u>		Hydrophytic Vegetation Indicators:
prickly lettuce LASE	→ <u></u>			Dominance Test is >50%
leaty spurce	- 			Prevalence Index is ≤3.0¹
Russian star thistle		n		Morphological Adaptations¹ (Provide supporting
				data in Remarks or on a separate sheet)
Total Cove	75.			Problematic Hydrophytic Vegetation ¹ (Explain)
oody Vine Stratum		•		
· · · · · · · · · · · · · · · · · · ·				Indicators of hydric soil and wetland hydrology must be present.
Total Cove	er:			Hydrophytic Vegetation
Bare Ground in Herb Stratum25 % Coye	er of Biotic Cr	ust <i>O</i>		Present? Yes No
marks:			-	

Locust Grave

WETLAND DETERMINATION DATA FORM	- Arid West Region upland
Project/Site: 60/10 Hills City/County: 5h	S(ma) (2
Applicativowier.	State: OR Sampling Point: DP-2-3
Investigator(s):	ange: <u>'\$\$, TOIN, KI>B</u>
Landform (hillslope, terrace, etc.):	сопvex, попе): Slope (%):
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Walla Walla sittlean 1-7/1/31B	NWI classification:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No _	
Are Vegetationno_, Soilno_, or Hydrologyno_ significantly disturbed? Are	"Normal Circumstances" present? YesNo
	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point I	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampleo	A Aroa
Hydric Soil Present? Yes No within a Wetta	nd? Yes No
wedalid Hydrology Present? Yes No V	
Remarks: Flat area believed checklam at junction	n of 2 diamages. At don
of camebird hundring, area northood Gor	do Hallo Rand in Com
To gameona harring more provides con	CIAI NDIIOM TORCE, AT -01109
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) <u>% Cover Species? Status</u>	Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
2	Total Number of Dominant
3	Species Across All Strata: (B)
4	Percent of Dominant Species
Total Cover: Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Lactura serridge 15% PARIL	UPL species x 5 =
2. Agropyon Caninum? 6000 / NI	Column Totals: (A) (B)
3. Rom dedown 20% / NI	Prevalence Index = B/A =
4	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.01
7	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet)
Total Cover: 45	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	Indicators of hudring all and make of hudring and
1	¹ Indicators of hydric soil and wetland hydrology must be present.
2 Total Cover: /	Hydrophytic
	Vegetation
70 GOVER OF BIOLIC GIUST	Present? Yes No
Remarks:	

rofile Description: (Describe to the de	pth needed to docur	nent the i	ndicator o	or confirm	n the absence of	indicators.)
Depth Matrix		x Features			- .	
inches) Color (moist) ~ %	Color (moist)		_Type'	Loc ²	Texture _	Remarks
0-0-		-			avil -	
2-14" 109K3/2					S/H Dan	1
41 109RN2					clauloan	· · · · · · · · · · · · · · · · · · ·
						
						The second secon
			. ———			
		 			, /	
						
ype: C=Concentration, D=Depletion, RN	/i=Reduced Matrix.	² Location	: PL=Pore	Lining, F	RC=Root Channel,	M=Matrix.
ydric Soil Indicators: (Applicable to al						r Problematic Hydric Soils³:
Histosol (A1)	Sańdy Red	ox (S5)			1 cm Mud	k (A9) (LRR C)
_ Histic Epipedon (A2)	Stripped Ma				2 cm Mud	k (A10) (LRR B)
Black Histic (A3)	Loamy Mud	ky Mineral	l (F1)			Vertic (F18)
_ Hydrogen Sulfide (A4)	Loamy Gle		(F2)			nt Material (TF2)
_ Stratified Layers (A5) (LRR C)	Depleted M				Other (Ex	plain in Remarks)
_ 1 cm Muck (A9) (LRR D)	Redox Dark Depleted D					
_ Depleted Below Dark Surface (A11) _ Thick Dark Surface (A12)	Depleted D					
_ Sandy Mucky Mineral (S1)	Vernal Poo	-			³ Indicators of	hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		· · · · · · · · · · · · · · · · · · ·			* · ·	drology must be present.
estrictive Layer (if present):			·			
Type:					-	•
Type.						
	<u> </u>				Hydric Soil Pr	esent? Yes No <u>//</u>
Depth (inches):	1				Hydric Soil Pr	esent? Yes No
Depth (inches):	100 100 100 100 100 100 100 100 100 100		:		Hydric Soil Pr	esent? Yes No
Depth (inches):			::::::::::::::::::::::::::::::::::::::		Hydric Soil Pr	esent? Yes No V
Depth (inches):			: : :		Hydric Soil Pr	esent? Yes No
Depth (inches):emarks:	1				Hydric Soil Pr	esent? Yes No
Depth (inches):emarks:					,	
Depth (inches):emarks:					Seconda	ry Indicators (2 or more required)
Depth (inches): emarks: /DROLOGY /etland Hydrology Indicators:	fficient)	χ,			Seconda	ry Indicators (2 or more required) er Marks (B1) (Riverine)
Depth (inches): emarks: /DROLOGY /etland Hydrology Indicators:	Salt Crust		: : : : : : : : : : : : : : : : : : : :		Seconda Watı Sedi	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine)
Depth (inches):emarks: **DROLOGY** **Jetland Hydrology Indicators: rimary Indicators (any one indicator is sufficiency in the control of the control	Salt Crust Biotic Cru	st (B12)			Seconda Wate Sedi Drift	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine)
Depth (inches):emarks: //DROLOGY //etland Hydrology Indicators: rimary Indicators (any one indicator is sur	Salt Crust Biotic Cru Aquatic In	st (B12) vertebrate			Seconda Wati Sedi Drift Drai	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10)
Depth (inches):emarks: **DROLOGY **Jetland Hydrology Indicators: rimary Indicators (any one indicator is sur_ Surface Water (A1) High Water Table (A2)	Salt Crust Biotic Cru Aquatic In Hydrogen	st (B12) vertebrate Sulfide Od	dor (C1)		Seconda Wate Sedi Drift Drai Dry-	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2)
Depth (inches):emarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized	st (B12) ivertebrate Sulfide Od Rhizosphe	dor (C1) res along		Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7)
Depth (inches):emarks: **TDROLOGY **Tetland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized In	st (B12) vertebrate Sulfide Od Rhizosphe of Reduce	dor (C1) res along ed Iron (C4	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8)
Depth (inches):emarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen) Oxidized Presence Recent Iro	st (B12) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Dry- Ots (C3) Thin Cray (C6) Satu	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) rration Visible on Aerial Imagery (C9
Depth (inches):emarks: //DROLOGY /etland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	Salt Crust Biotic Cru Aquatic In Hydrogen) Oxidized Presence Recent Iro	st (B12) vertebrate Sulfide Od Rhizosphe of Reduce	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) tration Visible on Aerial Imagery (C9
Depth (inches):emarks: //DROLOGY /etland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust Biotic Cru Aquatic In Hydrogen) Oxidized Presence Recent Iro	st (B12) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) iration Visible on Aerial Imagery (C9
Depth (inches): emarks: //DROLOGY //etland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (I Water-Stained Leaves (B9)	Salt Crust Biotic Cru Aquatic In Hydrogen) Oxidized Presence Recent Iro	st (B12) vertebrate Sulfide Oc Rhizosphe of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) tration Visible on Aerial Imagery (C9
Depth (inches):emarks: POROLOGY Vetland Hydrology Indicators: rimary Indicators (any one indicator is sure a surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine	Salt Crust Biotic Cru Aquatic In Hydrogen) Oxidized Presence Recent Iro	st (B12) vertebrate Sulfide Oc Rhizospher of Reduce on Reduction	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) tration Visible on Aerial Imagery (C9
Depth (inches):emarks: POROLOGY Petland Hydrology Indicators: rimary Indicators (any one indicator is sur Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (included the property of the property (B9) Water-Stained Leaves (B9) Water Water Present? Yes	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized Presence Recent Iro B7) Other (Ex	st (B12) vertebrate Sulfide Oc Rhizospher of Reduce on Reduction plain in Re	dor (C1) res along ed Iron (C4 on in Plow	!)	Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) irration Visible on Aerial Imagery (C9
Depth (inches): demarks: //DROLOGY //Vetland Hydrology Indicators: rimary Indicators (any one indicator is surplicated water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (included water-Stained Leaves (B9) iteld Observations: Surface Water Present? Ves Vater Table Present? Yes Saturation Present? Yes	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized Presence Recent Irc B7) Depth (ir	st (B12) vertebrate Sulfide Oc Rhizospher of Reduction Reduction plain in Re aches):	dor (C1) res along ed Iron (C4 on in Plow	red Soils (Seconda Wate Sedi Drift Drai Dry- ots (C3) Thin Cray (C6) Sate Sha	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) irration Visible on Aerial Imagery (C9 llow Aquitard (D3) -Neutral Test (D5)
Depth (inches):	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized Presence Recent Irc Other (Ex No Depth (ir No Depth (ir	st (B12) vertebrate Sulfide Oc Rhizospher of Reduce on Reduction plain in Re aches): aches):	dor (C1) res along ed Iron (C4 on in Plow emarks)	red Soils (Seconda Wate Sedi Drift Dry- Ots (C3) Thin Cray C6) Sate Sha FAC	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) irration Visible on Aerial Imagery (CS) llow Aquitard (D3) - Neutral Test (D5)
Depth (inches): emarks: //DROLOGY /etland Hydrology Indicators: rimary Indicators (any one indicator is sur _ Surface Water (A1) _ High Water Table (A2) _ Saturation (A3) _ Water Marks (B1) (Nonriverine) _ Sediment Deposits (B2) (Nonriverine) _ Drift Deposits (B3) (Nonriverine) _ Surface Soil Cracks (B6) _ Inundation Visible on Aerial Imagery (I _ Water-Stained Leaves (B9) ield Observations: urface Water Present? Yes	Salt Crust Biotic Cru Aquatic In Hydrogen Oxidized Presence Recent Irc Other (Ex No Depth (ir No Depth (ir	st (B12) vertebrate Sulfide Oc Rhizospher of Reduce on Reduction plain in Re aches): aches):	dor (C1) res along ed Iron (C4 on in Plow emarks)	red Soils (Seconda Wate Sedi Drift Dry- Ots (C3) Thin Cray C6) Sate Sha FAC	ry Indicators (2 or more required) er Marks (B1) (Riverine) iment Deposits (B2) (Riverine) Deposits (B3) (Riverine) nage Patterns (B10) Season Water Table (C2) Muck Surface (C7) rfish Burrows (C8) irration Visible on Aerial Imagery (CS) llow Aquitard (D3) - Neutral Test (D5)

WETLAND DETERMINATION DATA FORM	- Arid West Region upland
Project/Site: 60 den Hills City/County: S	Therman sampling Date: 6-13-07
Applicant/Owner: If O	State: OR Sampling Point DO-2-17
Investigator(s): J. Shannon, G. Rand Section, Township, Ra	ange: 20. TOW RIDE
Landform (hillslope, terrace, etc.): Drahage Local relief (concave,	
Subregion (LRR): Lat:	
Soil Map Unit Name: Walla Walla Solt loam 7-15/1 31C	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
·	"Normal Circumstances" present? Yes No
\cdot	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point I	ocations, transects, important features, etc.
wetanu nydrology Present? Yes _ V No	d Area nd? Yes No
Remarks: channel likely curnes a lot of the for a short	period of time
Data plot located along Haren Road Clamborn).	in and dramage going East from
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? Status 1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
3	Total Number of Dominant Species Across All Strata: (B)
4 Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum	
2	Prevalence Index worksheet:
3.	OBL species x1 =
4	FACW species x2 =
5.	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. upid grass (No inflorence Trace M	UPL species x 5 =
	Column Totals: (A) (B)
	Prevalence Index = B/A =
3	Hydrophytic Vegetation Indicators:
4. 5.	Dominance Test is >50%
6	Prevalence Index is ≤3.0¹
7	Morphological Adaptations ¹ (Provide supporting
8	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover:	Problematic Hydrophytic Vegetation (Explain)
1	¹Indicators of hydric soil and wetland hydrology must be present.
2	
Total Cover:/ % Bare Ground in Herb Stratum % Cover of Biotic Crust	Hydrophytic Vegetation Present? Yes No
	<u> </u>
no vegetation of 590 or more, total too. very s.	mall wild plants in Channel

	th needed to document the indicator or con	mini de absence of indicators.)
Depth Matrix (inches) Color (moist) %	Redox Features Color (moist) % Type Loc	² Texture Remarks
(inches) Color (moist) % 0-2 /04R 3/2 /00	10 14pe Loc	
2-4 104R 3/2 100		fing avel
4+ ak		
	· · · · · · · · · · · · · · · · · · ·	
		and the second s
Type: C=Concentration, D=Depletion, RM		ng, RC=Root Channel, M=Matrix.
lydric Soil Indicators: (Applicable to all	LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2) Other (Explain in Remarks)
Stratified Layers (A5) (LRR C) 1 cm Muck (A9) (LRR D)	Depleted Matrix (F3) Redox Dark Surface (F6)	Other (Explain in Remarks)
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	•
Thick Dark Surface (A12)	Redox Depressions (F8)	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
Restrictive Layer (if present):		
Type: TOCK & 4"		
Depth (inches):	and the second s	1 1 1 2 2 2 2 X
Remarks:		Hydric Soil Present? Yes No
		Hydric Soil Present? Yes No
YDROLOGY		
YDROLOGY Vetland Hydrology Indicators:		Secondary Indicators (2 or more required)
YDROLOGY Wetland Hydrology Indicators:		Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1)	Salt Crust (B11)	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12)	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13)	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is sufformation (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4)	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) ils (C6) Saturation Visible on Aerial Imagery (C5)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) ils (C6) Saturation Visible on Aerial Imagery (C5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C4) Shallow Aquitard (D3)
YDROLOGY Netland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations:	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C5) Shallow Aquitard (D3)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present?	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8) Shallow Aquitard (D3)
YDROLOGY Netland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Ves Vater Table Present? Ves Saturation Present? Yes Gaturation Present? Yes Gaturation Present? Yes Ves Gaturation Present?	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): No No Depth (inches): No Depth (inches): No No Depth (inches): No	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Saturation Present? Yes Gincludes capillary fringe)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Saturation Present? Yes (includes capillary fringe)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): No No Depth (inches): No	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficiency line) Surface Water (A1) High Water Table (A2) X Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B Water-Stained Leaves (B9) Field Observations: Surface Water Present? Water Table Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, more surface)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): No Depth (inches): Vointoring well, aerial photos, previous inspection	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5)
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient or suff	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): No Depth (inches): Vointoring well, aerial photos, previous inspection	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Candidate of the company of
YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient or suff	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed So 7) Other (Explain in Remarks) No Depth (inches): No Depth (inches): Vointoring well, aerial photos, previous inspection	Secondary Indicators (2 or more required) X Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) X Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (Cimulation Shallow Aquitard (D3) FAC-Neutral Test (D5)

WETLAND DETERMINATION DATA FORM	- Arid West Region upland
Project/Site: City/County: She	sampling Date: 6/14/07
Applicant/Owner:	State: OR Sampling Point: D0-2-L
Investigator(s): 6, Rand J. Shamon Section, Township, R.	
Landform (hillstope, terrace, etc.): Dramage Local relief (concave,	
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Lickskille + Oaksonen Complex 2-201/170	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No_	
Are Vegetation, Soil, or Hydrology significantly disturbed? Vo Are	and the second s
Are Vegetation, Soil, or Hydrology naturally problematic? No (If n	·
· · · · · · · · · · · · · · · · · · ·	
SUMMARY OF FINDINGS – Attach site map showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sample	d Area
Hydric Soil Present? Yes No within a Wetla	and the second s
Wetland Hydrology Present? Yes No	
Remarks: Data plot in drainage adjacent to and was	tot 05-97,6/m highway
and unit 9	
VEGETATION	
Absolute Dominant Indicator Tree Stratum (Use scientific names.)	Dominance Test worksheet:
1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	
3	Total Number of Dominant Species Across All Strata: (B)
4	Percent of Dominant Species
Total Cover: Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Hard in Tut. wheatarass /5 / NI	UPL species x 5 =
2. Kon to cheatarass 5 NF	Column Totals: (A) (B)
3. Paa secunda Sandbergs by 10 / NI	Prevalence Index = B/A =
4. Siey. aldi. tumble mustar Ca FACU	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.0 ¹
7	Morphological Adaptations¹ (Provide supporting
8.	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum Total Cover:	Froblemate Hydrophytic vegetation (Explain)
1	¹ Indicators of hydric soil and wetland hydrology must
2	be present.
Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum 7000 % Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	resNO
Rak-land ephonoral which	
	·
	•

SOIL :	医二甲基酚 医二氯甲酚 医电影重新形式	Sampling Point: 4
Profile Description: (Describe to the de	pth needed to document the indicator or	confirm the absence of indicators.)
Depth Matrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type ¹	Loc ² Texture Remarks
0-1 104842		Sandy loam
12 RNN		
	:	
1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 - 1 -		
¹ Type: C=Concentration, D=Depletion, RN		ining, RC=Root Channel, M=Matrix. Indicators for Problematic Hydric Soils ³ :
Hydric Soil Indicators: (Applicable to a		
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B)
Histic Epipedon (A2)	Stripped Matrix (S6) Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Black Histic (A3) Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	,
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	λ^{-1} .
Thick Dark Surface (A12)	Redox Depressions (F8)	\$4. ⁶⁷
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
Restrictive Layer (if present):		
Type:	<u> </u>	7
Depth (inches):	<u>Verilla</u> english	Hydric Soil Present? Yes No
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sur	fficient)	Water Marks (B1) (Riverine)
Surface Water (A1)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Water Table (A2)	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Saturation (A3)	Aquatic Invertebrates (B13)	Prainage Patterns (B10)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2) (Nonriverine	•	ring Roots (C3) Thin Muck Surface (C7)
Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	Recent Iron Reduction in Plowed	Soils (C6) Saturation Visible on Aerial Imagery (C9
Inundation Visible on Aerial Imagery (Shallow Aquitard (D3)
Water-Stained Leaves (B9)	, = \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes	NoDepth (inches):	
		Wetland Hydrology Present? Yes No
Saturation Present? Yes (includes capillary fringe)	No Depth (inches):	Wettand Hydrology Present: TesNo
	nonitoring well, aerial photos, previous inspe	ctions), if available:
Remarks:	1	·
DAPAS	cal infash	
A Part of the second		•

upland

WETLAND DETE	RMINATIO	ON DAT	A FORM	– Arid West Region	
Project/Site: Colden Hills		Citv/Count	v: Sh.	erman Co. Sampling Date: 6/12	10
Applicant/Owner: RP				State: DR Sampling Point: DP - 2	7
				ange: 81, TOIN, PIDE	
Landform (hillstope, terrace, etc.): Dramage					7
Subregion (LRR):		•			-
Soil Map Unit Name: Lickskillet Bakearen					
	•	· · ·			
Are climatic / hydrologic conditions on the site typical for the	_				
Are Vegetation, Soil, or Hydrology			-		
Are Vegetation, Soil, or Hydrology		•			
SUMMARY OF FINDINGS – Attach site map	showing	samplin	ig point l	locations, transects, important features, e	tc.
Hydrophytic Vegetation Present? Yes	No	lo 4	ne Sampleo	and the second s	: } :
	No	I		and? Yes No	
	No		<u> </u>	The first section	
Remarks: Donar colored un	der Of	2,00	ist o	pedroom of DP-2-L.	
			.47.		
, , , , , , , , , , , , , , , , , , , ,		:			
VEGETATION			gest Section of		
Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?		Dominance Test worksheet:	
1	<u> </u>	Орежев	<u>Otatus</u>	Number of Dominant Species That Are OBL, FACW, or FAC: (A	
2.					
3				Total Number of Dominant Species Across All Strata: (B))
4			· <u>· · · · · · · · · · · · · · · · · · </u>	Percent of Dominant Species	
Total Cove	er:			That Are OBL, FACW, or FAC: (A	/B)
1				Prevalence Index worksheet;	·
2.		-		Total % Cover of: Multiply by:	
3.			-	OBL species x 1 =	
4		****		FACW species x 2 =	
5				FAC species x 3 =	
Total Cove	er:			FACU species x 4 =	
1. Janus todorum	40%	V	AM	UPL species x 5 =	
2 Arcostis Cari-	- 10		FAC	Column Totals: (A) (E	3)
3. Bite, don.	- -3 -		W1	Prevalence Index = B/A =	
4. Unknows 1	20%		NI	Hydrophytic Vegetation Indicators:	
5. Sagraphon canishin	-		· 	Dominance Test is >50%	
6				Prevalence Index is ≤3.0 ¹	
7				Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)	
8	- <u> </u>			Problematic Hydrophytic Vegetation¹ (Explain)	
Total Cove	ir:				
1				¹ Indicators of hydric soil and wetland hydrology must	
2				be present.	
	er:			Hydrophytic	
% Bare Ground in Herb Stratum 35 % Cove	er of Biotic Cr	ust		Vegetation Present? Yes No	
Remarks:/				100	\dashv
1	•				- 1

OIL Profile Description: (Describe to the	depth needed to docume	nt the indicator	or confir	m the absence of	Sampling Point: 3	
	· ·		OI COIMI	in the absence of	indicators.)	
Depth <u>Matrix</u> (inches) <u>Color (moist), %</u>	Color (moist)	eatures % Type ¹	_Loc2	Texture /	Remarks	
0-2 MYR3/2 TON				59nd	romano	
		- 7	40	1///		
1-12-1	54R416	10% C	141	SIT 10am		
				•		
		 · · · ·		•		
· · · · · · · · · · · · · · · · · · ·			· ·			
						·
					•	
						1 1
						
		·		 		
Type: C=Concentration, D=Depletion,	RM=Reduced Matrix. ² L	ocation: PL=Por	e Lining,	RC=Root Channel,	M=Matrix.	
lydric Soil Indicators: (Applicable to	all LRRs, unless otherwi	ise noted.)		indicators for	Problematic Hydric Soils	3 <u>.</u>
Histosol (A1)	_ ✓ Sandy Redox	(S5) _.		1 cm Muc	k (A9) (LRR C)	
Histic Epipedon (A2)	Stripped Matri	x (S6)		2 cm Mud	k (A10) (LRR B)	
Black Histic (A3)	Loamy Mucky	Mineral (F1)		Reduced \	Vertic (F18)	
Hydrogen Sulfide (A4)	Loamy Gleyed			Red Parer	nt Material (TF2)	1.5
Stratified Layers (A5) (LRR C)	`Depleted Matr	ix (F3)		Other (Exp	plain in Remarks)	
1 cm Muck (A9) (LRR D)	Redox Dark S	, ·,				
Depleted Below Dark Surface (A11)) Depleted Dark	Surface (F7)				
Thick Dark Surface (A12)	Redox Depres	, ,			1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)		³ Indicators of I	ydrophytic vegetation and	
Sandy Gleyed Matrix (S4)				wetland hyd	drology must be present.	ige Kill
Restrictive Layer (if present):	•					
Type:	· 			-		-
Type: Depth (inches):	<u> </u>	•		Hydric Soil Pre	esent? YesNo	· ·
Depth (inches):	edox startino	at 7" b	ct usil	1 -)
	edox starting	at 7", bu	nicu tu	1 -) <u> </u>
Depth (inches):	edox starting	at 7", bo	ncu tu	1 -		
Depth (inches):	edox starting	at 7", bi	niw t	1 -)
Depth (inches):	edox starting	at 7", bi	it wil	1 -		
Depth (inches):Remarks: problematic w/r	edox starting	at 7", bi	t wil	1 -		
Depth (inches): Remarks: problematic w/r	edox starting	at 7", bi	nice tr	1 be accep	sted as hydric	
Depth (inches): Remarks: problematic w/r YDROLOGY Vetland Hydrology Indicators:		at 7", bi	nicu ta	Secondar	y Indicators (2 or more requ	
Depth (inches): Remarks: problematic w/r YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is:	sufficient)		H will	Secondar Wate	ry Indicators (2 or more require Marks (B1) (Riverine)	uired)
Depth (inches): Remarks: problematic w/r YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is: Surface Water (A1)	sufficient) Salt Crust (B	11)	ncu tu	Secondar Wate Sedin	y Indicators (2 or more requer Marks (B1) (Riverine)	uired)
Primary Indicators (any one indicator is: Surface Water (A1) High Water Table (A2)	sufficient) Salt Crust (B Biotic Crust (11) B12)	ricu tu	Secondar Wate Drift	y Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) Deposits (B3) (Riverine)	uired)
Primary Indicators (any one indicator is: Surface Water (A1) High Water Table (A2) Saturation (A3)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver	11) B12) tebrates (B13)	Heart Heart	Secondar Secondar Secondar Drift Drift	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) Deposits (B3) (Riverine) hage Patterns (B10)	uired)
Problemotic w/r Proble	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su	11) B12) tebrates (B13) Ifide Odor (C1)	· · · · · · · · · · · · · · · · · · ·	Secondar Secondar Wate Sedir Drift Drain Dry-S	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) deposits (B3) (Riverine) deposits (B10) Geason Water Table (C2)	uired)
Primary Indicators (any one indicator is: High Water Table (A2) Saturation (A3)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su	11) B12) tebrates (B13)	· · · · · · · · · · · · · · · · · · ·	Secondar Secondar Wate Sedir Drift Drain Dry-S	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) Deposits (B3) (Riverine) hage Patterns (B10)	uired)
Problemotic w/r Proble	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Sune) Oxidized Rhi	11) B12) tebrates (B13) Ifide Odor (C1)	Living Ro	Secondar Secondar Wate Sedir Drain Dry-S ots (C3) Thin	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) deposits (B3) (Riverine) deposits (B10) Geason Water Table (C2)	uired)
Problematic w/r Proble	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su ne) Oxidized Rhi: Presence of	11) B12) tebrates (B13) Ilfide Odor (C1) zospheres along	Living Ro	Secondar Secondar Wate Sedir Drain Dry-S ots (C3) Thin Crayl	y Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) deposits (B3) (Riverine) deposits (B10) Geason Water Table (C2) Muck Surface (C7)	uired) ne)
Problematic w/r Proble	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Sune) Oxidized Rhii Presence of l	11) B12) tebrates (B13) Ifide Odor (C1) zospheres along Reduced Iron (C4	Living Ro	Secondar Wate Sedir Drift Drain Dry-Sots (C3) Thin Crayl	ry Indicators (2 or more requestre Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Bùrrows (C8)	uired) ne)
Print (inches): Problematic w/r Primary indicators (any one indicator is: Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Sune) Oxidized Rhii Presence of l	11) B12) tebrates (B13) Ifide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow	Living Ro	Secondar Wate Sedir Drift Drain Dry-Stots (C3) Thin Crayl (C6) Satur Shall	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Bùrrows (C8) ration Visible on Aenal Imagow Aquitard (D3)	uired) ne)
Problematic w/r Problematic w/r Problematic w/r Problematic w/r Primary Indicators (any one indicator is: Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery Water-Stained Leaves (B9)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Sune) Oxidized Rhii Presence of l	11) B12) tebrates (B13) Ifide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow	Living Ro	Secondar Wate Sedir Drift Drain Dry-Stots (C3) Thin Crayl (C6) Satur Shall	ry Indicators (2 or more requery Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Image	uired) ne)
Problematic w/r YDROLOGY Vetland Hydrology Indicators: Primary Indicators (any one indicator is surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery Water-Stained Leaves (B9)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su ne) Oxidized Rhi Presence of Recent Iron F y (B7) Other (Explai	11) B12) tebrates (B13) Ilfide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks)	Living Ro	Secondar Wate Sedir Drift Drain Dry-Stots (C3) Thin Crayl (C6) Satur Shall	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Bùrrows (C8) ration Visible on Aenal Imagow Aquitard (D3)	uired) ne)
Problem at C W/ resemble Water Stained Leaves (B9) Depth (inches): Problem at C W/ resemble C W/ r	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inches	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks)	Living Ro	Secondar Wate Sedir Drift Drain Dry-Stots (C3) Thin Crayl (C6) Satur Shall	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Bùrrows (C8) ration Visible on Aenal Imagow Aquitard (D3)	uired) ne)
Problem at a c w/ resemble series (B9) Pophlem at a c w/ resemble series (B9) Problem at a c w/ resemble series (B9)	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inche	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks)	Living Ro	Secondar Secondar Wate Sedir Drift Drain Dry-S ots (C3) Thin Crayl (C6) Satur Shall FAC-	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)
Problem of C W/ resembles (A) Primary Indicators (any one indicator is a Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes Saturation Present? Yes	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inches	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks)	Living Ro	Secondar Wate Sedir Drift Drain Dry-Stots (C3) Thin Crayl (C6) Satur Shall	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)
Problem at a c w/r Problem at a c w/r Problem at a c w/r Primary Indicators (any one indicator is: Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes Saturation Present? Yes	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inche No Depth (inche	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks)	Living Ro	Secondar Secondar Wate Sedir Drift Drain Crayl (C6) Satur Shall FAC-	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)
Problem at C W/ records and re	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inche No Depth (inche	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks) es):	Living Ro	Secondar Secondar Wate Sedir Drift Drain Crayl (C6) Satur Shall FAC-	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)
Problem at C W/ resemble Secretary Presents (B2) (Nonriverine) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Vater Table Present? Yes Saturation Present? Yes Saturation Present? Yes Includes capillary fringe) Describe Recorded Data (stream gauge	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su Depth (inche No Depth (inche	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks) es):	Living Ro	Secondar Secondar Wate Sedir Drift Drain Crayl (C6) Satur Shall FAC-	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)
Problem at C W/ records and re	sufficient) Salt Crust (B Biotic Crust (Aquatic Inver Hydrogen Su ne) Oxidized Rhiz Presence of I Recent Iron F y (B7) Other (Explain No Depth (incheal No	11) B12) tebrates (B13) Iffide Odor (C1) zospheres along Reduced Iron (C4 Reduction in Plow in in Remarks) es): es): es):	Living Ro	Secondar Secondar Water Sedir Drain Dry-S ots (C3) Thin Crayl (C6) Satur Shall FAC-	ry Indicators (2 or more requer Marks (B1) (Riverine) ment Deposits (B2) (Riverine) mage Patterns (B10) Geason Water Table (C2) Muck Surface (C7) fish Burrows (C8) ration Visible on Aenal Imago ow Aquitard (D3) Neutral Test (D5)	uired) ne)

	WETLAND	DETERMINATI	ON DATA	A FORM	- Arid West Region	Aboute
roject/Site:	Idea Hills	e de la companya de	City/Count	. Sh	eman (a	Sampling Date: 6/14/
pplicant/Owner:					~	Sampling Point: $\sqrt{27}$
					nge: <u>18 To14</u>	
						ling Slope (%): 6
ubregion (LRR):	~ 7	_				Datum:
	alla Dalla silt	\\na\ \	54 /21	<u>رم</u>	NWI classifica	dion:
•	e*	•	• 7	-	(If no, explain in Re	
				1.1		resent? Yes No
					eded, explain any answers	
UMMARY OF FIND	OINGS - Attach site	e map showing	samplin	g point le	ocations, transects,	important features, e
Hydrophytic Vegetation F Hydric Soil Present? Wetland Hydrology Prese Remarks:	Yes ent? Yes	No	with	ie Sampled in a Wetlar	nd? Yes	
end of s	or hist income	Il Middle	ege o	ti vated	an survey are	a 12 and north
EGETATION			*.	28	<u> </u>	
		Absolute	Dominant	Indicator	Dominance Test works	heet:
Tree Stratum (Use scie 1	entific names.)		Species?	Status	Number of Dominant Spo That Are OBL, FACW, or	ecies
2 3.					Total Number of Domina	
4					Species Across All Strata	
Sapling/Shrub Stratum	Tot	al Cover:	-		Percent of Dominant Spe That Are OBL, FACW, or	FAC: (A/
1					Prevalence Index works	
2	77.			-	Total % Cover of: OBL species	
					FACW species	· · · · · · · · · · · · · · · · · · ·
5				•	FAC species	
	. Tot	al Cover:			FACU species	
Herb Stratum A	2	1 10	√	NIT	UPL species	x 5 =
0	tent when	+ aras 15		117	Column Totals:	(A) . · (E
***		taras 19 ungwa 20	- 1 - 1	// 1	Prevalence index	= B/A =
1.		ngwg -CAZ		_ /U _	Hydrophytic Vegetation	
5.					Dominance Test is >	*
5					Prevalence Index is	≤3.0¹
7					Morphological Adapt	ations ¹ (Provide supporting
3			· · · · · · · · · · · · · · · · · · ·			or on a separate sheet) nytic Vegetation ¹ (Explain)
Noody Vine Stratum	Tot	al Cover: <u>45</u>	• .		racolematic mydropr	iyuc vegetation (Explain)
I		·			¹ Indicators of hydric soil:	and wetland hydrology must
··· 2.					be present.	and woulder injurology must
	Tot	al Cover:			Hydrophytic	
% Bare Ground in Herb S	55	% Cover of Biotic C			Vegetation	No
Remarks:						

Sampling Point: 2-0

Profile Description:	Describe to	the depth ne		5.4	contirm the	absence of indicators.)
Depth	Matrix		Redox Fe	eatures	··· 3	
(inches) Color	(moist)	<u> % C</u>	olor (moist)	% Type ¹ L	oc² Te	exture Remarks
11-12 10	11×2/0	<u> </u>		· 	<i>S</i>	UT 10am
29 K	ach					
			·			
						
				<u></u>		
		-		•		•
						
		 ;	 		. :	
				<u> </u>		
¹ Type: C=Concentration	on D=Deniel	fion RM=Red	ucod Matrix ² l c	ocation: PI =Pore Li	ining RC=R	oot Channel, M=Matrix.
Hydric Soil Indicator						ndicators for Problematic Hydric Soils ³ :
Histosol (A1)	to de trito et u		Sandy Redox (_ 1 cm Muck (A9) (LRR C)
Histosol (A1) Histic Epipedon (A	2)	-	Sandy Redox (Stripped Matrix		· —	2 cm Muck (A10) (LRR B)
Black Histic (A3)	<u>~</u> }	-	Suipped Maurk Loamy Mucky I		_	Reduced Vertic (F18)
` ` '	(8.4)	_	Loamy Gleyed	· ·		Red Parent Material (TF2)
Hydrogen Sulfide		-				Red Parent Material (TF2) Other (Explain in Remarks)
Stratified Layers (-	Depleted Matri			One (Explain in Nemalics)
1 cm Muck (A9) (L		- 	Redox Dark Su	• .		
Depleted Below D		(ATT) _	Depleted Dark	** *		
Thick Dark Surfac			Redox Depress Vernal Pools (F		3,	ndicators of hydrophytic vegetation and
Sandy Mucky MinSandy Gleyed Ma		·	vernai Pools (F	<i>9)</i>	- {1	wetland hydrology must be present.
				·		wegand flydrology flidst be present.
Restrictive Layer (if p	.//	$\mathcal{L}_{\mathcal{L}}}}}}}}}}$				
•• —	KOZA	1000				
Depth (inches):	- 9 mg	oviec		•	Ну	dric Soil Present? Yes No
Remarks:	,				ĺ	and the second s
						•
			•			
						•
					•	
HYDROLOGY						
Wetland Hydrology I	ndicators:					Secondary Indicators (2 or more required)
Primary Indicators (an	y one indicate	or is sufficient)	· · · · · · · · · · · · · · · · · · ·	- L	✓ Water Marks (B1) (Riverine)
Surface Water (A	n		Salt Crust (B1	l 1)		Sediment Deposits (B2) (Riverine)
High Water Table	•		Biotic Crust (E			Drift Deposits (B3) (Riverine)
Saturation (A3)	(<i>v</i> v)	* .	Aquatic Invert	•		
	(1)	۵١		• •		Dry-Season Water Table (C2)
Water Marks (B1)			· · · · · · · · · · · · · · · · · · ·	fide Odor (C1)		
Sediment Deposit				ospheres along Livi	ing Roots (C	· — ·
Drift Deposits (B3) (Nonriverin	1e)		Reduced Iron (C4)		Crayfish Burrows (C8)
Surface Soil Crack	ks (B6)		Recent Iron R	teduction in Plowed	Soils (C6)	Saturation Visible on Aerial Imagery (C9
Inundation Visible	on Aerial Im	agery (B7)	Other (Explain	n in Remarks)		Shallow Aquitard (D3)
Water-Stained Let	aves (B9)					FAC-Neutral Test (D5)
Field Observations:					I	
Surface Water Presen	t2 Vac	e No		e)·		
Water Table Present?		s No _		s):		W. Andrews
Saturation Present?		ے No کے	Depth (inche	s):	Wetland I	Hydrology Present? Yes No
(includes capillary fring Describe Recorded Da	je) sta (etroam c	aude monitor	ing well serial pho	toe previous insper	tions) if ava	ailable:
pesonne Mecolded Da	na jautani y	auge, monitor	mg won, acriai pilo	roa, provious maper	vavaoj, 11 ave	andero.
1		1				
Remarks:	<u> </u>	1 60	a /2		100	
ンり	SYNCY A	1 W	434			
. v			* · J			
•						
Locust Gra	79C					

WETLAND DETERMINATION	DATA FORM – Arid West Region
Project/Site: Colden Hills City	County: Sherman Co- Sampling Date: 611-611
Applicant/Owner: 80	$\alpha(1)$
Investigator(s): 6 Rand J Shannon Ser	tion Township Range: (a TIS RIDE (Section
	cal relief (concave, convex, none): Slope Slope (%): 5%
	Long: Datum:
Soil Map Unit Name: Walla Walla silt Joan /318,3	Datum:
Are climatic / hydrologic conditions on the site typical for this time of year?	NWI classification:
Are Vegetation, Soil, or Hydrology significantly dist	
	• • • • • • • • • • • • • • • • • • • •
Are Vegetation, Soil, or Hydrology naturally proble	and the second s
SUMMARY OF FINDINGS – Attach site map showing sa	mpling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Rennarks: Yes No Y Yes No Y Yes No Y Rennarks:	Is the Sampled Area within a Wetland? Yes No
Marriage southeast of lar	drea 3, westor they Canyon Road
glowed news sures	trea 3, westoll they Canyon Road
VEGETATION	
	minant Indicator Dominance Test worksheet:
1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	
3	Total Number of Dominant Species Across All Strata: (B)
4	
Sapling/Shrub Stratum Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x 1 =
4	FACW species x 2 =
Total Cover	FACUl procise x 3 =
Herb Stratum Total Cover:	FACU species x 4 = UPL species x 5 =
1	
2	
3	
4	
5	
6	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
7	
8	Problematic Hydrophytic Vegetation ¹ (Explain)
1	Indicators of hydric soil and wetland hydrology must be present.
Z	Hydrophytic
Total Cover:	Vegetation
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Present? Yes No
Remarks: NO VEQ - Plowed	arth.

Jamage bottom (Blie timo)

Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available:

Wetland Hydrology Present? Yes

Water Table Present?

Saturation Present? (includes capillary fringe)

Remarks:

Project/Site: Golderhills City/County:	Shorm an Sampling Date: 6/12/07
Applicant/Owner: BP	State: <u>OR</u> Sampling Point: <u>DP3 - B - </u>
Investigator(s): LXST and SASW Section, Towns	ship, Range: 3, TO15, RI7E
Landform (hillslope, terrace, etc.): <u>floodplain</u> Riv Local relief (co	oncave, convex, none): Slope (%):
Subregion (LRR): Lat:	
Soil Map Unit Name: Endershy Hermiston complex 0-	-3/I2A NWI classification: PEMIC
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No (If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No	Are "Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? No	(If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling p	point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No le the S	Compiled Ages
Hydric Soil Present?	Sampled Area a Wetland? Yes // No
Wetland Hydrology Present? Yes No	103 100
Remarks: east side of 97	· ·
VEGETATION	
Absolute Dominant In	dicator Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? S	
	That Are OBL, FACW, or FAC: (A)
	Total Number of Dominant
3 Pacific willow Salix sp. <1	Species Across All Strata: 3 (B)
74	Percent of Dominant Species That Are OBL, FACW, or FAC: 661 (A/B)
Sapling/Shrub Stratum	That Are OBL, FACW, or FAC:667, (A/B)
1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1: 1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	
4	FAC species x2 =
5	FAC species x 3 = FACU species x 4 =
Total Cover:	UPL species x 5 =
1	Column Totals: (A) (B)
	ACW
	Prevalence Index = B/A =
	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50% Prevalence Index is ≤3.0¹
6	Morphological Adaptations¹ (Provide supporting
7	data in Remarks or on a separate sheet)
Total Cover: _/O()_	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	
1	Indicators of hydric soil and wetland hydrology must be present.
2	
Total Cover:	Hydrophytic Vegetation
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Present? Yes No
Remarks:	
· ·	•

Profile Description: (Describe to the Depth Matrix	•	ox Feature:						
(inches) Color (moist) %		<u>%</u>		Loc ²	Texture		Remarks	
0-11 10YR 2/1					sitt/clay lo	 دهـ		
		_						
						· · · · · · · · · · · · · · · · · · ·		
	•							
		-						
					-		-	
· · · · · · · · · · · · · · · · · · ·							'e	
Times Consentration Deposition	DM-Dadward Matrix	21		. 1 !=!===			Aut.	
¹ Type: C=Concentration, D=Depletion Hydric Soil Indicators: (Applicable to			i: PL=Por	e Lining,	RC=Root Chann		unx. ematic Hydric	Soile ³ ·
			eu.,				-	Jolis .
Histosol (A1)	Sandy Red					luck (A9)		
Histic Epipedon (A2)	Stripped M		1754)			ed Vertic () (LRR B)	
Black Histic (A3)	Loamy Mu				_		• •	•
Hydrogen Sulfide (A4) Stratified Layers (A5) (LRR C)	Loamy Gle		(FZ)				erial (TF2) ı Remarks)	
Straumed Layers (A5) (LRR C) 1 cm Muck (A9) (LRR D)	Depleted N		(F6)		Oner (exhigili (U	(Nemaiks)	
Depleted Below Dark Surface (A1:								
Thick Dark Surface (A12)	Redox Dep							
Sandy Mucky Mineral (S1)	Vernal Poo		10)		3Indicators	of hydroni	hytic vegetation	and
Sandy Gleyed Matrix (S4)	Velilai FOC	/IS (1 3)					must be prese	
Restrictive Layer (if present):					- Weijand	ny arology	, must be prese	11.
Type:	vs.				1			
турс	X.)							
Donth (inches)	&				Undria Cail	Danaant?	Vac 1/	Na
Remarks: Rodo x small que and other two	•	matre Filled.	, but	ಯಾರ	Hydric Soil	Present?	Region	No
Remarks: Rodox small qu and other two	•	matre filled.	, but	ಯಾಂದ	Hydric Soil	Present?	region	No
Remarks: Rodox small qu and other two	•	motre filled.	, but	area	is in vol	canic	seg ion	
Remarks: Rodo x small que and other two AYDROLOGY Wetland Hydrology Indicators:	vantity-problem indiEather fell	matre filled.	, but	ಯಾದ	is in vol	dary Indic	cators (2 or mor	e required)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is	nantity - problem indiEatho foll		, but	ಯಾದ	is in vol	dary Indic	eators (2 or mores (B1) (Riverin	e required)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is undicator (A1)	santite - Problem indiEatoro full sufficient) Salt Crus	t (B11)	, but	and a	Secon	dary Indic	cators (2 or mores (B1) (Rivering (B2) (R	e required) e) iverine)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is used to be a second to be a seco	santite - Problem indiEatoro full sufficient) Salt Crus Biotic Cru	t (B11) ıst (B12)		0218 C	Secon Secon Secon Secon D	dary Indic dater Mark ediment D	cators (2 or mores (B1) (Rivering Deposits (B2) (Rivering tits (B3) (Rivering tits (B3	e required) e) iverine)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is surface Water (A1)	santite - Problem indiEatae fall sufficient) Salt Crus Biotic Cru Agnatic Ir	t (B11) ist (B12) ivertebrate	es (B13)	COLOR CO.	Secon	dary Indic dater Mark ediment D rift Depos rainage P	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B10))	e required) e) iverine) ae)
Remarks: Rodo x small quand offer two And offer two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	s sufficient) Salt Crus Agratic Ir Lydrogen	t (B11) ist (B12) nvertebrate a Sulfide O	es (B13) dor (C1)		Secon W S D D	dary Indic dater Mark ediment D rift Depos rainage P	cators (2 or mores (B1) (Rivering Deposits (B2) (Rivering tits (B3) (Rivering tits (B3	e required) e) iverine) ae)
Remarks: Rodo x small quand often two And often two And often two IYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3)	s sufficient) Salt Crus Agratic Ir Lydrogen	t (B11) ist (B12) nvertebrate a Sulfide O	es (B13) dor (C1)		Secon	dary Indic dater Mark ediment D rift Depos rainage P ry-Seasor	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B10))	e required) e) iverine) ae)
Remarks: Rodo x small quand offer two And offer two Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	s sufficient) Salt Crus Biotic Cru Agalatic Ir L'Hydrogen rine) Oxidized	t (B11) ist (B12) nvertebrate a Sulfide O	es (B13) dor (C1) eres along	Living Ro	Secon	dary Indic dater Mark ediment D rift Depos rainage P ry-Seasor	cators (2 or more is (B1) (Rivering Deposits (B2) (Rivering atterns (B10) in Water Table (G	e required) e) iverine) ae)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is used to be a second to be a seco	s sufficient) Salt Crus Biotic Crus Biotic Cru Addatic Ir Hydrogen rine) Presence	t (B11) ist (B12) nvertebrate i Sulfide O	es (B13) dor (C1) eres along ed Iron (C4	Living Ro	Secon	dary Indic dater Mark ediment D rift Depos rainage P ry-Seasor nin Muck i	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B10) or Water Table (C5)	e required) e) iverine) ue)
Remarks: Rodo x small que and other two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is useface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	s sufficient) Salt Crus Biotic Crus Biotic Cru Addatic Ir Vivorgen rine) Presence Recent In	t (B11) ist (B12) nvertebrate a Sulfide O Rhizosphe of Reduce	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow	Living Ro	Secon Secon Secon Dots (C3) C(C6) Secon Secon Con Secon Secon	dary Indice dater Mark ediment Derift Depose rainage Pery-Seasor nin Muck Seasor rayfish Butaturation	cators (2 or mores (B1) (Riverinaterns (B10) n Water Table (C7) urrows (C8)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	s sufficient) Salt Crus Biotic Crus Biotic Cru Addatic Ir Vivorgen rine) Presence Recent In	t (B11) ust (B12) uvertebrate u Sulfide Or Rhizosphe u of Reduce on Reducti	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor In Muck Strayfish Butter attention Nation Addition Addi	cators (2 or mores (B1) (Rivering (B2) (Rivering (B10) or Water Table (C3) (C3) (C3) (C3) (C3) (C3) (C3) (C3)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two And offer two Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Image	s sufficient) Salt Crus Biotic Crus Biotic Cru Addatic Ir Vivorgen rine) Presence Recent In	t (B11) ust (B12) uvertebrate u Sulfide Or Rhizosphe u of Reduce on Reducti	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor In Muck Strayfish Butter attention Nation Addition Addi	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B4)) (Riverin	e required) e) iverine) ue)
Remarks: Rodo x small quant of hon two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Water-Stained Leaves (B9) Field Observations:	s sufficient) Salt Crus Biotic Cru Agaatic Ir Hydrogen rine) Presence Recent In ery (B7) Other (Ex	t (B11) ust (B12) nvertebrate n Sulfide O Rhizosphe of Reduce on Reducti	es (B13) dor (C1) eres along ed Iron (C4 on in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor In Muck Strayfish Butter attention Nation Addition Addi	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B4)) (Riverin	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes	s sufficient) Salt Crus Biotic Crus Biotic Cru Addatic Ir Hydrogen rine) Presence Recent In ery (B7) Depth (ir	t (B11) ust (B12) nvertebrate a Sulfide Or Rhizosphe of Reduce on Reducti colain in Re	es (B13) dor (C1) eres along ed Iron (C4 on in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor In Muck Strayfish Butter attention Nation Addition Addi	cators (2 or mores (B1) (Rivering (B2) (Rivering (B3) (Rivering (B4)) (Riverin	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two And offer two Wetland Hydrology Indicators: Primary Indicators (any one indicator is Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Water Table Present? Yes	s sufficient) Salt Crus Biotic Cru Agratic Ir Hydrogen Trine) Presence Recent In Other (Ex	t (B11) ust (B12) nvertebrate s Sulfide O Rhizosphe of Reduce on Reducti plain in Re	es (B13) dor (C1) eres along ed Iron (C4 on in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two And offer two Wetland Hydrology Indicators: Primary Indicators (any one indicator is usuface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Image Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes	s sufficient) Salt Crus Biotic Cru Agratic Ir Hydrogen Trine) Presence Recent In Other (Ex	t (B11) ust (B12) nvertebrate a Sulfide Or Rhizosphe of Reduce on Reducti colain in Re	es (B13) dor (C1) eres along ed Iron (C4 on in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is users and users (any one indicator is users (an	s sufficient) Salt Crus Biotic Crus Biotic Crus Advatic Ir Hydrogen rine) Oridized Presence Recent In ery (B7) Depth (ir	t (B11) ust (B12) nvertebrate a Sulfide Or Rhizosphe of Reduce on Reducti plain in Re	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two Arthur of two Arthur of the	s sufficient) Salt Crus Biotic Cru Addatic Ir Vivarogen rine) Oxidized Presence Recent In ery (B7) Depth (ir No Depth (ir No Depth (ir	t (B11) ist (B12) ivertebrate i Sulfide O Rhizosphe of Reducti con Reducti cplain in Re inches): inches): inches): inches):	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant of the two Arthur of two Arthur of the	s sufficient) Salt Crus Biotic Cru Addatic Ir Vivarogen rine) Oxidized Presence Recent In ery (B7) Depth (ir No Depth (ir No Depth (ir	t (B11) ist (B12) ivertebrate i Sulfide O Rhizosphe of Reducti con Reducti cplain in Re inches): inches): inches): inches):	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant of how two and of how t	s sufficient) Salt Crus Biotic Cru Addatic Ir Vivarogen rine) Oxidized Presence Recent In ery (B7) Depth (ir No Depth (ir No Depth (ir	t (B11) ist (B12) ivertebrate i Sulfide O Rhizosphe of Reducti con Reducti cplain in Re inches): inches): inches): inches):	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)
Remarks: Rodo x small quant and other two Wetland Hydrology Indicators: Primary Indicators (any one indicator is usual and indicator is usual an	s sufficient) Salt Crus Biotic Cru Addatic Ir Vivarogen rine) Oxidized Presence Recent In ery (B7) Depth (ir No Depth (ir No Depth (ir	t (B11) ist (B12) ivertebrate i Sulfide O Rhizosphe of Reducti con Reducti cplain in Re inches): inches): inches): inches):	es (B13) dor (C1) eres along ed Iron (C4 fon in Plow emarks)	Living Ro	Secon	dary Indicater Markediment Deposite Pry-Seasor ain Muck Strayfish Butter attention Nation Aquation Aqu	cators (2 or mores (B1) (Rivering atterns (B10) or Water Table (CS) (C8) Visible on Aeria uitard (D3) al Test (D5)	e required) e) iverine) ue)

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Project/Site: Goldentills Applicant/Owner: BP Investigator(s): IXST and SASW Section, Township, Ran Landform (hillslope, terrace, etc.): (ald floodplain?) Local relief (concave, or Subregion (LRR): Soil Map Unit Name: Indensity - Hermistran Complex 0-37/12/f Are climatic / hydrologic conditions on the site typical for this time of year? Yes No Are "No Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "No Are Vegetation, Soil, or Hydrology naturally problematic? No (If nee SUMMARY OF FINDINGS - Attach site map showing sampling point to Hydrophytic Vegetation Present? Yes No Is the Sampled within a Wetland Hydrology Present? Yes No Yes No Wetland Hydrology Present? Yes No Yes Yes No Yes Yes Yes	onvex, none): Slope (%):
Investigator(s): XST and SASW Landform (hillslope, terrace, etc.): (ald Flood plan?) Local relief (concave, conclusions) Subregion (LRR): Lat: Soil Map Unit Name: Proders by - Nerming trans complex 0-31/12 for this time of year? Yes V No Are climatic / hydrologic conditions on the site typical for this time of year? Yes No Are "No Are Vegetation , Soil , or Hydrology significantly disturbed? No Are "No Are Vegetation , Soil , or Hydrology naturally problematic? No (If needs SUMMARY OF FINDINGS - Attach site map showing sampling point to Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Yes No Vestand Hydrology Present? Yes No Vestand Hydrology Present? Wetland Hydrology Present? Yes No Vestand Hydrology Present? Wetland Hydrology Present? Yes No Vestand Hydrology Present? West side of 97 upland for DP 3 B	ge:
Landform (hillslope, terrace, etc.): (ald Flood Plain?) Local relief (concave, consumption (LRR): Soil Map Unit Name: Indensity - Herrington complex 0-31/12 for Are climatic / hydrologic conditions on the site typical for this time of year? Yes No Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "No Are Vegetation, Soil, or Hydrology naturally problematic? No (If needs SUMMARY OF FINDINGS - Attach site map showing sampling point to Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Yes No Is the Sampled within a Wetland Hydrology Present? Yes No within a Wetland Remarks: West side of 97 upland for DP 3 B	Slope (%): 1/2 Long:
Subregion (LRR): B Lat: Soil Map Unit Name: Index by - Nemmetran complex 0-31/12 for this time of year? Yes No Are climatic / hydrologic conditions on the site typical for this time of year? Yes No Are "No Are Vegetation , or Hydrology significantly disturbed? No Are "No Are Vegetation , soil , or Hydrology naturally problematic? No (If needs SUMMARY OF FINDINGS - Attach site map showing sampling point to Hydrophytic Vegetation Present? Yes No Yes No Within a Wetland Wetland Hydrology Present? Yes No	NWI classification: P5.M\C NWI classification: P5.M\C (If no, explain in Remarks.) Normal Circumstances" present? Yes V No eded, explain any answers in Remarks.) Pocations, transects, important features, etc Area d? Yes No V
Soil Map Unit Name: Inders by - Hermistran complex 0-31/12 for climatic / hydrologic conditions on the site typical for this time of year? Yes No Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "No Are Vegetation, Soil, or Hydrology naturally problematic? No (If needs a summary of FINDINGS - Attach site map showing sampling point to Hydrophytic Vegetation Present? Yes No Is the Sampled within a Wetland Hydrology Present? Yes No West Side of 97 Wetland for DP 3 B	NWI classification: PEMIC (If no, explain in Remarks.) Normal Circumstances" present? Yes V No eded, explain any answers in Remarks.) Cations, transects, important features, etc Area d? Yes No V
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	(If no, explain in Remarks.) Normal Circumstances" present? Yes No eded, explain any answers in Remarks.) ocations, transects, important features, etc Area d? Yes No
Are Vegetation, Soil, or Hydrology significantly disturbed? No Are "No Are Vegetation, Soil, or Hydrology naturally problematic? No (If needs to be supported in the significantly disturbed? No Are "No Are Vegetation, Soil, or Hydrology naturally problematic? No (If needs to be supported in the significantly disturbed? No Are "No Are "	Normal Circumstances" present? Yes V No No No Normal Circumstances" present? Yes V No No Normal Circumstances in Remarks.) Cations, transects, important features, etc Area d? Yes No V Yes No
Attach site map showing sampling point to SUMMARY OF FINDINGS – Attach site map showing sampling point to Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Yes No Is the Sampled within a Wetland Wetland Hydrology Present? Yes No within a Wetland Yes No Is the Sampled within a Wetland Yes No Wetland Hydrology Present? Remarks: Photo # 4	eded, explain any answers in Remarks.) cations, transects, important features, etc Area d? Yes No
Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Hydrophytic Vegetation Present? Yes No Yes No Wetland Hydrology Present? Remarks: Photo # 4 upland for DP 3 B	y, o soils, femmant lombardy
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Remarks: Photo # 4 West side of 97 upland for DP 3 B	Area d? YesNo y,orsoils, remnant lombardy
Hydric Soil Present? Wetland Hydrology Present? Remarks: Photo # 4 within a Wetland west side of 97 upland for DP 3 B	y,osoils, remnant lombards
Hydric Soil Present? Wetland Hydrology Present? Remarks: Photo # 4 within a Wetland west side of 97 upland for DP 3 B	y,osoils, remnant lombardy
Photo # 4 west side of 97 upland for DP3B	y,orsoils, remnant lombardy
Photo # 4 upland for DP3B	<u> </u>
upland to Diss	<u> </u>
Shown as NWI wetland- wall weeds, no hudroa	<u> </u>
Shown an Man helland - That helds, no huavaa	·
	Dominance Test worksheet:
/EGETATION 20' Radius	Dominance Test worksheet:
Tree Stratum (Use scientific names.) Absolute Dominant Indicator % Cover Species? Status	North and Continue to Continue
1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	
3.	Total Number of Dominant Species Across All Strata: (B)
4	,,
Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum	
1. <u>Ø</u>	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x1 =
4	FACW species x 2 =
5	FAC species x 3 =
Herb Stratum	FACU species x 4 =
1. Wild Caraway Carum carvi 70% V NL	UPL species x 5 = Column Totals: (A) (B)
2. Floble Neck (AMIN) Rigin 20%. NL	Column Totals: (A) (b)
3. Common Fiddl. Deak	Prevalence Index = B/A =
4	Hydrophytic Vegetation Indicators:
5.	Dominance Test is >50%
6	Prevalence Index is ≤3.01
7	Morphological Adaptations ¹ (Provide supporting
8	data in Remarks or on a separate sheet)
Total Cover:	Problematic Hydrophytic Vegetation ¹ (Explain)
Woody Vine Stratum	4
1	¹ Indicators of hydric soil and wetland hydrology must be present.
2	· ·
Total Cover:	Hydrophytic Vegetation
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Present? Yes No
Damada	
Bordared by Populus - lombard or deltay	

Water-Stained Leaves (B9) FAC-Neutral Test (D5) Field Observations: Yes No V Depth (inches): Surface Water Present? Yes ____ No ___ Depth (inches): _____ Water Table Present? Yes ____ No V Depth (inches): Wetland Hydrology Present? Yes ____ No Y Saturation Present? (includes capillary fringe) Describe Recorded Data (stream gauge, monitoring well, aerial photos, previous inspections), if available: Remarks: Grass Valley Arid West - Version 11-1-2006

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Project/Site: Goldenhills City	//County: Shorman Sampling Date: 6/12/07
Applicant/Owner: BP	State: OR Sampling Point: D13C
Investigator(s): LXST and SASW Se	ction, Township, Range: //, TOIS, RI7E
Landform (hillslope, terrace, etc.): #ill Lo	cal relief (concave) convex, none): Slope (%): <5
	Long: Datum:
Soil Map Unit Name: Walla Walla Sittlory / 31	
Are climatic / hydrologic conditions on the site typical for this time of year?	
Are Vegetation, Soil, or Hydrology significantly dis	
Are Vegetation, Soil, or Hydrology naturally proble	matic? No (If needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sa	ampling point locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No	Is the Sampled Area
Hydric Soil Present? Yes No	within a Wetland? Yes No X
Wetland Hydrology Present? Yes No	Within a Wedahut 1es No
Remarks:	
VEGETATION	
Absolute D	ominant Indicator Dominance Test worksheet:
Tree Stratum (Use scientific names.) <u>% Cover</u> S	pecies? Status Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
2	rotal number of Dominant
3	Species Across All Strata: (B)
4	Percent of Dominant Species
Total Cover:	That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2.	· ·
3.	
4	
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
Herb Stratum	UPL speciesx5=
1(C3/10 WVCM 10/032 () 14 C1)	WLUP column Totals: (A) (B)
	FAC N YuPL Prevalence Index = B/A =
3. Cheatgass (trte) 30	N 400 Prevalence Index = B/A =
4	
5	
7	
	data in Remarks or on a separate sheet)
8	Problematic Hydrophytic Vegetation¹ (Explain)
Woody Vine Stratum	
1	Indicators of hydric soil and wetland hydrology must
2	
Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum % Cover of Biotic Crus	Vegetation t Present? Yes No
Remarks: CRP Area ~ 300 Ft. A	orth of road,
	- CONU.

Profile Description: (Describe to Depth Matrix	•		ox Feature:					,	
(inches) Color (moist)	%	Color (moist)	%		Loc²	Texture		Rema	rks
0-6 104R 4/3				•		zilt loan			
· · · · · · · · · · · · · · · · · · ·	······································					2111 100	<u>~~</u>		
		 	_ 						
			- · · · · · · · · · · · · · · · · · · ·						
Type: C=Concentration, D=Dep					e Lining, F	RC=Root Chann	ıel, M=N	Matrix.	
lydric Soil Indicators: (Application	able to all LRF	Rs, unless othe	erwise not	ed.)		Indicators	for Pro	blematic Hyd	dric Soils³:
Histosol (A1)		Sandy Red	dox (S5)			1 cm M	luck (A9) (LRR C)	
Histic Epipedon (A2)		Stripped M	fatrix (S6)			2 cm M	luck (A1	0) (LRR B)	
Black Histic (A3)		Loamy Mu	icky Minera	il (F1)		Reduc	ed Verti	c (F18)	
Hydrogen Sulfide (A4)		Loamy Gle	eyed Matrix	(F2)		Red Pa	arent Ma	aterial (TF2)	
Stratified Layers (A5) (LRR 0	;)	Depleted N				Other (Explain	in Remarks)	
1 cm Muck (A9) (LRR D)		Redox Dar	rk Surface	(F6)					
Depleted Below Dark Surface	e (A11)	Depleted [Dark Surfac	e (F7)					
Thick Dark Surface (A12)		Redox Dep	pressions (F8)					
Sandy Mucky Mineral (S1)		Vernal Poo	ols (F9)			³ Indicators	of hydro	phytic vegeta	ation and
Sandy Gleyed Matrix (S4)						wetland	hydrolo	gy must be p	resent.
Restrictive Layer (if present):	8								
Type:		_							_
Double Control							_	10 Von	<u> </u>
Depin (inches):						Hvdric Soil	Presen	r res	No ₽
Depth (inches):Remarks:		_				Hydric Soil	Presen	tr tes	No X
Remarks:		_				Hydric Soil	Presen	tr tes	No
Remarks: YDROLOGY									
Remarks: YDROLOGY Wetland Hydrology Indicators:						Secon	idary Ind	dicators (2 or	more required)
Remarks: YDROLOGY Wetland Hydrology Indicators:		nt)				Secon	idary Ind		more required)
Remarks: YDROLOGY Wetland Hydrology Indicators:		nt) Salt Crus	st (B11)			Secor	idary Ind	dicators (2 or	more required)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1)						<u>Secor</u> W	idary Ind ater Ma	<u>dicators (2 or</u> ırks (B1) (Riv	more required) erine) 2) (Riverine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2)		Salt Crus	ust (B12)	es (B13)		<u>Secor</u> W S D	idary Ind /ater Ma ediment	dicators (2 or orks (B1) (Riv di Deposits (B2	more required) erine) 2) (Riverine) verine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2) Saturation (A3)	ator is sufficier	Salt Crus Biotic Cru Aquatic I	ust (B12) nvertebrate			Secor W S D	idary Ini /ater Ma ediment rift Deprainage	dicators (2 or orks (B1) (Riv t Deposits (B2 osits (B3) (Ri v	more required) rerine) 2) (Riverine) verine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriver	ator is sufficier	Salt Crus Biotic Cru Aquatic II Hydroger	ust (B12) nvertebrate n Sulfide O	dor (C1)	Living Ro	Secor W S D D D D D D D	ndary Ind /ater Ma ediment nift Deporainage ry-Seas	dicators (2 or orks (B1) (Riv Deposits (B2 osits (B3) (Riv Patterns (B1 on Water Tak	more required) verine) (2) (Riverine) verine) (0) (0) (C2)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriveri Sediment Deposits (B2) (No	ator is sufficier ine) nriverine)	Salt Crus Biotic Cru Aquatic II Hydroger Oxidized	ust (B12) nvertebrate n Sulfide O Rhizosphe	dor (C1) eres along		Secor W S D D D D D	idary Ind /ater Ma ediment rift Deprinange rainage ry-Seas hin Muc	dicators (2 or arks (B1) (Riv t Deposits (B2 osits (B3) (Riv Patterns (B1 on Water Tat k Surface (C7	more required) rerine) (Riverine) verine) 0) ble (C2)
YDROLOGY Netland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriver Sediment Deposits (B2) (Nonriver)	ator is sufficier ine) nriverine)	Salt Crus Slotic Cru Aquatic II Hydroger Oxidized Presence	ust (B12) nvertebrate n Sulfide O Rhizosphe e of Reduce	dor (C1) eres along ed Iron (C	!)	Secor W S D D D D D D D D	idary Ind /ater Ma ediment rift Depr rainage ry-Seas hin Muc rayfish	dicators (2 or arks (B1) (Riv Deposits (B2 osits (B3) (Riv Patterns (B1 on Water Tak k Surface (C3 Burrows (C8)	more required) rerine) 2) (Riverine) verine) 0) ble (C2)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indic Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriver Sediment Deposits (B2) (Non- Drift Deposits (B3) (Nonriver Surface Soil Cracks (B6)	ator is sufficier ine) nriverine) rine)	Salt Crus Biotic Cru Aquatic II Hydroger Oxidized Presence	ust (B12) nvertebrate n Sulfide Or Rhizosphe e of Reduce ron Reducti	dor (C1) eres along ed Iron (Ca ion in Plov	!)	Secor W S D D D D D Cts (C3) T	idary Ini /ater Ma ediment rift Deprainage ry-Seas hin Muc rayfish la aturatio	dicators (2 or orks (B1) (Riv Deposits (B2 osits (B3) (Riv Patterns (B1 on Water Tat k Surface (C3 Burrows (C8)	more required) rerine) (2) (Riverine) verine) (0) (0) (0) (C2) (7) (Aerial Imagery (
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upland WETLAND DETERMINATION DATA FORM - Arid West Region Project/Site: Goldenhills City/County: Sherman Sampling Date: 6/12/ Applicant/Owner: LXST and SASW State: OR Sampling Point: DSection, Township, Range: 1, TOIS, RI7E Investigator(s): Landform (hillslope, terrace, etc.): hill Slope Local relief (concare, convex, none): Slope (%): 3 Subregion (LRR): B Soil Map Unit Name: Walla Walla Silt loam 7-151./31 C NWI classification: \(\cdot \neq \lambda \) Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No _____ (If no, explain in Remarks.) Are Vegetation , Soil , or Hydrology significantly disturbed? \sqrt{O} Are "Normal Circumstances" present? Yes V Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? $\sqrt{}_{C}$ (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Hydrophytic Vegetation Present? is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: **VEGETATION** Absolute Dominant Indicator Dominance Test worksheet: Tree Stratum (Use scientific names.) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species Total Cover: _____ That Are OBL, FACW, or FAC: ___ (A/B) Sapling/Shrub Stratum Prevalence Index worksheet: Total % Cover of: Multiply by: x 1 = OBL species FACW species _____ x 2 = _____ FAC species _____ x 3 = ____ FACU species _____ x 4 = ____ Total Cover: Herb Stratum _____x5=____ UPL species Column Totals: _____ (A) ____ (B) 2. Creasted wheatgrass AGCR 10 Prevalence Index = B/A = 4. wheat Hydrophytic Vegetation Indicators: Dominance Test is >50% Prevalence Index is ≤3.01 Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Total Cover: Woody Vine Stratum ¹Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Total Cover: _____ Vegetation ____ % Cover of Biotic Crust _____ Present? % Bare Ground in Herb Stratum ____

Remarks:

CRP wedge

Sampling Point: <u>OP3D</u>

Depth	Matrix		Redo	X I Catales					
(inches)	Color (moist)	% (Color (moist)	% Type	Loc ²	<u>Texture</u>		Remarks	
<u>0-7</u>	104R 4/3								
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Type: C=C	oncentration, D≂Deple	tion, RM=Red	luced Matrix.	² Location: PL=F	ore Lining, R	C=Root Chan	nel, M=Matrix.		
	Indicators: (Applicat						for Problema		oils³:
Histosol	(A1)		Sandy Redo	ox (S5)		1 cm l	Muck (A9) (LR	R C)	
Histic E	pipedon (A2)		Stripped Ma	atrix (S6)		2 cm M	Muck (A10) (L	RR B)	
Black H	istic (A3)		Loamy Muc	ky Mineral (F1)		Reduc	ed Vertic (F18	3)	
Hydroge	en Sulfide (A4)		Loamy Gley	ed Matrix (F2)		Red P	arent Material	(TF2)	
	d Layers (A5) (LRR C)		Depleted Ma			Other	(Explain in Re	emarks)	
	uck (A9) (LRR D)			Surface (F6)					
	d Below Dark Surface	(A11)		ark Surface (F7)					
	ark Surface (A12)			ressions (F8)		3			
	Mucky Mineral (S1)		Vernal Pool	s (F9)			of hydrophytic	-	
	Gleyed Matrix (S4)					wetiand	l hydrology mi	ust de presen	<u>. </u>
	Layer (if present):								
			· 🔀						$_{ extsf{No}}$ \times
Depth (in	ches):						Drecont2	Yes	No /
Remarks:						Hydric Soil	Tresent;		NO
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YDROLO Wetland Hy Primary India Surface High Wa Saturati Water M Sedime Drift De Surface Inundati Water-S Field Obser Surface Wat Water Table Saturation Princludes ca Describe Re Remarks:	drology Indicators: cators (any one indicated Water (A1) ater Table (A2) on (A3) Marks (B1) (Nonrivering the posits (B2) (Nonrivering Soil Cracks (B6) ion Visible on Aerial Implications: ter Present? Present. P	e) iverine) agery (B7) S No _ S No _ auge, monito	Salt Crust Biotic Crust Aquatic Int Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (int Depth (int	st (B12) vertebrates (B13) Sulfide Odor (C1) Rhizospheres alo of Reduced Iron on Reduction in P clain in Remarks) ches): ches): ches):	ng Living Roo (C4) lowed Soils (C	Secon V S C	ndary Indicato Vater Marks (E Sediment Depo Prift Deposits (Prainage Patte Pry-Season W. Prin Muck Surfo Crayfish Burrov Saturation Visit Shallow Aquita FAC-Neutral To	rs (2 or more 31) (Riverine osits (B2) (Riverine ms (B10) ater Table (C face (C7) ws (C8) ble on Aerial ard (D3) est (D5)	required) verine) 2) magery (C9)

WETLAND DETERMINATION DATA FORM -- Arid West Region

Wetland

Project/Site: Golden hills	c	ity/County:St	reran	Sampling Date: 6/13/67
Applicant/Owner: <u>BP</u>			State: OR	Sampling Point: DP3E
nvestigator(s): <u>LXST</u> and <u>SASW</u> .	8	Section, Township, Ra	nge: 3, TOIS, R	17E
andform (hillslope, terrace, etc.): Riverine	l	ocal relief (concave,	convex, none): <u>beach</u>	Slope (%): <u>/ - 2</u>
_				Datum:
oil Map Unit Name: Zndersby-Hermiston	Complex	-31 /12A	NWI classifica	ation: PEMIC
re climatic / hydrologic conditions on the site typical for	r this time of vea	r? Yes No	(If no, explain in Re	emarks.)
re Vegetation, Soil, or Hydrology				
re Vegetation, Soil, or Hydrology	naturally prob	lematic? No (If no	eeded, explain any answer	s in Remarks.)
SUMMARY OF FINDINGS – Attach site m				
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes Yes Yes		Is the Sampled within a Wetlan		No
Remarks: Riverine ~ Goose Cree Photo ~ first of tod		or power/	ines	
/EGETATION				
	Absolute	Dominant Indicator	Dominance Test work	sheet:
Tree Stratum (Use scientific names.)		Species? Status	Number of Dominant Sp	
1			That Are OBL, FACW, o	or FAC: (A)
2			Total Number of Domina	
3			Species Across All Stra	(B)
Total C	over:		Percent of Dominant Sp. That Are OBL, FACW, of	
Sapling/Shrub Stratum			Prevalence Index worl	(choot:
1			Total % Cover of:	
2				x1 =
4.		•	FACW species	x 2 =
5.			FAC species	x 3 =
Total C	over:		FACU species	
Herb Stratum 1. Small flowered rush	20	/ TAC	· ·	x5=
2. Smooth brome BRIA		FAC	Column Totals:	(A) (B)
3. rough fesciscobulla) FESC		111	Prevalence Index	= B/A =
4. Go Juneus Dalticus JUB	7	FACU	Hydrophytic Vegetation	on Indicators:
5. Scouring rush	<1		Dominance Test is	
6. Spearmint MES		OBL	Prevalence Index is	
7. horsetail(meadow) EQPR 8.		V FACW	Morphological Ada data in Remarks	ptations ¹ (Provide supporting s or on a separate sheet)
	over: <u>///</u> 00/		Problematic Hydro	ohytic Vegetation ¹ (Explain)
Woody Vine Stratum	· ·		*	
1			I 'Indicators of hydric soi be present.	l and wetland hydrology must
2.		the second secon		N.A M M P
•	over:		Hydrophytic Vegetation	V
_	Cover of Biotic Cr	ust 📉 💮	Present? Ye	s_X No
Remarks:				

epth	Matrix		0.1. 7	Redox Fez	, - 1			. .
inches)	Color (moist)	%	Color (moi	261	6 Type ¹		Texture	mothes darkand a
2-14	10YR 3/2		2.5YR	<u> </u>	<u>(0 </u>	S	it loan	- Sakara
•	·							The second secon
	-							
							•	
/pe: C=Co	oncentration, D=Depl	etion, RM=f	Reduced Mat	trix. ² Loc	ation: PL≕Po	re Lining, RC	=Root Cha	nnel, M=Matrix.
dric Soil I	Indicators: (Applica	ble to all L	RRs, unless	otherwise	noted.)		Indicator	's for Problematic Hydric Soils ³ :
Histosol	(A1)		Sand	y Redox (S	5)		1 cm	Mück (A9) (LRR C)
-	pipedon (A2)			ed Matrix (•			Muck (A10) (LRR B)
Black Hi				y Mucky Mi	•			uced Vertic (F18)
_	n Sulfide (A4)			y Gleyed M				Parent Material (TF2)
	Layers (A5) (LRR C	;)		eted Matrix (r (Explain in Remarks)
="	ick (A9) (LRR D)	•		x Dark Surf				•
	d Below Dark Surface	(A11)	•	eted Dark Si				
	ark Surface (A12)	. ,		x Depressio				
_	lucky Mineral (S1)			al Pools (F9			3Indicator	s of hydrophytic vegetation and
	Bleyed Matrix (S4)		_	•				nd hydrology must be present.
strictive L	_ayer (if present):							
			•	1 _		I		
Type: '	~14 inches	variat	1e - 1	DOK				
	~14 inches	variab	<u>1</u> e - 1	DCK			Hydric So	uil Present? Ves X No
	~14 inches ches):	varial	<u> </u>	DER			Hydric So	il Present? Yes <u>K</u> No
Depth (inc	ches):	rariab	<u> le - r</u>				Hydric So	il Present? Yes K No
Depth (incomarks:	ches):	rarial	<u> </u>	- DCK			-	ondary Indicators (2 or more required)
Depth (incomarks: DROLO etland Hyd	GY drology Indicators:		· · · · · · · · · · · · · · · · · · ·	- DCK			Sec	ondary Indicators (2 or more required)
Depth (incomarks: DROLO etland Hyder mary Indic	GY drology Indicators:		ent)				Seco	ondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Depth (incomarks: DROLO etland Hyd mary Indic Surface	GY drology Indicators: cators (any one indicators) Water (A1)		ent) Salt	Crust (B11)			<u>Sec</u>	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Depth (incomarks: DROLO etland Hyder mary Indice Surface High Wa	GY drology Indicators: cators (any one indicators) Water (A1) Iter Table (A2)		ent) Salt Biot	Crust (B11)	2)		<u>Sec</u>	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Depth (incomarks: DROLO etland Hyd mary Indic Surface High Wa Saturation	GY drology Indicators: cators (any one indicators) Water (A1) ter Table (A2) on (A3)	ator is suffic	ent) Salt Biot Aqu	Crust (B11) ic Crust (B1 atic Invertet	2) orates (B13)		Seco	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10)
DROLO called Hydrox Mary Indication Surface High Water Mary Mater Mater Mater Mary Mater Mary Mary Mater Mary Mary Mater Mary Mary Mary Mary Mary Mary Mary Mar	GY drology Indicators: cators (any one indicators (A1) tter Table (A2) on (A3) arks (B1) (Nonriveri	ator is suffici	ent) Salt Biot Aqu	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic	2) orates (B13) le Odor (C1)		Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
DROLO Patland Hyd mary Indic Surface High Wat Saturatic Water M Sedimer	GY drology Indicators: cators (any one indicators) Water (A1) Inter Table (A2) Inter Table (A3) Inter (A3) Inter (B1) (Nonrivering the proposits (B2) (Norivering the proposition the proposite the propos	ator is suffici ne) nriverine)	ent) Salt Biot Aqu Hyd	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos	2) orates (B13) le Odor (C1) spheres along	=	Secondary Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7)
Depth (incomarks: DROLO etland Hyd mary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep	GY drology Indicators: cators (any one indicators (any one indicators (A1) atter Table (A2) on (A3) arks (B1) (Nonrivering the proposits (B2) (Norrivering (B3) (Nonrivering (ator is suffici ne) nriverine)	ent) Salt Biot Aqu Hyd Oxic	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re	2) orates (B13) le Odor (C1) spheres along duced Iron (C	4)	Secondary Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
Depth (incomarks: DROLO etland Hyd mary Indic Surface High Wa Saturatic Water M Sedimer Drift Dep	GY drology Indicators: cators (any one indicators) Water (A1) Inter Table (A2) Inter Table (A3) Inter (A3) Inter (B1) (Nonrivering the proposits (B2) (Norivering the proposition the proposite the propos	ator is suffici ne) nriverine)	ent) Salt Biot Aqu Oxic Pres Rec	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re ent Iron Rec	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Plo	4)	Secondary Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C
DROLO Paray Indication Surface High Water Mater Mat	GY drology Indicators: cators (any one indicators (any one indicators (A1) atter Table (A2) on (A3) arks (B1) (Nonrivering the proposits (B2) (Norrivering (B3) (Nonrivering (ne) ariverine) ine)	ent) Salt Biot Aqu Oxic Pres Rec	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re ent Iron Rec	2) orates (B13) le Odor (C1) spheres along duced Iron (C	4)	Secondary Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8)
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DROLO Control Contr	GY drology Indicators: cators (any one indicators (any one indicators) water (A1) ter Table (A2) on (A3) arks (B1) (Nonriverint Deposits (B2) (Norriversoils (B3) (Nonriversoil Cracks (B6) on Visible on Aerial Intained Leaves (B9) vations:	ne) riverine) ine) magery (B7)	ent) Salt Biot Aqu Hyd Oxic Pres Rec	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re ent Iron Rec er (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Plot n Remarks)	4)	Secu 	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)
DROLO Partiand Hydrogen Mary Indication Surface High Water M Sediment Drift Dep Surface Inundation Water-Sield Observed	GY drology Indicators: cators (any one indicators (any one indicators) water (A1) ter Table (A2) on (A3) arks (B1) (Nonriverint Deposits (B2) (Norriversoils (B3) (Nonriversoil Cracks (B6) on Visible on Aerial Intained Leaves (B9) vations:	ne) riverine) ine) magery (B7)	ent) Salt Biot Aqu Hyd Oxic Pres Rec	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re ent Iron Rec er (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Plot n Remarks)	4)	Secu 	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)
Depth (incomarks: DROLO Setland Hyde Surface High Water M Sedimer Drift Dep Surface Inundation Water-Seld Observation	GY drology Indicators: cators (any one indicators (any one indicators) water (A1) ater Table (A2) on (A3) larks (B1) (Nonriver) at Deposits (B2) (Nor cosits (B3) (Nonriver) Soil Cracks (B6) on Visible on Aerial Intained Leaves (B9) vations: er Present?	ne) ariverine) ine) magery (B7)	ent) Salt Biot Aqu Oxid Oxid Pres Coth	Crust (B11) ic Crust (B1 atic Invertel rogen Sulfic dized Rhizos sence of Re ent Iron Rec er (Explain i	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Plot n Remarks)	4)	Secu 	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)
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Depth (incomarks: DROLO etland Hyde Mary Indice High Water M Sedimer Drift Dep Surface Inundation Water-Sield Observator Table turation Prince	GY drology Indicators: cators (any one indicators) water (A1) ter Table (A2) on (A3) arks (B1) (Nonriverint Deposits (B2) (Nonriversoil Cracks (B6) on Visible on Aerial Intained Leaves (B9) vations: er Present? Present? Yeresent? Yeresent?	ne) ariverine) ine) magery (B7)	ent) Salt Biot Aqu Oxid Oxid Pres Coth	Crust (B11) ic Crust (B1 atic Invertet rogen Sulfic dized Rhizos sence of Re ent Iron Rec er (Explain i pth (inches)	2) prates (B13) le Odor (C1) spheres along duced Iron (C duction in Plot n Remarks)	4) , wed Soils (Ce	Secondary Second	ondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Imagery (C8)
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upland WETLAND DETERMINATION DATA FORM - Arid West Region City/County: <u>Sherman</u> Sampling Date: <u>6/13/07</u> Project/Site: Golden hills State: WA Sampling Point: DP Applicant/Owner: BP Investigator(s): LXST and SASW Section, Township, Range: 3, TOIS, RITE Landform (hillslope, terrace, etc.): Terrace Local relief (concave, convex, fnone) Slope (%): (🛫 Lat: ______ Long: _____ Subregion (LRR): Datum: Soil Map Unit Name: Enderson-Her mistan Complex 0-31. 12 NWI classification: PEMIC Are climatic / hydrologic conditions on the site typical for this time of year? Yes _____ No ____ (If no, explain in Remarks.) Are Vegetation _____, Soil _____, or Hydrology _____ significantly disturbed? 16 Are "Normal Circumstances" present? Yes ____ No ___ Are Vegetation _____, Soil _____, or Hydrology _____ naturally problematic? N_D (If needed, explain any answers in Remarks.) SUMMARY OF FINDINGS - Attach site map showing sampling point locations, transects, important features, etc. Yes ____ No _ Hydrophytic Vegetation Present? Is the Sampled Area Hydric Soil Present? within a Wetland? Wetland Hydrology Present? Remarks: Plot usupland of DP3E **VEGETATION** Dominance Test worksheet: Absolute Dominant Indicator Tree Stratum (Use scientific names.) % Cover Species? Status Number of Dominant Species That Are OBL, FACW, or FAC: (A) Total Number of Dominant Species Across All Strata: (B) Percent of Dominant Species Total Cover: (A/B) That Are OBL, FACW, or FAC: Sapling/Shrub Stratum Prevalence Index worksheet: Total % Cover of: Multiply by: x 1 = ..____ OBL species FACW species _____ x 2 = ____ ____ x 3 = ____ FAC species __ FACU species ____ x4=___ Total Cover: x 5 = UPL species Column Totals: _____ (A) ____ (B) Prevalence Index = B/A = Hydrophytic Vegetation Indicators: TH traile Dominance Test is >50% Prevalence Index is ≤3.01 _ Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain) Total Cover: Woody Vine Stratum 1Indicators of hydric soil and wetland hydrology must be present. Hydrophytic Total Cover: Vegetation % Cover of Biotic Crust ___ Present? % Bare Ground in Herb Stratum _

Remarks:

Depth Matrix	pth needed to document the indicator or Redox Features		
(inches) Color (moist) %	Color (moist) % Type ¹	Loc ² Texture	Remarks
0-7_ 104R 3/2_			
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T 0.0	A.D. durant Maketa 21 King Di Done i	ining DO-Dt-Observal M	_B4_4
Type: C=Concentration, D=Depletion, RN Tydric Soil Indicators: (Applicable to a	M=Reduced Matrix. ² Location: PL=Pore I		=Matrix. roblematic Hydric Soils ³ :
•			•
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (
Histic Epipedon (A2)	Stripped Matrix (S6)		A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Ve	• •
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	 ,	Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Expla	in in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)		
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)		
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)	Redox Depressions (F8) Vernal Pools (F9)	3Indicators of his	drophytic vegetation and
Sandy Mucky Milleral (S1) Sandy Gleyed Matrix (S4)	Vernai Pools (F9)		plogy must be present.
Restrictive Layer (if present):		wedand nydro	nogy must be present.
Type: Kock			
Depth (inches): ~ 7 inche	<u>> </u>	Hydric Soil Pres	ent? Yes No 🔼
Remarks:			
YDROLOGY		Secondary	Indicators (2 or more required)
YDROLOGY Wetland Hydrology Indicators:	fficient		Indicators (2 or more required)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su		Water I	Marks (B1) (Riverine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1)	Salt Crust (B11)	Water I	Marks (B1) (Riverine) ent Deposits (B2) (Riverine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12)	Water I Sedime	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13)	Water I Sedime Drift De Draina	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Water I Sedime Drift De Drainae Dry-Se	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Water I Sedime Drift De Drainae Dry-Se	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Water I Sedime Drift De Draina Dry-Se ving Roots (C3) Thin M	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Liv	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Saturat	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower		Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower		Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations:	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Lipersence of Reduced Iron (C4) Recent Iron Reduction in Plower Other (Explain in Remarks)	Water I Sedime Drift De Draina Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed B7) Other (Explain in Remarks)	Water I Sedime Drift De Draina Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3)
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YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present?	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed B7) Other (Explain in Remarks)	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Saturae Shallov FAC-N	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
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YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes [includes capillary fringe)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, r	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes [includes capillary fringe)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, r	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
YDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes (includes capillary fringe) Describe Recorded Data (stream gauge, research indicators)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes Water Table Present? Yes Saturation Present? Yes Saturation Present? Yes includes capillary fringe) Describe Recorded Data (stream gauge, reservance)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Li Presence of Reduced Iron (C4) Recent Iron Reduction in Plower B7) Other (Explain in Remarks) No Depth (inches): No Depth (inches):	Water I Sedime Drift De Drainae Dry-Se ving Roots (C3) Thin M Crayfis d Soils (C6) Satural Shallov FAC-N Wetland Hydrology Pres	Marks (B1) (Riverine) ent Deposits (B2) (Riverine) eposits (B3) (Riverine) ge Patterns (B10) ason Water Table (C2) uck Surface (C7) h Burrows (C8) tion Visible on Aerial Imagery (C9 v Aquitard (D3) eutral Test (D5)

Wetland

Sampling Date: 6/3/07 Sampling Point: DP36/ TOIS, R 175 Slope (%): 2 Datum: Datum: Din Remarks.) Des" present? Yes No Destart Remarks.) Dects, important features, etc.
Slope (%): Datum: ssification:na fu in Remarks.) ces" present? Yes No nswers in Remarks.) cetts, important features, etc.
Slope (%): Datum: ssification:noru in Remarks.) ces" present? Yes No nswers in Remarks.) cetts, important features, etc.
Datum: No March No March No March No March No March No March Datum: Datum: Datum: Datum: Datum: Datum: Datum: Datum: No March No
n in Remarks.) the present? Yes No nswers in Remarks.) the cets, important features, etc.
n in Remarks.) ces" present? Yes No nswers in Remarks.) cets, important features, etc
nswers in Remarks.)
nswers in Remarks.) ects, important features, etc
ects, important features, etc.
No
No

worksheet:
ant Species CW, or FAC: (A)
500, 01 FAC (A)
ominant I Strata:/(B)
,
ant Species CW, or FAC:/OO (A/B)
worksheet:
r of: Multiply by:
x1=
x 2 = x 3 =
x 4 =
x5=
(A)(B)
ndex = B/A =
etation Indicators:
est is >50%
idex is ≤3.01
I Adaptations ¹ (Provide supporting marks or on a separate sheet)
Hydrophytic Vegetation ¹ (Explain)
- · · · ·
ic soil and wetland hydrology must
ic soil and wetland hydrology must
ic soil and wetland hydrology must
Yes No
1

	cription: (Describe t	o the depth				or confin	m the absence	of indicators.)	
Depth (inches)	Matrix Color (moist)	 _	Color (moist)	x Feature %	ຮ Tvpe¹	Loc ²	Texture	Remarks	
D-16	10YR 2/1				100		SIF	, inditially	
<u> </u>	1011 -11								
					·	·	· ·		
				- 					
	·								
				0.0					
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17			Indiana d Statuta	21 2021:04	. DI -Da		DC-Doot Char	and Manufacture	
	oncentration, D=Deplored indicators: (Application)					e Lining, i	RC=Root Chan	for Problematic Hydric Soils ³ :	
Histosol		DIC to all Li	Sandy Red		,			Muck (A9) (LRR C)	
	pipedon (A2)		Stripped M					Muck (A10) (LRR B)	
	istic (A3)		Loamy Muc		l (F1)			ed Vertic (F18)	
	en Sulfide (A4)		Loamy Gle	-				arent Material (TF2)	
	d Layers (A5) (LRR C	:)	Depleted M		·			(Explain in Remarks)	
	uck (A9) (LRR D)	-	Redox Dar		(F6)			· · ·	
	d Below Dark Surface	(A11)	Depleted D						
	ark Surface (A12)		Redox Dep		F8)	-			
	Mucky Mineral (S1)		Vernal Poo	ls (F9)				of hydrophytic vegetation and	
	Gleyed Matrix (S4)						wetland	hydrology must be present.	
	Layer (if present):								
Type:	Rock	- 6						~	
Depth (in	iches): ~ 7	Varial	<u>de</u>				Hydric Soil	Present? Yes No _	
Remarks:	·					1	 		
100				٠.		17			يرين ا
HYDROLO									
						······································	Casa	ndary Indicators (2 or more requi	rod)
-	drology Indicators:							· · · · · · · · · · · · · · · · · · ·	ieu;
	cators (any one indica	TOT IS SUTTICE						Vater Marks (B1) (Riverine)	
	Water (A1)		Salt Crust					sediment Deposits (B2) (Riverine)
	ater Table (A2)		Biotic Cru					orift Deposits (B3) (Riverine)	
X Saturati	, ,		Aquatic In			•	-	Prainage Patterns (B10)	•
	//arks (B1) (Nonriv eria		Hydrogen					ry-Season Water Table (C2)	
	nt Deposits (B2) (Non						. ,	hin Muck Surface (C7)	
	posits (B3) (Nonriver	ine)	Presence		•	•		Crayfish Burrows (C8)	
	Soil Cracks (B6)					ved Soils		aturation Visible on Aerial Image	ery (C9)
	ion Visible on Aerial Ir	magery (B7)	Other (Ex	plain in Re	emarks)			Shallow Aquitard (D3)	
	Stained Leaves (B9)						F	AC-Neutral Test (D5)	
Field Obser			<u> </u>						
Surface Wat	ter Present? Ye	esNo	o <u>X</u> Depth (ir	iches):		_			
Water Table	Present? Ye	es No	Depth (in	iches):				. .	
Saturation P	resent? Ye	es X No	Depth (ir	.ches):	2"	— Wet	land Hydrolog	y Present? Yes X No	
(includes ca	piliary fringe)							,	
	corded Data (stream	gauge, mon	itoring well, aerial	photos, p	revious ins	spections)	, if available:		
Remarks:	stream F	۲۲	. \			_ ^ _	م د <u>ـــ</u>	U.S. L	
	STICOM +	lowinc	, reed	cara	ry gras	55 IS	\62\	thick.	
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					Sige	ζα ^{ιαν} ΄΄	>00g	•	
					15	11/ June 11	H (I V)		
					DP3	ig _			
C	Oalley								

Upland

Project/Site: Goldehills City/County: Sto	Sampling Date: 6/13/07
Applicant/Owner: BP	State: OR Sampling Point: DP362
Investigator(s): LXST and SASW Section, Township, Ra	ngo: 1 and 2 TOIS RITE
Landform (hillslope, terrace, etc.): bench Local relief (concave,	
Subregion (LRR): Lat:	
Soil Map Unit Name: 2 ndersby - Henwisten Complex 0-31/12A	· · · · · · · · · · · · · · · · · · ·
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation, Soil, or Hydrology significantly disturbed?	"Normal Circumstances" present? Yes V No
Are Vegetation, Soil, or Hydrology naturally problematic? No (If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS - Attach site map showing sampling point le	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sampled	1.4
is the campied	nd? Yes No
Wetland Hydrology Present? Yes No No Within a Wetlan	idf ies No
Remarks: Upland of DP3G ~ 40 ft.	
70 ([,	
	•
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? Status	Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
2.	Total Number of Dominant
3	Species Across All Strata: (B)
Total Cover:	Percent of Dominant Species
Sapling/Shrub Stratum	That Are OBL, FACW, or FAC: (A/B)
1. Big Sage 30 V NL	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x 1 =
4.	FACW species x 2 =
5	FAC species x 3 = FACU species x 4 =
Total Cover:	UPL species x5 =
1. Cheatarass BRTE 65 V NL	Column Totals: (A) (B)
2. Thistee,, Clsp <5 FAC	(5)
3. Wooly Vetch VIVI (5 NL	Prevalence Index = B/A =
4	Hydrophytic Vegetation Indicators:
5	Dominance Test is >50%
6	Prevalence Index is ≤3.0 ¹
7	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
8	Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover:	
1	¹ Indicators of hydric soil and wetland hydrology must
2	be present.
	Hydrophytic
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	1103CH() 103 NO V
iveriains.	

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_		•	_	_

Sampling Point: DP3G2

Depth Matrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type ¹ Lo	c ² Texture Remarks
0-17+ 104R 3/2		Solthan
		<u> </u>
	=Reduced Matrix. ² Location: PL=Pore Lini	
Hydric Soil Indicators: (Applicable to all	•	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Histic Epipedon (A2)	Sandy Redox (S5) Stripped Matrix (S6)	1 cm Muck (A9) (LRR C)
Black Histic (A3)	Supped Matrix (36) Loamy Mucky Mineral (F1)	2 cm Muck (A10) (LRR B) Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	_ , ,
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
Thick Dark Surface (A12)	Redox Depressions (F8)	•
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
Restrictive Layer (if present):		·
Type:		
Depth (inches):		Hydric Soil Present? Yes No
Remarks:		
ANDBOI OGA		
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi		Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1)	Salt Crust (B11)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2)	Salt Crust (B11) Biotic Crust (B12)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	 Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living 	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9)
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Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffi Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B3) Water-Stained Leaves (B9)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9)
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Wetland Hydrology Indicators: Primary Indicators (any one indicator is suffigure and indicator (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Surface Soil Cracks (B6) Inundation Visible on Aerial Imagery (B3) Water-Stained Leaves (B9) Field Observations: Surface Water Present? Yes	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S 7) Other (Explain in Remarks)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
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Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient o	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S 7) Other (Explain in Remarks) No Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient of the sufficient o	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S Other (Explain in Remarks) No Depth (inches): Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Wetland Hydrology Present? Yes No
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient or	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Presence of Reduced Iron (C4) Recent Iron Reduction in Plowed S 7) Other (Explain in Remarks) No Depth (inches): Depth (inches):	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8) oils (C6) Saturation Visible on Aerial Imagery (C9) Shallow Aquitard (D3) FAC-Neutral Test (D5) Wetland Hydrology Present? Yes No
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WETLAND DETERMINATION DATA FORM – Arid West Region

Wetland

Project/Site: Golderhills	City/Coun	tv: Show	·man	Sampling Date: 6/13/07
Applicant/Owner:			State: OR	Sampling Point: DP3 I 1
Investigator(s): LXST and SASW	Section.	Township, Rai	nge: 35 TOIN	. R. ME
Landform (hillslope, terrace, etc.): Riverine			•	3
.				Datum:
Soil Map Unit Name: Endors by - Humiston Complex				
Are climatic / hydrologic conditions on the site typical for this time				
Are Vegetation, Soil, or Hydrology signifi				
Are Vegetation, Soil, or Hydrology natura				
SUMMARY OF FINDINGS - Attach site map sho	1.1			
	1	P		,
Hydrophytic Vegetation Present? Yes No	13	the Sampled	Area	/
Hydric Soil Present? Yes V No	W	thin a Wetlar	nd? Yes $\underline{\mathcal{U}}$	No
Remarks:	<u> </u>		****	11.00
2 photos				
VEGETATION	1. A.W.			
	solute Domina	nt Indicator	Dominance Test wor	ksheet:
	Cover Species	Status	Number of Dominant S	
1			That Are OBL, FACW,	or FAC: (A)
2			Total Number of Domi	3
3			Species Across All Str	,
Total Cover:			Percent of Dominant S That Are OBL, FACW,	
Sapling/Shrub Stratum				
1			Prevalence Index wo Total % Cover of:	
2				x 1 =
4.			1	x 2 =
5			FAC species	x 3 =
Total Cover:			· -	x 4 =
1. Spike Rush Eleochanis palushis	50 1	OBL	•	x5 = (B)
	ace		Column Totals:	(A) (b)
	race	FAC		x = B/A =
	<u> </u>	_ FAC'//	Hydrophytic Vegetat	
	ace	_ FAC	<u>✓</u> Dominance Test i	
	<u>16 </u>	_OBL	Prevalence Index	is ≤3.0° aptations¹ (Provide supporting
7				ks or on a separate sheet)
8	95		Problematic Hydro	ophytic Vegetation ¹ (Explain)
Woody Vine Stratum	 -	•	1	
1			Indicators of hydric so be present.	oil and wetland hydrology must
2			Hydrophytic	4,410,700,700
Total Cover:			Vegetation	/ No
	Biotic Crust		Present? Y	es No
Remarks:				

B	•	•			ne absence of indicators.)	
Depth (inches)	Matrix Color (moist) %	Redox F Color (moist)	eatures % Type ¹	_Loc²	Texture Remarks	
0-8-	104R Z/1		70 1750		2)(+	
0,0					7:11	
					•	
					· · ·	
	· · · · · · · · · · · · · · · · · ·					
4						
	Concentration, D=Depletion,			e Lining, RC=	=Root Channel, M=Matrix.	
-	Indicators: (Applicable to		-		Indicators for Problematic Hydric Soils ³ :	
Histoso		Sandy Redox (-		1 cm Muck (A9) (LRR C)	
	Epipedon (A2)	Stripped Matrix			2 cm Muck (A10) (LRR B)	
	Histic (A3)	Loamy Mucky			Reduced Vertic (F18) Red Parent Material (TF2)	
	en Sulfide (A4)	Loamy Gleyed Depleted Matri			Other (Explain in Remarks)	
	ed Layers (A5) (LRR C) luck (A9) (LRR D)	Redox Dark Su			Other (Explain in Nemarks)	
	ed Below Dark Surface (A11)	Depleted Dark				
	Dark Surface (A12)	Redox Depres			•	
	Mucky Mineral (S1)	Vernal Pools (I			³ Indicators of hydrophytic vegetation and	
	Gleyed Matrix (S4)		• ,		wetland hydrology must be present.	
	Layer (if present):				· · · · · · · · · · · · · · · · · · ·	
Type:	Rock					
	nches): ~ 8"				Hydric Soil Present? Yes Vo No	
Remarks:	iones).			i_	Hydric controsont: TesNo	-
ı					and the second s	
HYDROLO	OGY					
Wetland H	ydrology Indicators:				Secondary Indicators (2 or more require	ed)
-	icators (any one indicator is	sufficient)			Water Marks (B1) (Riverine)	_
	e Water (A1)	Salt Crust (B	14)		Sediment Deposits (B2) (Riverine	`
	ater Table (A2)	Biotic Crust (I	•		Drift Deposits (B3) (Riverine)	,
Saturat					✓ Drainage Patterns (B10)	
		Aquatic Inver				
vvater i	Marks (B1) (Nonriverine)	Hydrogen Su			Dry-Season Water Table (C2)	
Sedime	ent Deposits (B2) (Nonriveri		-		(C3) Thin Muck Surface (C7)	
Sedime	eposits (B3) (Nonriverine)	Presence of I	Reduced Iron (C4	1)	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)	
Sedime Drift De Surface	eposits (B3) (Nonriverine) e Soil Cracks (B6)	Presence of F	Reduced Iron (C4 Reduction in Plow	1)	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Image	ry (C9)
Sedime Drift De Surface	eposits (B3) (Nonriverine)	Presence of F	Reduced Iron (C4 Reduction in Plow	1)	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3)	ry (C9)
Sedime Drift De Surface Inunda	eposits (B3) (Nonriverine) e Soil Cracks (B6)	Presence of F	Reduced Iron (C4 Reduction in Plow	1)	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Image	гу (С9)
Sedime Drift De Surface Inunda	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9)	Presence of F	Reduced Iron (C4 Reduction in Plow	1)	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3)	ry (C9)
Sedime Drift De Surface Inunda Water-	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) rvations:	Presence of F	Reduced Iron (C4 Reduction in Plow In in Remarks)	i) ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3)	ry (C9)
Sedime Drift De Surface Inunda Water-	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: ater Present? Yes	Presence of F Recent Iron F (B7) Other (Explain	Reduced Iron (C4 Reduction in Plow In in Remarks)	t) ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3)	ry (C9)
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? Yes e Present? Yes	Presence of F Recent Iron F Other (Explain No Depth (inches) Depth (inches)	Reduced Iron (C4 Reduction in Plow In in Remarks) In in Remarks) In in Remarks	t) ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5)	
Sedime Drift De Surface Inunda Water- Field Obse Surface Wa Water Table Saturation I (includes ca	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? e Present? Present? Applilary fringe)	Presence of F Recent Iron F (B7) Other (Explain No Depth (inchess No Depth (inchess	Reduced Iron (C4 Reduction in Plow In in Remarks) In in Remarks) In in Remarks	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Wa Water Table Saturation I	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? e Present? Yes Present? Yes V	Presence of F Recent Iron F (B7) Other (Explain No Depth (inchess No Depth (inchess	Reduced Iron (C4 Reduction in Plow In in Remarks) In in Remarks) In in Remarks	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Wa Water Table Saturation I (includes ca	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? e Present? Present? Applilary fringe)	Presence of F Recent Iron F (B7) Other (Explain No Depth (inchess No Depth (inchess	Reduced Iron (C4 Reduction in Plow In in Remarks) In in Remarks) In in Remarks	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table Saturation I (includes ca Describe Remarks:	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? Yes Present? Yes apillary fringe) ecorded Data (stream gauge	Presence of I Recent Iron F (B7) Other (Explain No Depth (Inche No Depth (Inc	Reduced Iron (C-Reduction in Plown in Remarks) as): as): bis):	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table Saturation I (includes ca Describe Re	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? Yes Present? Yes apillary fringe) ecorded Data (stream gauge	Presence of I Recent Iron F (B7) Other (Explain No Depth (Inche No Depth (Inc	Reduced Iron (C-Reduction in Plown in Remarks) as): as): bis):	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table Saturation I (includes ca Describe Remarks:	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? e Present? Present? Applilary fringe)	Presence of I Recent Iron F (B7) Other (Explain No Depth (Inche No Depth (Inc	Reduced Iron (C-Reduction in Plown in Remarks) as): as): bis):	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table Saturation I (includes ca Describe Re	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? Yes Present? Yes apillary fringe) ecorded Data (stream gauge	Presence of I Recent Iron F (B7) Other (Explain No Depth (Inche No Depth (Inc	Reduced Iron (CAReduction in Plown in Remarks) as): as): bis):	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	
Sedime Drift De Surface Inunda Water- Field Obse Surface Water Table Saturation I (includes ca Describe R	eposits (B3) (Nonriverine) e Soil Cracks (B6) tion Visible on Aerial Imager Stained Leaves (B9) ervations: eter Present? Yes Present? Yes apillary fringe) ecorded Data (stream gauge	Presence of I Recent Iron F (B7) Other (Explain No Depth (Inche No Depth (Inc	Reduced Iron (CAReduction in Plown in Remarks) as): as): bis):	ved Soils (C6	(C3) Thin Muck Surface (C7) Crayfish Burrows (C8)) Saturation Visible on Aerial Image Shallow Aquitard (D3) FAC-Neutral Test (D5) d Hydrology Present? Yes No	

WETLAND DETERMINATION DATA FORM - Arid West Region

upland

Project/Site: Golden 11	<		מו אי שעיינו	_ Sampling Date: 6/13/6-
Applicant/Owner: BP	<u> </u>	City/County:	Vi States OR	Sampling Point: DP3 I 3
Investigator(s): LXST and S	ACW	Castina Tawashia D	State: OR	_ Sampling Point: PT = 5
Landform (hillslope, terrace, etc.): <u>Be</u> /				
				Datum:
Soil Map Unit Name: <u>Indersb</u> u	•		4	
Are climatic / hydrologic conditions on th		4		
Are Vegetation, Soil, or H Are Vegetation, Soil, or H	- dydrology significantl	ly disturbed? / Are	"Normal Circumstances"	present? Yes No
SUMMARY OF FINDINGS At				
COMMAND AND AND AND AND AND AND AND AND AND				o,porte
Hydrophytic Vegetation Present?	Yes No	- Is the Sample	ed Area	
Hydric Soil Present? Wetland Hydrology Present?	Yes No Yes No	within a Wetla	and? Yes	No
Pomorke:				
Upland plot for	DP3 I, 15'			
VEGETATION				A. L.
Tree Stratum (Use scientific names.)		e Dominant Indicator er Species? Status		
1	*****		That Are OBL, FACW	
2.			Total Number of Dom	inant a
3.			Species Across All St	` /
4			Percent of Dominant	Snecies ~
Sapling/Shrub Stratum	Total Cover:	_ .	That Are OBL, FACW	
1. Big Sage	ARTR 40) V NL	Prevalence Index wo	orksheet:
2	7,,,,,,		- I \	Multiply by:
3			OBL species	x1 =
4			_ FACW species	x 2 =
5			- 1	x 3 =
	Total Cover:			x 4 =
Herb Stratum 1. Cheat Grass	BRTZ 65	V NL		x 5 =
2. Luping	Lubinusp trac	e HPL	- Column Totals:	(A)(B)
3. Intermediate w		V ALL	. Prevalence Inde	ex = B/A =
4.	AGIN	_ 	Hydrophytic Vegetat	tion Indicators:
5			_ Dominance Test	
6			Prevalence Index	
7			Morphological Ad	laptations ¹ (Provide supporting ks or on a separate sheet)
8				rophytic Vegetation ¹ (Explain)
Woody Vine Stratum	Total Cover: 95			, , , , , , , , , , , , , , , , , , , ,
1			¹ Indicators of hydric s	oil and wetland hydrology must
2.			be present.	
	Total Cover:		Hydrophytic	,
% Bare Ground in Herb Stratum 5		Crust	Vegetation Present? Y	'es No 1
Remarks:				
- sometime.				
4 · · · · · · · · · · · · · · · · · · ·				

		12 C	
Sampling	Point:	Ut	しょ

(inches) +	<u> Matrix</u>		Redo		·			
0-10+	Color (moist)		Color (moist)				Texture	Remarks
	104R 3/2						SIH	
								
				,				
 ,								
	ncentration, D=Deple					e Lining, R		
-	ndicators: (Applica	ible to all LKK			·a.)	\mathcal{X}		Problematic Hydric Soils ³ :
Histosol (• •	-	Sandy Redo			•	1 cm Muck	
Fisiic Epi Black His	pedon (A2)	•	Stripped Ma		/E4\			(A10) (LRR B)
	Sulfide (A4)		Loamy Muc Loamy Gley	-			Reduced V	enic (F16) t Material (TF2)
	Layers (A5) (LRR C	:)	Loanly Gles		· ~/			lain in Remarks)
	ck (A9) (LRR D)	,	Redox Dark		F6)		Sa.si (Exp	
	Below Dark Surface	e (A11)	Depleted D		-			
	rk Surface (A12)		Redox Dep					
Sandy Mı	ucky Mineral (S1)		Vernal Pool	s (F9)			³ Indicators of hy	drophytic vegetation and
	eyed Matrix (S4)						wetland hyd	rology must be present.
Restrictive La	ayer (if present):							
Type:								
Depth (incl	hes):		_				Hydric Soil Pres	sent? Yes No
								N. W.
YDROLOG	GY							
Wetland Hyd	rology Indicators:		Ø				Secondary	/ Indicators (2 or more required)
Primary Indica	ators (any one indica	ator is sufficien		•			Water	Marks (B1) (Riverine)
	Vater (A1)		Salt Crust	(B11)				, , , ,
	` '						Sedin	ent Deposits (B2) (Riverine)
	er Table (A2)		Biotic Crus	st (B12)				nent Deposits (B2) (Riverine) Deposits (B3) (Riverine)
High Wat	er Table (A2) n (A3)		Biotic Crus		s (B13)		Drift D	eposits (B3) (Riverine)
High Wat Saturation	n (A3)	ne)	Aquatic In	vertebrates			Drift D	peposits (B3) (Riverine) age Patterns (B10)
High Wat Saturation Water Ma				vertebrates Şulfide Od	lor (C1)		Drift D Draina Dry-S	eposits (B3) (Riverine)
High Wat Saturation Water Ma Sediment	n (A3) arks (B1) (Nonriverii t Deposits (B2) (Non	riverine)	Aquatic In Hydrogen Oxidized F	vertebrates Sulfide Oc Rhizospher	lor (C1) _, es along	Living Roo	Drift D Drains Dry-S ats (C3) Thin M	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7)
High Wat Saturation Water Ma Sediment Drift Depo	n (A3) arks (B1) (Nonriver ii	riverine)	Aquatic In	vertebrates Sulfide Oc Rhizospher of Reduce	lor (C1), es along l d Iron (C4	Living Roo)	Drift D Drain: Dry-S ets (C3) Thin N Crayfi	eposits (B3) (Riverine) age Patterns (B10) eason Water Table (C2)
High Wat Saturation Water Ma Sediment Drift Depo	n (A3) arks (B1) (Nonriverii t Deposits (B2) (Non osits (B3) (Nonriveri	nriverine) ine)	Aquatic In Hydrogen Oxidized F Presence	vertebrates Sulfide Od Rhizospher of Reduce n Reductio	lor (C1), es along l d Iron (C4 on in Plow	Living Roo)	Drift E Draina Dry-S sts (C3) Thin N Crayfi C6) Satura	Deposits (B3) (Riverine) age Patterns (B10) eason Water Table (C2) Muck Surface (C7) sh Burrows (C8)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio	n (A3) arks (B1) (Nonriveri t Deposits (B2) (Non osits (B3) (Nonrive ri Soil Cracks (B6)	nriverine) ine)	Aquatic In Hydrogen Oxidized F Presence Recent Iro	vertebrates Sulfide Od Rhizospher of Reduce n Reductio	lor (C1), es along l d Iron (C4 on in Plow	Living Roo)	Drift E Draina Dry-S sts (C3) Thin M Crayfi C6) Satura Shallo	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Dege Surface (C7) Desh Burrows (C8) Desired on Aerial Imagery (C9)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta	n (A3) arks (B1) (Nonriverin t Deposits (B2) (Non osits (B3) (Nonriveri Soil Cracks (B6) an Visible on Aerial In ained Leaves (B9)	nriverine) ine)	Aquatic In Hydrogen Oxidized F Presence Recent Iro	vertebrates Sulfide Od Rhizospher of Reduce n Reductio	lor (C1), es along l d Iron (C4 on in Plow	Living Roo)	Drift E Draina Dry-S sts (C3) Thin M Crayfi C6) Satura Shallo	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Detection Visible on Aerial Imagery (C9) Detection Visible (D3)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta	n (A3) arks (B1) (Nonriverion to Deposits (B2) (Nonriverion to Cracks (B6) on Visible on Aerial Interior to Cracks (B9) ations:	nriverine) ine) magery (B7)	Aquatic In Hydrogen Oxidized F Presence Recent Iro	vertebrates Sulfide Oc Rhizospher of Reduce n Reduction Diain in Rei	lor (C1), res along l d Iron (C4 on in Plow marks)	Living Roo) red Soils (0	Drift E Draina Dry-S sts (C3) Thin M Crayfi C6) Satura Shallo	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Detection Visible on Aerial Imagery (C9) Detection Visible (D3)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Wate	n (A3) arks (B1) (Nonriveria t Deposits (B2) (Non osits (B3) (Nonriveria Soil Cracks (B6) on Visible on Aerial In ained Leaves (B9) rations: r Present?	nriverine) ine) magery (B7) es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp	vertebrates Sulfide Oc khizospher of Reduce on Reductio blain in Res ches):	lor (C1), res along l d Iron (C4 on in Plow marks)	Living Roo	Drift E Draina Dry-S sts (C3) Thin M Crayfi C6) Satura Shallo	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Detection Visible on Aerial Imagery (C9) Detection Visible (D3)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Water Water Table F	n (A3) arks (B1) (Nonriveria t Deposits (B2) (Non osits (B3) (Nonriveria Soil Cracks (B6) in Visible on Aerial In ained Leaves (B9) rations: in Present? Ye	nriverine) ine) magery (B7) es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp	vertebrates Sulfide Oc Rhizospher of Reduce on Reductio blain in Red ches): ches):	lor (C1), es along d Iron (C4 on in Plow marks)	Living Roo	Drift E Draina Dry-S pts (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Wate Water Table F Saturation Pre (includes capi	n (A3) arks (B1) (Nonrivering the Deposits (B2) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B4)) arks (B3) (Nonrivering the Deposits (B4) (Nonrivering the Deposits (B4)) article (B4) (Nonrivering the Depo	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Dish Aquitard (D3) Description (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Wate Water Table F Saturation Pre (includes capi	n (A3) arks (B1) (Nonriverial Deposits (B2) (Nonriverial Deposits (B3) (Nonriverial Deposits (B3) (Nonriverial Deposits (B3) (Nonriverial Deposits (B4)) arks (B2) (Nonriverial Deposits (B4)) arks (B4) (Nonriver	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Water Water Table F Saturation Pre (includes capi Describe Reco	n (A3) arks (B1) (Nonrivering the Deposits (B2) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B4)) arks (B3) (Nonrivering the Deposits (B4) (Nonrivering the Deposits (B4)) article (B4) (Nonrivering the Depo	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Wate Water Table F Saturation Pre (includes capi	n (A3) arks (B1) (Nonrivering the Deposits (B2) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B4)) arks (B3) (Nonrivering the Deposits (B4) (Nonrivering the Deposits (B4)) article (B4) (Nonrivering the Depo	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Water Water Table F Saturation Pre (includes capi Describe Reco	n (A3) arks (B1) (Nonrivering the Deposits (B2) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B4)) arks (B3) (Nonrivering the Deposits (B4) (Nonrivering the Deposits (B4)) article (B4) (Nonrivering the Depo	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)
High Wat Saturation Water Ma Sediment Drift Depo Surface S Inundatio Water-Sta Field Observ Surface Water Water Table F Saturation Pre (includes capi Describe Reco	n (A3) arks (B1) (Nonrivering the Deposits (B2) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B3) (Nonrivering the Deposits (B4)) arks (B3) (Nonrivering the Deposits (B4) (Nonrivering the Deposits (B4)) article (B4) (Nonrivering the Depo	es No _	Aquatic In Hydrogen Oxidized F Presence Recent Iro Other (Exp Depth (in Depth (in	vertebrates Sulfide Oc Rhizospher of Reduce on Reduction Diain in Ref ches): ches): ches):	lor (C1), es along d d Iron (C4 on in Plow marks)	Living Roo Ped Soils (C	Drift E Draina Dry-S ats (C3) Thin N Crayfi C6) Satura Shallo FAC-I	Deposits (B3) (Riverine) Dege Patterns (B10) Deason Water Table (C2) Duck Surface (C7) Dish Burrows (C8) Dation Visible on Aerial Imagery (C9) Div Aquitard (D3) Deutral Test (D5)

				RM – Arid West Region	wetland
Project/Site: Goldan Hills	(City/County	: Shev	Man (o Sampling Date:	6/13/07
Applicant/Owner:				Chair /7 1/ 0 0 - 1	マピュコ
Investigator(s): S. Path Non & S. Wall	نوس ج	Section To	wnshin Ra	inge: 25 - 26 76 TALAY 176	
Landform (hillslope, terrace, etc.):		l ocal relief	(concave	CODIVEY DODO).	20
Subregion (LRR):	Lat-	Loodi rolloi	(concave,	Long:	ope (%):
Soil Map Unit Name: Licks killet very stony 1	- Luc	<u>n</u>	-	Long: Dat	um:
Are climatic / hydrologic conditions on the site typical for this	time of use	-2 V >	Civi	NVVI classification: FOWH	<u>n</u>
Are Vegetation, Soil, or Hydrology si			13	•	~
Are Vegetation, Soil, or Hydrology na	-		1	"Normal Circumstances" present? Yes	<u>XN₀</u>
		•	,	eeded, explain any answers in Remarks.)	
SUMMARY OF FINDINGS - Attach site map s	nowing	sampiin	g point i	ocations, transects, important f	eatur e s, etc.
Hydric Soil Present? Yes X No		I	e Sampled in a Wetlar		
VEGETATION					
	Absolute <u>% Cover</u>	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1				Number of Dominant Species That Are OBL, FACW, or FAC:	(A)
2.				Total Number of Dominant	,
4				Species Across All Strata:	(B)
Total Cover: Sapling/Shrub Stratum				Percent of Dominant Species That Are OBL, FACW, or FAC:	(A/B)
1				Prevalence Index worksheet:	
2				· ·	ly by:
3				OBL species x 1 =	
4				FACW species x 2 =	
5	 .	·		FAC species x 3 =	
Total Cover:		,		FACU species x 4 =	
1. Callail TYLA	<u>50</u>	/	OBL	UPL species x 5 =	
2. Mild convey geass PHAR	30	V	FACW	Column Totals: (A)	(B)
3. nettles / UTDI	10		FAC	Prevalence Index = B/A =	
4. Church this (G CIAR	10		FAC	Hydrophytic Vegetation Indicators:	
5. Woodynse ROWO	2%.		FACU	Dominance Test is >50%	
6				Prevalence Index is ≤3.0¹	
7				Morphological Adaptations¹ (Provide	supporting
8	 .			data in Remarks or on a separate	•
Total Cover: Woody Vine Stratum		4		Problematic Hydrophytic Vegetation	(Explain)
1			•	¹ Indicators of hydric soil and wetland hyd	Irology must
2.				be present.	Tology must
Total Cover:				Hydrophytic	
% Bare Ground in Herb Stratum % Cover of	of Biotic Cru	ıst <u>()</u>	· · ·	Vegetation Present? Yes No	
Remarks:				1	
		-			

SOIL	:	Sampling Point: 3 K 2
Profile Description: (Describe to the dep	th needed to document the indicator or confi	
Depth Matrix	Redox Features	- Touton
$\frac{\text{(inches)}}{\sqrt{2}} = \frac{\text{Color (moist)}}{\sqrt{2}} = \frac{\%}{\sqrt{2}}$	Color (moist) % Type¹ Loc²	
- V		mude
6-12 10482 []		Clayey muck
	· · · · · · · · · · · · · · · · · · ·	
¹ Type: C=Concentration, D=Depletion, RM		, RC=Root Channel, M=Matrix. Indicators for Problematic Hydric Soils ³ :
Hydric Soil Indicators: (Applicable to all		-
Histosol (A1) Histic Epipedon (A2)	Sandy Redox (S5) Stripped Matrix (S6)	1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	•
Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
Thick Dark Surface (A12) Sandy Mucky Mineral (S1)	Redox Depressions (F8) Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)	16mar1 00.0 (1 0)	wetland hydrology must be present.
Restrictive Layer (if present):		
Type: Zock-large	·	
Depth (inches): 12''	<u> </u>	Hydric Soil Present? Yes No
Remarks:	A ()	
Muck p	ock @ (2" Shovel regusal	
·		
		•
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is suf	ficient)	Water Marks (B1) (Riverine)
<u>√</u> Surface Water (A1)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Water Table (A2)	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
✓ Saturation (A3)	Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2) (Nonriverine		
Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	Recent Iron Reduction in Plowed Soil	
Inundation Visible on Aerial Imagery (I	37) Other (Explain in Remarks)	Shallow Aquitard (D3)
Water-Stained Leaves (B9) Field Observations:		FAC-Neutral Test (D5)
1/	No Depth (inches) l Cnu	
	No Depth (inches):	
		/etland Hydrology Present? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, n	nonitoring well, aerial photos, previous inspection	ns), if available:
t e		
Remarks:	nos from Sovina IIIC	+ 5 of wetland
Remarks: Hydrology con	nes from Spring Jus	+ 5 of wetland.
Remarks: Hydrology con	nes from Spring Jus	t 5 of wetland
Remarks: Hydrology con	nes from Spring Jus	+ 5 of wetland

Project/Site: Goldon Hills	City/0	County: She	erman sampling Date: 6/13/07
Applicant/Owner: 60		, <u></u>	State: OR Sampling Point: DP313
Investigator(s): IXST, SQSU)	Secti	on Townshin Ra	nge: 25 and 36, TOIN, RITE
Landform (hillslope, terrace, etc.): drainage featur			
Subregion (LRR):	_at:	1107 /110	Long: Datum:
Soil Map Unit Name: Lickskillet nery stony 1			
Are climatic / hydrologic conditions on the site typical for this tin		•	· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology sign	ificantly distu	rbed? 🗥 Are '	'Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology natu	rally problem	atic? NO (If ne	eeded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map she	owing sar	npling point l	ocations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No		Is the Sampled	I Aron
Hydric Soil Present? Yes No		within a Wetlar	1
Wetland Hydrology Present? Yes No _		Tritim a rredai	103 100 100
Remarks:			
2 photos			
VEGETATION			
		minant Indicator ecies? Status	Dominance Test worksheet:
1.			Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2			Total Number of Dominant
3.			Species Across All Strata: (B)
4			Percent of Dominant Species
Total Cover: Sapling/Shrub Stratum			That Are OBL, FACW, or FAC: (A/B)
1			Prevalence Index worksheet:
2.			Total % Cover of: Multiply by:
3.			OBL species x 1 =
4			FACW species x 2 =
5			FAC species x 3 =
Total Cover:	· .		FACU species x 4 =
1. Am Spoodall Venonica anenica	50	VOBL	UPL species x 5 =
2. Totalo CTAR	<i>11</i> — —	/ FAC	Column Totals: (A) (B)
3. Roed Canangrus PHAR		OBL	Prevalence Index = B/A =
4. Mathra fruit MIGU	<u>>5</u>	OBL	Hydrophytic Vegetation Indicators:
5. Catrula TILA	<u> </u>	/ OBL	Dominance Test is >50%
6. Cunta Contr. Ru	25	FAC	Prevalence Index is ≤3.0¹
7. News URDI	tr	FAC	Morphological Adaptations¹ (Provide supporting
8.			data in Remarks or on a separate sheet)
Total Cover: _			Problematic Hydrophytic Vegetation¹ (Explain)
Woody Vine Stratum			Indicators of budgic cell and wellend budgeters are
1			¹ Indicators of hydric soil and wetland hydrology must be present.
2			
Total Cover: _	•	1	Hydrophytic / Vegetation
	Biotic Crust	<u> </u>	Present? Yes NoNo
Remarks:			

SOIL

400

GOIL			<u> </u>					Sampling Fourt.
1	ription: (Describe t	o the depth n	eeded to docun	nent the i	ndicator	or confirm	n the absenc	e of indicators.)
Depth	Matrix			x Features	<u> </u>	. 2		
(inches)	Color (moist)	%	Color (moist)	%	_ I ype _	Loc ²	-	Remarks
0-16	TOXK SY						siltlown	<u> </u>
_	,							
								18
								
· ·								
¹Type: C=Co	oncentration, D=Deple	etion RM=Re	duced Matrix	² Location	PI =Por	e Linina B	C=Root Cha	nnel, M=Matrix.
	Indicators: (Applica					C Lilling, i		s for Problematic Hydric Soils ³ :
Histosol			Sandy Redo		· - . ,			Muck (A9) (LRR C)
	pipedon (A2)		Stripped Ma					Muck (A10) (LRR B)
. —	stic (A3)		Loamy Mucl	٠,	(E1)			iced Vertic (F18)
	n Sulfide (A4)		, Loamy Gley					Parent Material (TF2)
	l Layers (A5) (LRR C	١	Depleted Ma		(• -)			r (Explain in Remarks)
	ick (A9) (LRR D)	, I	Redox Dark		F6)		0.110	(Explain in Nomano)
	d Below Dark Surface	(A11)	Depleted Da		•			
	ark Surface (A12)		Redox Depr					
l '	lucky Mineral (S1)	7	Vernal Pool		٠,		³ Indicator	s of hydrophytic vegetation and
	Bleyed Matrix (S4)			- ()				d hydrology must be present.
	_ayer (if present):						1	
	\							_
l * · —			-				Usudais Sa	il Present? Yes No
Depth (inc	cries):		_				nyunc su	ii Present? Tes No
Remarks:	•							
							•	
								
HYDROLO	GY							
Wetland Hy	drology Indicators:						Sec	ondary Indicators (2 or more required)
Primary India	cators (any one indica	tor is sufficier	it)					Water Marks (B1) (Riverine)
Surface	Water (A1)		Salt Crust	(B11)				Sediment Deposits (B2) (Riverine)
	iter Table (A2)		Biotic Crus	• •				Drift Deposits (B3) (Riverine)
Saturation			Aquatic Inv		- (B13)			Drainage Patterns (B10)
-v-	larks (B1) (Nonriveri i		Hydrogen					Dry-Season Water Table (C2)
					• •	Livina Dav		
	nt Deposits (B2) (Non			•	-	-	—	Thin Muck Surface (C7)
	oosits (B3) (Nonriver	ne)	Presence		•	•		Crayfish Burrows (C8)
l —	Soil Cracks (B6)		Recent Iro			red Soils (Saturation Visible on Aerial Imagery (C9)
Inundati	on Visible on Aerial Ir	nagery (B7)	Other (Exp	lain in Re	marks)			Shallow Aquitard (D3)
Water-S	tained Leaves (B9)							FAC-Neutral Test (D5)
Field Obser	vations:	,	<u>.</u>					
Surface Wat	er Present? Ye	s_VNo_	Depth (ind	ches):				
Water Table	Present? Ye		✓ Depth (ind				•	
Saturation P			Depth (inc		<u> </u>		and Undrala	gy Present? Yes 🖊 No
(includes car		:5 <u>//</u> NU _	Deptil (int	71 ICS)		- *****	and nyurolo	gy Fresent? Tes V
	corded Data (stream	gauge, monito	oring well, aerial p	ohotos, pre	evious ins	pections),	if available:	***************************************
	•	=		• •		•	•	
Remarks:	, 0	<u> </u>						
	spring tec	7						
	- K		- Charles and the Control of the Con			4	AS	on in a
	V		· Marine			RO	ad	
			- Manual 1877					
1	ss Valley							
C/\a	JUVIN 1							

WEILAND DETERMINATION DATA FOI	
Project/Site: Golden H//S City/County: St	revman (0 sometime pate: 10/12/57
Applicant/Owner: USY	- (OV)
Investigator(s): S. Pattinson \$5. Walkey Section, Township, R.	enge: 25 and 3 4 TO M 9175
Landform (hillslope, terrace, etc.): Slout Slope Local relief (concave)	CODIVOX DODO)
	convex, none): Slope (%):
Subregion (LRR): Lat: Soil Map Unit Name: Lickskillet very stony loam/160	Long: Datum:
Are climatic / hydrologic conditions on the cits twicel for this time of the cits twicel for the firm	NWI dassification: Nearby YOWHN
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	(If no, explain in Remarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? No Are	"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? No (If n	
SUMMARY OF FINDINGS - Attach site map showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sample within a Wetland Hydrology Present?	d Area
Remarks:	
area of vegetation is only 3' feet we water comes from culvert under road	ide. No soils. Very Rocky
VEGETATION	
Absolute Dominant Indicator	Dominance Test worksheet:
Tree Stratum (Use scientific names.)	Number of Dominant Species
1	That Are OBL, FACW, or FAC: (A)
3	Total Number of Dominant Species Across All Strata: (B)
Total Cover:	Percent of Dominant Species
Sapling/Shrub Stratum 1	That Are OBL, FACW, or FAC: (A/B) Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x 1 =
4	FACW species x 2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
1. Markedlower MIGU 5 OBL	UPL species x 5 =
2 Cartiel TYLA 70- V OBL	Column Totals: (A) (B)
3. Cute last RUCR 5 FAC	Prevalence Index = B/A =
4. Canado Thisle CIAR 20 V FAC	Hydrophytic Vegetation Indicators:
5	/Dominance Test is >50%
6	Prevalence Index is ≤3.01
7	Morphological Adaptations ¹ (Provide supporting data in Remarks or on a separate sheet)
Total Cover; (10() → (1)	Problematic Hydrophytic Vegetation¹ (Explain)
Woody Vine Stratum	
1	Indicators of hydric soil and wetland hydrology must be present.
Total Cover:	Hydrophytic
% Bare Ground in Herb Stratum % Cover of Biotic Crust	Vegetation Present? Yes No
Remarks:	

OIL (5)		Sampling Point: 3K1
rofile Description: (Describe to the Depth <u>Matrix</u>	e depth needed to document the indicator or Redox Features	confirm the absence of indicators.)
nches) Color (moist) 9	6 Color (moist) % Type ¹	Loc ² Texture Remarks
)-8 W4R312		Sunda form - grave increases a
1 0 WINSTZ		= grava mercos s
<u></u>		
	· ·	· .
ype: C=Concentration, D=Depletion		Lining, RC=Root Channel, M=Matrix.
dric Soil Indicators: (Applicable	to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
_ Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
_ Histic Epipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
_ Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
_ Hydrogen Sulfide (A4)	Loarny Gleyed Matrix (F2)	Red Parent Material (TF2)
_ Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
_ 1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	
 Depleted Below Dark Surface (A1 	11) Depleted Dark Surface (F7)	
_ Thick Dark Surface (A12)	Redox Depressions (F8)	
_ Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
_ Sandy Gleyed Matrix (S4)		wetland hydrology must be present.
estrictive Layer (if present):	Λ . \	
Type: Rock layer (very large)	
Depth (inches):		Hydric Soil Present? Yes No
Rocky - W	ingt nocles - Should rejusal	
No	ingerocles - Should requised	
(DROLOGY		
/etland Hydrology Indicators:		Secondary Indicators (2 or more required)
rimary Indicators (any one indicator	is sufficient)	Water Marks (B1) (Riverine)
_ Surface Water (A1)	Salt Crust (B11)	Şediment Deposits (B2) (Riverine)
	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
_ High Water Table (A2)		· · · · · · · · · · · · · · · · · · ·
_ Saturation (A3)	Aquatic Invertebrates (B13)	Drainage Patterns (B10)
_ Water Marks (B1) (Nonriverine)		Dry-Season Water Table (C2)
_ Sediment Deposits (B2) (Nonrive		
_ Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
_ Surface Soil Cracks (B6)	Recent Iron Reduction in Plowe	ed Soils (C6) Saturation Visible on Aerial Imagery (C9
Inundation Visible on Aerial Imag	ery (B7) Other (Explain in Remarks)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)
ield Observations:		
urface Water Present? Yes _	NoDepth (inches):	_
Vater Table Present? Yes _	Borne	_
_		Wetland Hydrology Present? Yes No
Saturation Present? Yes _ includes capillary fringe)	No Depth (inches):	_ Wetland Hydrology Flesent? Tes No
	ige, monitoring well, aerial photos, previous insp	pections), if available:
Remarks: (Ant the classes	ti - lainte la	·
That webose	ls - faint & humsistent)	
)	
(ana. 11.11	, Canum (Goose Creek)	
wide nath	* CRUMA GOODS NIGHT	

WETLAND DETERMINATION DATA FORM - Arid West Region

upland

Project/Site: Golden Hills	City	County: Shan	on and	Sampling Date: 6/13/67
Applicant/Owner: BP			State: OR	
Investigator(s): SASW LXST	Sec	tion Township Pa	nne: 25 and 3	RG TOLAL PITE
Landform (hillslope) terrace, etc.):				
				Datum:
Soil Map Unit Name: lickskillet wery stor	~			
Are climatic / hydrologic conditions on the site typical for		ı		
Are Vegetation, Soil, or Hydrology				· · · · · · · · · · · · · · · · · · ·
Are Vegetation, Soil, or Hydrology	naturally probler	natic? \mathcal{N}_o (If ne	eeded, explain any answ	ers in Remarks.)
SUMMARY OF FINDINGS - Attach site ma	ap showing sa	mpling point l	ocations, transect	s, important features, etc.
Hydrophytic Vegetation Present? Yes	No.			
Hydric Soil Present? Yes		Is the Sampled		1
Wetland Hydrology Present? Yes		within a Wetiai	nd? Yes	No
Remarks: Upslope of DPK3				
VEGETATION				
Tree Stratum (Use scientific names.)		ominant Indicator pecies? Status	Dominance Test wor	_
1			Number of Dominant : That Are OBL, FACW	
2.				
3			Total Number of Domi Species Across All St	,
4.			'	
	over:		Percent of Dominant S That Are OBL, FACW	
Sapling/Shrub Stratum	10	1/ 1/1	Prevalence Index wo	
1. Big Sage ARTR		<u> </u>	1	Multiply by:
3			-	x1=
Δ				x 2 =
5.			,	x3=
			FACU species	
Herb Stratum	سسم ا،	1 11	UPL species	x 5 =
1. Cheatgraso BRTE	<u> </u>	V NL	Column Totals:	(A)(B)
2. Tut Whoatapas AGIN	<u> </u>	V NL	Dravalages Inde	x = B/A =
3			Hydrophytic Vegetat	
4			Dominance Test	
5			Prevalence Index	
6				laptations ¹ (Provide supporting
7			data in Remar	ks or on a separate sheet)
	over: <u>25</u>		Problematic Hydr	ophytic Vegetation ¹ (Explain)
Woody Vine Stratum				
1			Indicators of hydric so be present.	oil and wetland hydrology must
2			<u>'</u>	
Some Rock	over: over of Biotic Crust	i	Hydrophytic Vegetation Present? Y	es No
Remarks:				

Profile Description: (Describe to the de	pth needed to document the indicator or	confirm the absence of indicators.)
Depth Matrix	Redox Features	
(inches) Color (moist) %	Color (moist) % Type ¹	
0-8 DYR 3/2	<u> </u>	silty bein
1		J. Committee of the com
¹ Type: C=Concentration, D=Depletion, RN	M=Reduced Matrix. ² Location: PL=Pore L	ining, RC=Root Channel, M=Matrix.
Hydric Soil Indicators: (Applicable to a	I LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1)	Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2)	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3)	Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	
Depleted Below Dark Surface (A11) Thick Dark Surface (A12)	Depleted Dark Surface (F7) Redox Depressions (F8)	
Sandy Mucky Mineral (S1)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4)	Terriar Foots (F5)	wetland hydrology must be present.
Restrictive Layer (if present):		liotalia ilyalology maet 20 p. ceem
Type:		
Depth (inches):		Hydric Soil Present? Yes No
Remarks:	4	Hydric Soil Flesent: Tes No 4
HYDROLOGY		
Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is su	fficient)	Water Marks (B1) (Riverine)
Surface Water (A1)	Salt Crust (B11)	Sediment Deposits (B2) (Riverine)
High Water Table (A2)	Biotic Crust (B12)	Drift Deposits (B3) (Riverine)
Saturation (A3)	Aquatic Invertebrates (B13)	Drainage Patterns (B10)
Water Marks (B1) (Nonriverine)	Hydrogen Sulfide Odor (C1)	Dry-Season Water Table (C2)
Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Liv	ving Roots (C3) Thin Muck Surface (C7)
Drift Deposits (B3) (Nonriverine)	Presence of Reduced Iron (C4)	Crayfish Burrows (C8)
Surface Soil Cracks (B6)	Recent Iron Reduction in Plowed	d Soils (C6) Saturation Visible on Aerial Imagery (C9)
Inundation Visible on Aerial Imagery (B7) Other (Explain in Remarks)	Shallow Aquitard (D3)
Water-Stained Leaves (B9)		FAC-Neutral Test (D5)
Field Observations:		
Surface Water Present? Yes	No Depth (inches):	
Water Table Present? Yes	No V Depth (inches):	
Saturation Present? Yes	No/_ Depth (inches):	Wetland Hydrology Present? Yes No
(includes capillary fringe)		
Describe Recorded Data (stream gauge, n	nonitoring well, aerial photos, previous inspe	ections), if available:
Remarks:		
		A.
		•
Gance Hall		
Grass Valler		The state of the s

WETLAND DETERMINATION DATA FORM – Arid West Region

upland

Project/Site: Goldan Hula City/County: She	erman Sampling Date: 6/14/07
	State: 10R Sampling Point: DP 3X 1
Investigator(s): Sos W Ixst Section, Township, Rai	
Landform (hillslope, terrace, etc.): hill slope Local relief (concave, of the concave)	
$\boldsymbol{\mathcal{P}}$	Long: Datum:
Soil Map Unit Name: Lickstable + very stony loan 160	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
	"Normal Circumstances" present? Yes No
	eded, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point le	
Hydrophytic Vegetation Present? Hydric Soil Present? Wetland Hydrology Present? Yes No Is the Sampled within a Wetland Wetland Hydrology Present?	. /
UpNW tip of Line #1, in crane line, with above old homested. 2 photos - 10	n forested ravine immediately
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Indicator Species? Status	Dominance Test worksheet:
1. Lobard poplar hubrid PONIX 30% yes FACW	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2	Total Number of Dominant Species Across All Strata: (B)
3	Species Across All Strata: (B)
Total Cover: 30	Percent of Dominant Species That Are OBL, FACW, or FAC: (A/B)
1	Prevalence Index worksheet:
2	Total % Cover of: Multiply by:
3	OBL species x1=
4	FACW species 3 x 2 = 62
5	FAC species x 3 =
Total Cover:	FACU species x 4 = UPL species x5 =3070
1. Bromus tectorum cheatgiass 60 yes NL	Column Totals: (A) (B)
2. Canary reed a rass PHAR Y21. Y FACW	362 114
3. Wild caraway CACO Caruncary 20 ys NV	Prevalence Index = B/A =
4. Thistle Circiumsp 5 0/ NI	Hydrophytic Vegetation Indicators:
5/ Buebumah whatarass / 15 / API	Dominance Test is >50%
6. Agropyim spicata	Prevalence Index is \$3.01
<u> </u>	Morphological Adaptations¹ (Provide supporting data in Remarks or on a separate sheet)
8 to blossom	Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover: _/O() Woody Vine Stratum	
1	¹Indicators of hydric soil and wetland hydrology must
2	be present.
Total Cover: % Bare Ground in Herb Stratum % Cover of Biotic Crust	Hydrophytic Vegetation Present? Yes No
Remarks:	cooley found to some cide
Remarks: Lombardy hybrid - rated as FACW, as most plantings	t poplato, touma stream sine
proma ng s	

Depth Matrix Redox Features	onfirm the absence of indicators.)
	-
(inches) Color (moist) % Color (moist) % Type Lo	
0210 10 YR 3/2	silt loen
0-13 10 1 R 3/2 981. 25 YR 3/6 tr 0 P	L siltlen
<u> </u>	
,	2
Type: C=Concentration, D=Depletion, RM=Reduced Matrix. ² Location: PL=Pore Lin	ing PC-Poot Channel M=Matrix
Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2) Stripped Matrix (\$6)	2 cm Muck (A10) (LRR B)
Black Histic (A3) Loamy-Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C) Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D) Redox Dark Surface (F6)	
Depleted Below Dark-Surface (A11) Depleted Dark Surface (F7)	•
Thick Dark Surface (A12) Redox Depressions (F8)	1
Sandy Mucky Mineral (S1) Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4) Restrictive Layer (if present):	wetland hydrology must be present.
Type:	·
0//	W-11-0-11-0-11-0-11-0-11-11-11-11-11-11-1
	Hydric Soil Present? Yes No
Remarks: Trace redox between 10-13"	
may be a problematic soil due to volce	anic ach in alla
may be a problemance sees ours to voice	
but there was not wetland veg on	
	metland hydrology
HYDROLOGY	metland hydrology
HYDROLOGY	metland hydrology
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) Salt Crust (B11)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Solit Crust (B11) Biotic Crust (B12)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine)
HYDROLOGY Wetland Hydrology Indicators:	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10)
Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sufficient) Balt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Oxidized Rhizospheres along Living	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) g Roots (C3) Thin Muck Surface (C7)
HYDROLOGY Wetland Hydrology Indicators: Primary Indicators (any one indicator is sufficient) Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine) Drift Deposits (B3) (Nonriverine) Presence of Reduced Iron (C4)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) g Roots (C3) Thin Muck Surface (C7) Crayfish Burrows (C8)
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WETLAND DETERMINATION DATA FORM	I – Arid West Region upland
Project/Site: Golden Hills City/County: Sh	• / /
	State: OR Sampling Point: DP3X2
Investigator(s): SASW, LXST Section, Township, R	
Landform (hillslope) terrace, etc.): Ehillslope Local relief (concave	
Subregion (LRR): Lat:	Long: Datum:
Soil Map Unit Name: Lickskillet very stony loam/160	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes No	
Are Vegetation, Soil, or Hydrology significantly disturbed? No	
Are Vegetation, Soil, or Hydrology naturally problematic? No (If r	needed, explain any answers in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling point	locations, transects, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sample	od Δrea
Hydric Soil Present? Yes No within a Wette	and? Yes No
Wetland Hydrology Present? Yes No	
Above ~ further upstope of DP3	$8X1 \sim 30ft W$
VEGETATION	The state of the s
Absolute Dominant Indicator	
Tree Stratum (Use scientific names.) 1. Poplur hybrid PONI x 80 us FACU	
2	Total Number of Dominant Species Across All Strata: (B)
4 Total Cover:	Percent of Dominant Species That Are OBL, FACW, or FAC:
Sapling/Shrub Stratum	Prevalence Index worksheet:
1	
2	OBL species x1 =
4	FACW species x 2 =
5.	FAC species x 3 =
Total Cover:	FACU species x 4 =
Herb Stratum	UPL species x 5 =
1. Blueburel Wheats MSS PSP40 yes UPL	Column Totals: (A) (B)
2 Cheateric BRTS 40 NL	- I
3. WITO THE ARCT	Prevalence Index = B/A =
4. Bedstraw GAAP Galium aborno trace FAC	
5. Wild Caraway CACO 10 NI	Dominance Test is >50% Prevalence Index is ≤3.0¹
6.	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation ¹ (Explain)
Total Cover: 45	Problematic Hydrophytic vegetation (Explain)
Woody Vine Stratum 1	¹Indicators of hydric soil and wetland hydrology must be present.
2	<u>-</u> '
Total Cover: % Bare Ground in Herb Stratum % Cover of Biotic Crust	Hydrophytic Vegetation Present? Yes No
Remarks:	
·- ·	

Sampling Point: 0'P 3X3

Depth Matri		Redox Features	_
(inches) Color (moist)		lor (moist) % Type ¹ Lo	\$ 1 1
0-12 104R3	12		soft loan
	•		v
	•		
		······	
	$\overline{}$		
	- \		
	 		
	\		
Type: C=Concentration, D=I	Depletion, RM=Reduc	ced Matrix. ² Location: PL=Pore Lin	ing, RC=Root Channel, M=Matrix.
lydric Soil Indicators: (App			Indicators for Problematic Hydric Soils ³ :
Histosol (A1)		Sandy Redox (S5)	1 cm Muck (A9) (LRR C)
Histic Epipedon (A2)	_	Stripped Matrix (S6)	2 cm Muck (A10) (LRR B)
Black Histic (A3)		_ Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
Hydrogen Sulfide (A4)		Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LF	RR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
1 cm Muck (A9) (LRR D)		Redox Dark Surface (F6)	
Depleted Below Dark Sur	rface (A11)	Depleted Dark Surface (F7)	
Thick Dark Surface (A12)		Redox Depressions (F8)	_
Sandy Mucky Mineral (S		_ Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and
Sandy Gleyed Matrix (S4	•		wetland hydrology must be present.
Restrictive Layer (if present	t):		
Type:			
Depth (inches):			Hydric Soil Present? Yes No
Remarks:	1		
	1		
YDROLOGY	1		
YDROLOGY	ors:		Secondary Indicators (2 or more required)
YDROLOGY Wetland Hydrology Indicato		j	
YDROLOGY Wetland Hydrology Indicato		Salt Crust (B11)	Secondary Indicators (2 or more required)
YDROLOGY Wetland Hydrology Indicato Primary Indicators (any one in	ndicator is sufficient) -	Salt Crust (B11) Biotic Crust (B12)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
YDROLOGY Wetland Hydrology Indicato Primary Indicators (any one in Surface Water (A1)	ndicator is sufficient) -		Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10)
YDROLOGY Wetland Hydrology Indicato Primary Indicators (any one in Surface Water (A1) High Water Table (A2) Saturation (A3)	ndicator is sufficient)	Biotic Crust (B12) Aquatic Invertebrates (B13)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10)
YDROLOGY Wetland Hydrology Indicato Primary Indicators (any one in Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonri	ndicator is sufficient)	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2)
YDROLOGY Wetland Hydrology Indicator Primary Indicators (any one in Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonri Sediment Deposits (B2)	iverine) (Nonriverine)	Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Livin	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Patterns (B10) Dry-Season Water Table (C2) g Roots (C3) Thin Muck Surface (C7)
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WETLAND DETERMINATION DATA FO	RM – Arid West Region	upland
Project/Site: Goldon Hills City/County:	Homan	Sampling Date: 6/14/07
· •		Sampling Point: DP 3 4
Investigator(s): Soc(1) / VST Section Townsh	in Range 23 TOIN.	RITE
Landform (hillslope terrace etc.): drain a go fortune Local relief (con	cave course, tous, + cox	Calle Slone (%): 3/
Landform (hillslope, terrace, etc.): drainage feature Local relief (con Subregion (LRR): Lat:	Long:	Datum:
Soil Map Unit Name: Alderly Silt loom 7-151, /10	NWI classific	ation:
Are climatic / hydrologic conditions on the site typical for this time of year? Yes	No (If no, explain in R	emarks.)
Are Vegetation, Soil, or Hydrology significantly disturbed? \(\lambda_{\text{sign}} \)	Are "Normal Circumstances" p	resent? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic?	(If needed, explain any answe	rs in Remarks.)
SUMMARY OF FINDINGS – Attach site map showing sampling po	oint locations, transects	, important features, etc.
Hydrophytic Vegetation Present? Yes No Is the Sar	mpled Area	/
Hydric Soil Present? Yes No within a W	Wetland? Yes	No <u>/</u> _
Wetland Hydrology Present? Yes No		
Remarks: photo 31 wide CRP	, e.u.	
Turbine run #5		
VEGETATION		
Absolute Dominant India	cator Dominance Test work	sheet:
Tree Stratum (Use scientific names.) <u>% Cover Species? Statum</u> 1.	Number of Dominant Sp	
2		
3	Total Number of Domin Species Across All Stra)
4	Percent of Dominant Sp	
Total Cover:	That Are OBL, FACW,	or FAC: (A/B)
1	Prevalence Index wor	ksheet:
2	Total % Cover of:	Multiply by:
3.		x1=
4		x2=
5	FACILITIES	
Total Cover:	l l	x 4 = x 5 =
1. wheat TRAS Triticum autum 40 V	11 1	^3 (B)
2 cheat aras BRTE, 10 N		(5)
3. int. wheat BRIN 30 V N		= B/A =
4	Hydrophytic Vegetation	
5	Dominance Test is	*
6	Prevalence Index is	
7	Worphologisal Ada data in Remarks	ptations ¹ (Provide supporting or on a separate sheet)
8	Problematic Hydro	ohytic Vegetation1 (Explain)
Woody Vine Stratum		
1		I and wetland hydrology must
2	be present.	
Total Cover:	Hydrophytic Vegetation	,
% Bare Ground in Herb Stratum 201. % Cover of Biotic Crust	Present? Ye	s No
Remarks:		

(inches) Color (moist) %	Redox Features Color (moist) % Type ¹ Loc ²	Texture Remarks
2 4 42	- 	. 11. 1
<u> </u>		silt loan
		•
	M=Reduced Matrix. ² Location: PL=Pore Lining,	
ydric Soil Indicators: (Applicable to a	-	Indicators for Problematic Hydric Soils ³ :
Histosol (A1) Histic Epipedon (A2)	Sandy Redox (S5) Stripped Matrix (S6)	1 cm Muck (A9) (LRR C) 2 cm Muck (A10) (LRR B)
_ Histic Epipedon (A2) _ Black Histic (A3)	Suppled Matrix (30) Loamy Mucky Mineral (F1)	Reduced Vertic (F18)
_ Hydrogen Sulfide (A4)	Loamy Gleyed Matrix (F2)	Red Parent Material (TF2)
Stratified Layers (A5) (LRR C)	Depleted Matrix (F3)	Other (Explain in Remarks)
_ 1 cm Muck (A9) (LRR D)	Redox Dark Surface (F6)	22
_ Depleted Below Dark Surface (A11)	Depleted Dark Surface (F7)	
_ Thick Dark Surface (A12)	Redox Depressions (F8)	3) nationators of hydrophydia
_ Sandy Mucky Mineral (S1) _ Sandy Gleyed Matrix (S4)	Vernal Pools (F9)	³ Indicators of hydrophytic vegetation and wetland hydrology must be present.
estrictive Layer (if present):	the state of the s	wouldn't rydrology must be present.
Type:		,
Depth (inches):		Hydric Soil Present? Yes No/_
emarks:		
YDROLOGY	·	
/etland Hydrology Indicators:	_	Secondary Indicators (2 or more required)
	ufficient)	Secondary Indicators (2 or more required) Water Marks (B1) (Riverine)
	ufficient) Q Salt Crust (B11)	
rimary Indicators (any one indicator is su	•	Water Marks (B1) (Riverine)
rimary Indicators (any one Indicator is su Surface Water (A1)	Salt Crust (B11)	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine)
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rimary Indicators (any one Indicator is su Surface Water (A1) High Water Table (A2) Saturation (A3) Water Marks (B1) (Nonriverine) Sediment Deposits (B2) (Nonriverine)	Salt Crust (B11) Biotic Crust (B12) Aquatic Invertebrates (B13) Hydrogen Sulfide Odor (C1) Oxidized Rhizospheres along Living Ro	Water Marks (B1) (Riverine) Sediment Deposits (B2) (Riverine) Drift Deposits (B3) (Riverine) Drainage Pattems (B10) Dry-Season Water Table (C2) Thin Muck Surface (C7)
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WEILAND DETERMINATION DATA FORM	- Arid West Region upland
Project/Site: Goldon Hills City/County: 5hos	W ₊
Applicant/Owner:	State: OR Sampling Point: DP 3-7
Investigator(s): Sasw Ixst Section, Township, Ra	ange: 27, TOW, RV7E
Landform (hillslope, terrace, etc.): terrace Local relief (concave,	
Subregion (LRR): Lat:	_ Long: Datum:
Soil Map Unit Name: Lickskillet - Bale over complex 2-201/17C	
Are climatic / hydrologic conditions on the site typical for this time of year? Yes/ No _	
Are Vegetation, Soil, or Hydrology significantly disturbed? NO Are	"Normal Circumstances" present? Yes No
Are Vegetation, Soil, or Hydrology naturally problematic? NO (If no	
SUMMARY OF FINDINGS – Attach site map showing sampling point I	ocations, transects, important features, etc.
vveuand Hydrology Present? YesNo	nd? Yes No 1
Remarks: Cultivated wheat south side, but CRP on Nor	thside
photo #30 South 5 turbine RM	
VEGETATION	
Tree Stratum (Use scientific names.) Absolute Dominant Indicator % Cover Species? Status	Dominance Test worksheet:
Tree Stratum (Use scientific names.) % Cover Species? Status 1	Number of Dominant Species That Are OBL, FACW, or FAC: (A)
2.	,
3	Total Number of Dominant Species Across All Strata: (B)
4	Percent of Dominant Species (_
Total Cover:	That Are OBL, FACW, or FAC: (A/B)
Sapling/Shrub Stratum 1 \times \tin \times \times \times \times \times \times \times \times \times	Prevalence Index worksheet:
2.	Total % Cover of: Multiply by:
3.	OBL species x 1 =
4,	FACW species x2 =
5	FAC species x 3 =
Total Cover:	FACU species x 4 =
Herb Stratum 1 UNDO A TRAS 3/0 V NL	UPL species x 5 =
	Column Totals: (A) (B)
2. Cheatarass BRTS. 301. V NL 3. morning alory COAR 201. V NL	Prevalence Index = B/A =
4 varrows Acmi 5% FACU	Hydrophytic Vegetation Indicators:
	Dominance Test is >50%
6	Prevalence Index is ≤3.0¹
7	Morphological Adaptations¹ (Provide supporting
8	data in Remarks or on a separate sheet) Problematic Hydrophytic Vegetation¹ (Explain)
Total Cover:	Problematic Hydrophytic Vegetation (Explain)
1	¹ Indicators of hydric soil and wetland hydrology must be present.
2	
Total Cover: % Bare Ground in Herb Stratum % Cover of Biotic Crust	Hydrophytic Vegetation Present? Yes No
Remarks: base of channel 80% bone grow	Present? Yes No
pase of channe sor bone 3.	
	. 186

Grass Valley

Wetland Delineation Golden Hills Wind Farm

APPENDIX 2 - DATA PLOT PHOTOS

Delineated Wetlands



Figure 1. Wetland A, View to East. Figure 2. Wetland B, View to West







Figure 4. Wetland D, View to West



Figure 5. Wetland E, View to Northwest



Figure 6. Wetland F, View to Northwest



Figure 7. Wetland G. View to East



Figure 8. Wetland H. View to South



Figure 9. Wetland I, View to South



Figure 10. Wetland K, View to North



Figure 11. Wetland M, View to Northeast



Figure 12. Wetland N, View to North

Typical Blue line Drainage Features with Upland Determinations



Upland Determinations at NWI Sites.





Figure 19. Upland DP B2.

Figure 20. Upland DP 2J.

ATTACHMENT J-2 Joint Application Form



US Army Corps Of Engineers (Portland District)

Joint Permit Application Form



DATE STAMP

Of Linginie	ers (Portland Dist	iict)						ATE STAMP			
AGENCIES WILL ASSIGN NUMBERS Corps Action ID Number Oregon Department of State Lands No											
SEND ONE SIGNED COPY OF YOUR APPLICATION TO EACH AGENCY											
District Engineer ATTN: CENWP-OD-GP PO Box 2946 Portland, OR 97208-2946 503-808-4373 SEND ONE SIGNED COPY OF West of the Co State of Orego Department of PO Box 4395 Portland, OR 503-878-3805				cades: State Lands Unit 18	AIILI		East of the Cascades: State of Oregon Department of State Lands OR 1645 NE Forbes Road, Suite 112 Bend, Oregon 97701 541-388-6112				
(1) Applican	ıt	Attn: Kelly						s Phone #	(713) 354-2153		
	d Address	•		North Ar	nerica In	c	Home P		` '		
raine and	u Auuress		Alternative Energy North America Inc. Louisiana Street, 33rd Floor			FAX #		(713) 354-2120			
		Houston, T		31 4 1 1001			E-mail:		Kelly.obrien@b	n com	
										<u> </u>	
Authorize		Dana Siegf		_				s Phone #	(503) 223-6663		
	d Address		ns and Assoc		:.		Home P	hone#	(202) 2555		
⊠Consultant	t Contractor		River Parkwa	ıy			FAX#		(503) 223-2701		
		Portland, O					E-mail:		dns@deainc.com	n	
Property			Exhibit F. B	PAE leas	ses the			s Phone #			
	d Address	subject lan	ds				Home P	hone#			
(If different	t than applicant)1						FAX#				
							E-mail:				
(2)			PROJ	ECT LO	CATIO						
	r other descriptive loca				_			on (attach <u>tav</u>			
Near Wasco,	Sherman County O	regon		Quarter/ See	Quarter	Section Attac					
In or Near (City	or Town) Wasco	Coun	ty Sherman		Tax N	Map # S	ee Exhibit	F Ta	ax Lot #2 See Exhib	oit F	
	rway Name (pick one)					e (in DD.DDDD forn	nat)				
Wetland		NA		45.53 N 120.65 W							
Directions to t	the site: I-84 east, Hy	vy 97 south, I	Hwy 206 east	i							
(3)			POSED PI								
Type:		Excavation (1	removal)	In-	Water St	ructure		aintain/Rep	air an Existing St	ructure	
Brief Descrip	otion: Install po	ower collec	tion cables	as part	of the $\frac{1}{4}$	00 M	W Golde	n Hills W	ind Farm		
				Fill							
	Riprap Rock	Gravel	Sand	Silt	Clay	Orga	anics	Other:			
Wetlands		0		orary (cy)		<350			Total cubic	500,000	
	Impact Area in Acre	es 0.07	Dimensions	`	_' 15 ave	W' 5	yards for project		yards for project	Approx.	
Waters	(.)/	Temporary (cy) 0			-			(including outside OHW/wetlands)			
below OHW	Impact Area in Acre	\ /			W'		H'	OTTIT/ Worldings)			
				Remo			-	-			
	Riprap Rock	Gravel		Silt [Clay		anics	Other:		T	
Wetlands	\ \ \ \ /	0		orary (cy)		<350			Total Cubic	150,000	
	Impact Area in Acre		Dimensions	(feet) I	_' 15 ave	W' 5	50	H' 3	yards for project (including outside		
Waters	Permanent (cy)	0	Temp	orary (cy))	0			OHW/wetlands)		
below OHW	Impact Area in Acre	es 0	Dimensions	(feet) I	,	W'	H'				

 $^{^{\}rm 1}$ If applicant is not the property owner, permission to conduct the work must be attached.

² Attach a copy of all tax maps with the project area highlighted.

^{*} Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.

Trad (161) C	1 DEO)
Total acres of construction related ground disturbance: 1147 acres (If 1 acre or more a 1200 Is the disposal area upland? Yes No Impervious surface created		
	Yes No	If yes, please explain in
· · · · · · · · · · · · · · · · · · ·	Yes No	the project description
· · · · · · · · · · · · · · · · · · ·	Yes No	(in block 4)
	Yes No	(III block 4)
(4) PROPOSED PROJECT PURPOSE & DESC		
Project Purpose and Need:		
Provide a description of the public, social, economic, or environmental benefits of t	the project alo	ong with any supporting formal
actions of a public body (e.g. city or county government), as appropriate.*	1 3	0 7 11 03
The purpose of the project is to generate electric power from a renewable source. T		
electricity for delivery into the grid at two facilities owned and operated by Bonne		
meet the growing demand for renewable energy and decreasing overall reliance on		
The project will also provide income to farmers, improve local roadways, and gene		
payments to Sherman County. Environmental impacts will be minimal. Approxim	nately 3000 sc	quare feet of wetland will be
temporarily disturbed and restored as a result of the project.		
Cultural resources have been surreyed and will be evoided (see Eyhibit C of the An	unlication for S	Sita Cartificata (ASC))
Cultural resources have been surveyed and will be avoided (see Exhibit S of the Ap No threatened or endangered species will be affected as a result of the project (see I		
The Deschutes River and John Day River lie within 10 miles of the project site, but		
within these areas.	no part of the	project development win be
within these treas.		
Project Description:		
Please describe in detail the proposed removal and fill activities, including the follo	wing informat	tion:
□ Volumes and acreages of all fill and removal activities in waterway or wetland s		
□ Permanent and temporary impacts	1 ,	
☐ Types of materials (e.g., gravel, silt, clay, etc.)		
☐ How the project will be accomplished (i.e., describe construction methods, equip	oment, site acc	cess)
☐ Describe any changes that the project may make to the hydraulic and hydrology		
of stream and surface water flow, estimated winter and summer flow volumes.) of the water	s of the state, and an
explanation of measures taken to avoid or minimize any adverse effects of thos	_	
\square Is any of the work already complete? \square yes \boxtimes no If yes, please describe the α	completed wo	rk.
	1 1	. 11
In addition, for fish habitat or wetland restoration or enhancement activities, comp	plete the infor	mation requested in
supplemental Fish Habitat or Wetland Restoration and Enhancement form.		
Underground collector lines will cross wetland areas at 4 locations. Because the co	llactor lines be	ava limitad pawar apreving
capacity, several parallel lines may be placed at any given crossing, for a total width		
average 15 feet wide. $(4 \times 50^{\circ} \times 15^{\circ} = 3000 \text{ sq ft}, 0.07 \text{ acres})$ Collectors will be pla		
so that farming activities can continue to occur over them. (9000 cu ft/27 cu ft/yd =		
waters of the state or US. Native material will be excavated from the crossings, and		
Then this native material will be re-deposited back into the crossing trenches. No h		
to occur, as the crossing area will be restored to their pre-construction contours and		diologic changes are expected
to occur, as the crossing area will be restored to their pre construction contours and	condition.	

Please describe in detail the proposed removal and fill activities, including the following information: Volumes and acreages of all fill and removal activities in waterway or wetland separately Permanent and temporary impacts Types of materials (e.g., gravel, silt, clay, etc.) How the project will be accomplished (i.e., describe construction methods, equipment, site access) Describe any changes that the project may make to the hydraulic and hydrologic characteristics (e.g., general direction of stream and surface water flow, estimated winter and summer flow volumes.) of the waters of the state, and an explanation of measures taken to avoid or minimize any adverse effects of those changes. Is any of the work already complete? yes no If yes, please describe the completed work. In addition, for fish habitat or wetland restoration or enhancement activities, complete the information requested in supplemental Fish Habitat or Wetland Restoration and Enhancement form. Underground collector lines will cross wetland areas at 4 locations. Because the collector lines have limited power carrying capacity, several parallel lines may be placed at any given crossing, for a total width of 50 feet of disturbance. The wetlands average 15 feet wide. (4 x 50' x 15' = 3000 sq ft, 0.07 acres) Collectors will be placed at least 3 feet below the ground surface, so that farming activities can continue to occur over them. (9000 cu ft/27 cu ft/yd = 333 cu yd). There will be no fill in other waters of the state or US. Native material will be excavated from the crossings, and temporarily stored on adjacent uplands. Then this native material will be re-deposited back into the crossing trenches. No hydraulic or hydrologic changes are expected to occur, as the crossing area will be restored to their pre-construction contours and condition.

Project Drawings:					
State the number of project drawing sheets included with this application:3					
A complete application must include a location map, site plan, cross-section drawings and recent aerial photo as follows and as applicable to the project:					
□ Location map (must be legible with street names)					
□ Site plan including;					
□ Entire project site and activity areas					
Existing and proposed contours Location of anti-organization method boundaries on other insiediational boundaries.					
 Location of ordinary high water, wetland boundaries or other jurisdictional boundaries Identification of temporary and permanent impact areas within waterways or wetlands 					
☐ Map scale or dimensions and north arrow					
□ Location of staging areas					
□ Location of construction access					
☐ Location of cross section(s), as applicable					
 Location of mitigation area, if applicable 					
Cross section drowing(s) including					
□ Cross section drawing(s) including; □ Existing and proposed elevations					
☐ Identification of temporary and permanent impact areas within waterways or wetlands					
□ Ordinary high water and/or wetland boundary or other jurisdictional boundaries					
□ Map scale or dimensions					
□ Recent Aerial photo (1:200, or if not available for your site, the highest resolution available)					
Will any construction debris, runoff, etc., enter a wetland or waterway? Yes No					
If yes, describe the type of discharge and show the discharge location on the site plan.					
Estimated Project Start Date: <u>Spring 2008</u> Estimated Project Completion Date: <u>December 31, 2008</u>					

(5) PROJECT IMPACTS AND ALTERNATIVES

Alternatives Analysis:

Describe alternative sites and project designs that were considered to avoid or minimize impacts to the waterway or wetland. (Include alternative design(s) with less impact and reasons why the alternative(s) were not chosen. Reference OAR $\underline{141-085-0025}$ (3(j)) and $\underline{141-085-0029}$ (4 through 6) for more information.*)

Overhead crossings were considered in order to avoid the wetland impacts. However, overhead lines are extremely dangerous to crop dusters, which fly within 10 to 12 feet of the ground. This option was not selected for logistical and safety reasons.

Boring under these small wetlands is prohibitively expensive when compared to the small level of disturbance to these small, readily restored wetland drainages. Moreover, bedrock conditions may not allow boring and would make it even more expensive.

Measures to minimize impacts:

Describe what measures you will use (before and after construction) to minimize impacts to the waterway or wetland. These may include but are not limited to the following:

- □ For projects with ground disturbance include an erosion control plan or description of other best management practices (BMP's) as appropriate. (For more information on erosion control practices see DEQ's Oregon <u>Sediment and Erosion Control Manual</u>)
- □ For work in waterways where fish or flowing water are likely to be present, discuss how the work area will be isolated from the flowing water.
- □ If native migratory fish are present (or were historically present) and you are installing, replacing or abandoning a culvert or other potential obstruction to fish passage, complete and attach a statement of how the Fish Passage Requirements, set by the Oregon Department of Fish and Wildlife will be met.
 - Excavated material will be stockpiled in uplands prior to replacing within the wetland crossings
 - All best management practices, including silt fences, hay bales, construction timing and housekeeping measures will be implemented in accordance with the 1200-C permit (see Exhibit I of the ASC)
 - Wetlands that will not be disturbed will be fenced with orange construction fencing to prevent inadvertent disturbance in these areas
 - No work will occur in the wetlands when there is flowing water present

The wetlands and drainages in this area are all non-fish bearing. No fish passage is required or proposed.

Descripti	on of resources in p	 roject area						
Impact ar		Estuary	River	Lake	Stream	Freshwater Wetland		
Describe the existing physical and biological characteristics of the wetland/waterway site by area and type of resource (Use separate sheets and photos, if necessary).								
For wetlands, include, as applicable:								
□ <u>Cowardin</u> and <u>Hydrogeomorphic(HGM)</u> wetland class(s)*								
	 □ Whether the wetland is freshwater or tidal □ Assessment of the functional attributes of the wetland to be impacted* 							
					101			
		pools, bogs, fens, n	nature forested w	etland, seasonal	mudflats, or nati	ive wet prairies in or near the		
Form	project area.) vaterways, include a c	description of as a	onlicable:					
<u>1 Of v</u>	Channel and bank c		ррпсавіс.					
_	Type and condition		ion*					
_	Channel morpholog							
	Stream substrate*		1 /					
	Fish and wildlife (ty	pe, abundance, per	riod of use, signif	ficance of site)				
	General hydrologica	al conditions (e.g. s	stream flow, seas	onal fluctuations	s)*			
For com	plete wetland inform	nation, see Attach	nment J-1 of Ex	nibit J of the AS	SC			
	ands delineated were sh, American speedy		•	•	ygrass, cattails,	intermediate wheatgrass,		
1	, .	,						
Describe	the existing navigatio	n, fishing and reci	reational use of t	he waterway or v	vetland.*			
Because t wetlands.	•	adwater wetlands of	on private propert	y, no navigation,	, fishing ore recre	eational use occurs in these		

Site Restoration/Rehabilitation					
□ For temporary disturbance of soils and/or vegetation in waterways, wetlands or riparian areas, please discuss how you will restore the site after construction including any monitoring, if necessary*					
Upon completion of installation of about 12 inches, then salvaged to would occur by applying a native sand drilling.	psoil would be redistribu	ted to match adja	cent grades. R	evegetation in w	etland areas
Mitigation					
Describe the reasonably expected a	adverse effects of the deve	elopment of this pr	oject and how t	he effects will be	mitigated.*
□ For permanent impact to wetland 085-0121 to OAR 141-085-017	nds, complete and attach	a Compensatory			
□ For permanent impact to water	rways or riparian areas,		ch a Compensai	tory Mitigation (C	CM) plan (See
OAR 141-085-0115 for plan re □ For permanent impact to estua	rine wetlands, you must s		ne Resource Rep	olacement Plan. (See <u>OAR 141-</u>
085-0240 to OAR 141-085-025	7 for plan requirements)	*			
All project impacts in waters of the	state/US will be tempora	ary; therefore, no c	compensatory m	nitigation is requi	red.
	-				
Mitigation Location Information	(Fill out only when mitigation	on is proposed or reau	ired) NOT APPLI	CABLE	
Proposed mitigation: Onsite Mit		Type of mitigation			
(Check all that apply)	0	Wetland Mitigo			
☐Mitigation			impacts to other v		
Payment t			· ·	tion, fishing, or rec	
Street, Road or other descriptive location	on		1 1	(attach <u>tax lot map</u>	1
		Quarter/Quarter	Section	Township	Range
In or Near (City or Town)	County	Tax N	1 Мар #	Tax Lot:	# ³
Wetland/Waterway Name (pick one)	River Mile (if known)	Latitude (in DD.D	_	Longitude (in DI	
					
Name of waterway/watershed/ <u>HUC</u>	l	Name of mitigation	n bank (if applica	ible)	
traine of waterway watersnew <u>noc</u>		James Sy minganion	(J eppered	/	

Attach a copy of all tax maps with the project area highlighted.
 Italicized areas are not required by the Corps for a complete application, but may be necessary prior to final permit decision by the Corps.

(6) ADDITIONAL INFORMATION					
Adjoining Property Owners and Their Address and Phone Numbers (if more than 5, attach printed labels*)					
See Exhibit F of the ASC.					
Has the proposed activity or any related activity received the atter Lands in the past, e.g., wetland delineation, violation, permit, leas		of Engineers or the Department of State Yes No			
If yes, what identification number(s) were assigned by the respect Corps # State of Or	-				
Has a wetland delineation been completed for this site? If yes, by whom* David Evans and Associates, Inc.	$\boxtimes Yes$	$\square No$			
Has the wetland delineation been approved by DSL or the COE? (If yes, attach concurrence letter.)*	☐ Yes	$\square No$			
7) CITY/COUNTY PLANNING DEPARTMENT AFT	FIDAVIT (to be co	ompleted by local planning official) *			
I have reviewed the project outlined in this application and have determined that: This project is not regulated by the comprehensive plan and land use regulations. This project is consistent with the comprehensive plan and land use regulations. This project will be consistent with the comprehensive plan and land use regulations when the following local approval(s) are obtained. Conditional Use Approval Development Permit Other This project is not consistent with the comprehensive plan. Consistency requires a Plan Amendment Zone Change Other An application has has not been filed for local approvals checked above.					
Local planning official name (print) Signature	Title	City / County Date			
Comments:					
(8) COASTAL ZONE	CERTIFICATIO	N *			
If the proposed activity described in your permit application is within the Oregon coastal zone, the following certification is required before your application can be processed. A public notice will be issued with the certification statement, which will be forwarded to the Oregon Department of Land Conservation and Development for its concurrence or objection. For additional information on the Oregon Coastal Zone Management Program, contact the department at 635 Capitol Street NE, Suite 150, Salem, Oregon 97301 or call 503-373-0050. CERTIFICATION STATEMENT I certify that, to the best of my knowledge and belief, the proposed activity described in this application complies with the approved Oregon Coastal Zone Management Program and will be completed in a manner consistent with the program.					
NOT APPLICABLE					
Print /Type Name	Title				
Applicant Signature	Date				

(9)	SIGNATURES FOR.	JOINT APPLICATION	
application, and, to the best of my I possess the authority to undertake State Lands staff to enter into the a with an authorization, if granted. I	knowledge and belief, this the proposed activities. B bove-described property to herby authorize the person	I certify that I am familiar with the in information is true, complete, and accurate signing this application I consent to a inspecting the project location and to a identified in the authorized agent bloc furnish, upon request, supplemental in	rate. I further certify that allow Corps or Dept. of determine compliance k below to act in my
requirement of obtaining the permi	ts requested before comme intee permit issuance. The	y, state or federal agencies does not rele ncing the project. I understand that pa fee for the state application must acco	nyment of the required
		I certify that I may act as the duly author	orized agent of the applicant.
Robert L. Lukefahr Print /Type Name	President Title	Print /Type Name	Title
Applicant Signature	Date	Authorized Agent Signature	Date
Landowner signatures: For proj submerged and submersible lands, p		proposed on land not owned by the applic	cant, including <u>state-owned</u>
I certify that the applicant has my pe project on my property.*		I certify that the applicant has my perproposed mitigation on my property. involve long term protection and monarea.*	I also understand this may
Print /Type Name	Title	Print /Type Name	Title
Property Owner Signature	Date	Mitigation Property Owner Signate	ure Date



The project site is located in the following Township, Range, and Sections:

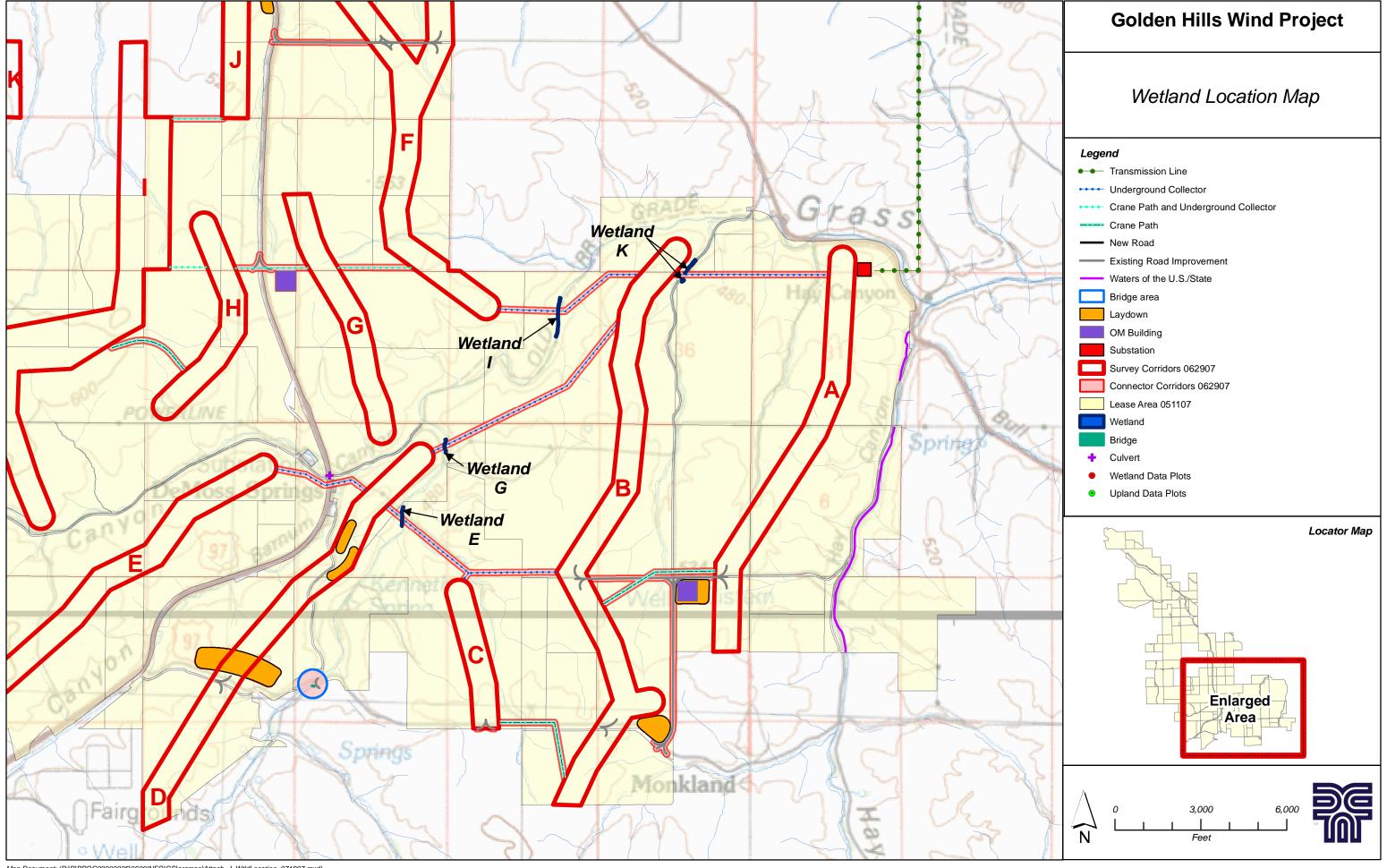
- Township 2 North, Range 16 East, Sections 7, 12, 13, 14, 23, 24, 25, 26, 27, 34, 35 and 36
- Township 2 North, Range 17 East, Sections 29, 30, 31, and 32
- Township 1 North, Range 16 East, Sections 1, 2, 3, 13, 24, 25, and 36
- Township 1 North, Range 17 East, Sections 5 through 8, Sections 15 through 23, and Sections 27 through 36
- Township 1 North, Range 18 East, Sections 30 and 31
- Township 1 South, Range 17 East, Sections 1 through 5, 6 through 14, 16, and
- Township 1 South, Range 18 East, Section 5 and 6

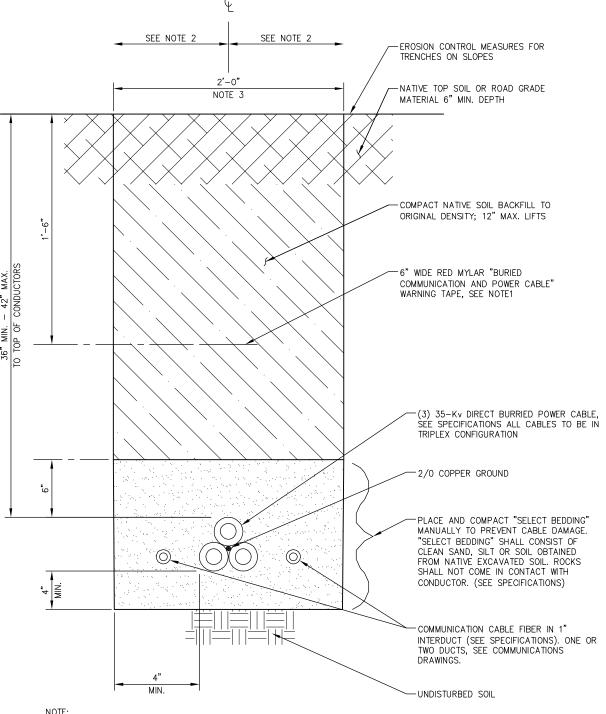










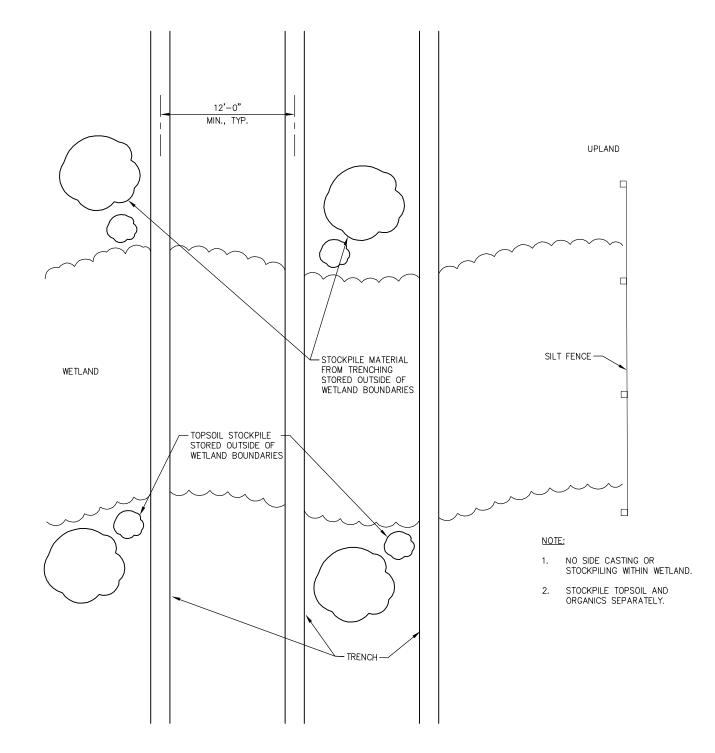


NOTE:

- ANCHOR WARNING TAPE IN NATIVE SOIL BACKFILL WITH WIRE HOOPS OR
 OTHER EFFECTIVE MEANS TO AVOID DISRUPTION AND MISALIGNMENT OF TAPE
- 2. EACH 3-PHASE CIRCUIT TRENCH SHALL BE SEPARATED FROM ALL OTHER CIRCUIT TRENCHES BY 12-FEET MINIMUM CENTERLINE TO CENTERLINE.
- 3. BASE BID TO INCLUDE 24" WIDE TRENCH. ALTERNATE TRENCH WIDTHS MAY BE CONSIDERED BY OWNER.

TYPICAL 35-kV, 3 PHASE, CABLE TRENCH (WITH COMMUNICATION CABLE)

SCALE: N.T.S.



CABLE TRENCH DETAIL

SCALE: N.T.S.

REVISIONS: DATE: DESIGN: CHECKED: REVISION NUMBER: SCALE: AS SHOWN PROJECT NUMBER: DRAWING FILE:

SHEET NO.

EXHIBIT K

LAND USE OAR 345-021-0010(1)(k)

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FIGURE

K-1 LAND USE ANALYSIS AREA – MAP

ATTACHMENTS

K-1 FARMLAND TECHNICAL MEMORANDUM

K.1 INTRODUCTION AND LAND USE REVIEW PATH

OAR 345-021-0010(1)(k) Information about the proposed facility's compliance with the statewide planning goals adopted by the Land Conservation and Development Commission, providing evidence to support a finding by the Council as required by OAR 345-022-0030. The applicant shall state whether the applicant elects to address the Council's land use standard by obtaining local land use approvals under ORS 469.504(1)(a) or by obtaining a Council determination under ORS 469.504(1)(b). An applicant may elect different processes for an energy facility and a related or supporting facility but may not otherwise combine the two processes. Notwithstanding OAR 345-021-0090(2), once the applicant has made an election, the applicant may not amend the application to make a different election. In this subsection, "affected local government" means a local government that has land use jurisdiction over any part of the proposed site of the facility.

Response: To issue a site certificate, the Oregon Energy Facility Siting Council (Council) must find that the proposed facility complies with the statewide land use planning goals (goals) adopted by the Land Conservation and Development Commission (LCDC). OAR 345-022-0030(1). The Applicant hereby elects to seek a Council determination of compliance with the Council's land use standard under ORS 469.504(1)(b). Under ORS 469.504(1)(b)(A)-(C), the application complies with the Council's land use standard if the Council determines that:

- (A) The facility complies with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted, and with any Land Conservation and Development Commission administrative rules and goals and any land use statutes that apply directly to the facility under ORS 197.646;
- (B) For an energy facility or a related or supporting facility that must be evaluated against the applicable substantive criteria pursuant to subsection (5) of this section, that the proposed facility does not comply with one or more of the applicable substantive criteria but does otherwise comply with the applicable statewide planning goals, or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section; or
- (C) For a facility that the council elects to evaluate against the statewide planning goals pursuant to subsection (5) of this section, that the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section.

Pursuant to ORS 469.504(1)(B)(A) above, this Exhibit K demonstrates that the Project complies with the applicable substantive criteria from the Sherman County (County) acknowledged comprehensive plan and land use ordinances, with applicable LCDC administrative rules and goals, and with any land use statutes directly applicable to the facility. Pursuant to ORS 469.504(1)(b)(B) above, this Exhibit K also demonstrates that an exception to statewide planning goal 3, agriculture, is justified under ORS 469.504(2).

K.2 LAND USE ANALYSIS AREA AND MAP

OAR 345-021-0010(1)(k)(A) *Include a map showing the comprehensive plan designations and land use zones in the analysis area.*

Response: Figure K-1 is a map that shows the facility's location, the Sherman County Comprehensive Plan (SCCP or Comprehensive Plan) designations and County land use zone of the project site, all areas of the site that may be temporarily disturbed during the design, construction or operation of the proposed Project, property adjacent to the site, and a half-mile study corridor around all of the proposed facilities. Land use designations within the analysis area are described in Section K.3.

The Project's disturbance area is shown on Figure B-3 in Exhibit B. The project component map is Figure C-2 in Exhibit C.

K.2.1 ENERGY FACILITY AND RELATED OR SUPPORTING FACILITIES

The Project is a wind energy facility with a peak electric generating capacity of approximately 400 megawatts (MW) and an average electric generating capacity of approximately 133 MW. The project site is located in unincorporated Sherman County approximately 1- to 10-miles from Wasco, Oregon, on private land that has been leased by the Applicant to develop the Project. The Project will consist of:

- Up to 267 wind turbines that have an aggregate nominal nameplate generating capacity of up to 400 MW. The turbines will most likely consist of one of the following turbines:
 - 1.65 MW turbine with hub height of 78 meters and rotor diameter of 82 meters.
 - 2.5 MW turbine with a hub height of 80 meters and rotor diameter of 96 meters.
- Approximately 50 miles of newly constructed access roads and turnaround areas.
- Up to six permanent meteorological towers and a supervisory control and data acquisition ("SCADA") system.
- A 34.5-kilovolt (kV) power collection system linking each turbine to the next and to the project substation. The 62-mile long power collection system will be underground.
- Two substations one at the eastern section of the site and one in the western section of the site. As noted above, 4 and 11-mile long overhead transmission lines will be constructed from each substation to the points of interconnection with BPA.
- An O&M facility, including shop facilities, a control room, a maintenance yard, a kitchen, an office, a washroom, and other facilities typical of this type of project.

The project site consists of relatively level privately owned agricultural land, primarily in dry land wheat production. Farming operations will continue directly adjacent to the turbines and access roads. The turbines and related or supporting facilities will be sited in a manner that minimizes disruption to existing farm operations. The Project will preclude farming on approximately 96 acres of farmland.

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The following table shows the loss of agricultural land during the life of the Project caused by each project component:

Principal Use		
Turbines/turbine towers/turbine pads:		
O&M facility	5	
Access roads and upgrades/associated underground collector lines:	75	
Subtotal	92	
Substations	4	
Transmission lines	0.1	
Subtotal		
TOTAL:	96	

The project components are described individually below.

Principal Facility

As is noted above, the energy facility will consist of up to 267 turbines, most likely with an installed peak generating capacity of either 1.65 MW or 2.5 MW per turbine, associated turbine towers, turbine pads and related equipment. See Exhibit B for detailed information about the components and dimensions of the turbines. Each turbine will be mounted on a tapered monopole supported by a reinforced concrete foundation.

Related or Supporting Facilities

Operations and Maintenance (O&M) Facility

An O&M facility located on up to a 5-acre site will be constructed for the Project. An onsite well, from which the Project will draw less than 5,000 gallons of water per day, and an on-site subsurface sewage disposal system to serve the new O&M building will be located adjacent to the new O&M building. A graveled parking area for employees, visitors, and equipment will be located in the vicinity of the building.

Temporary Staging Areas

There will be up to six principal, temporary laydown areas for the staging of construction equipment, wind turbines and their components, towers, and other parts, facilities, and equipment. Each laydown area will be covered with gravel. The gravel will be removed and the area restored after construction has been completed.

Before finalizing the location of the staging areas, the Project will discuss the proposed locations of these temporary areas with involved landowners to help mitigate any adverse impacts to farmland. After the Project is constructed, the staging areas will be removed and restored to wheat or native grasses.

Meteorological Stations

Up to six meteorological towers will be placed throughout the project site. The meteorological towers will collect wind resource data. These towers will be un-guyed

tubular structures up to approximately 85 meters (279 feet) tall.

In addition, a supervisory control and data acquisition (SCADA) system will be installed at the Project. The SCADA system will assist with the remote operation of the wind turbines, collect operating data from each wind turbine, and archive wind and performance data from various sources. The SCADA system will be linked (via fiber optic cables or other means of communication) to a central computer in the O&M facility. Where linked via fiber optic or other type of cables, those cables will generally be installed underground alongside the power collection conductors.

Access Roads

To the extent possible, existing roads will be used by the Project to minimize the need to construct new roads. Project construction vehicles and vehicles of project employees will travel to and from the site on existing federal, state, and local highways and roads.

Project workers will access some of the project construction areas via existing roads. In areas where there are no roads near proposed wind turbine strings, new access roads will be constructed with permanent turnaround areas at the end of each turbine string. Approximately 50 miles of new private roads and turn around areas will be constructed within the project site. In general, these roads will be up to approximately 36-feet wide during construction, and up to approximately 16-feet wide for operation, with an additional 4 feet of shoulders.. The location of the existing and proposed new access roads are shown on the project component map in Figure C-2 in Exhibit C. To the extent reasonably possible, the proposed new access roads will be located adjacent to the turbine towers. These roads will provide the Project with access to the turbines and related or supporting facilities, and will provide area farmers with improved, all-weather roads to access their fields.

Some improvements to existing roads will be required to accommodate construction equipment for the Project. Existing roads are typically 16- to 20-feet wide. Improvements for construction vehicles will involve providing an all-weather gravel surface for roads. Some existing roads will be widened up to approximately 36-feet for construction, and up to approximately 16-feet wide for operation, with an additional 4-feet of shoulders. Existing intersections will be widened as needed to allow trucks to maneuver long loads into the construction area. A turning radius of 130 to 150 feet is needed.

A final transportation plan describing these routes will be submitted to the County prior to the commencement of project construction.

Transmission Lines and Substations

Turbines will be linked by underground and above ground collector lines devoted solely to transmitting electrical energy generated by the Project to the project's substations. There will be two project substations that will deliver power to the BPA high-voltage transmission system.

The Project will interconnect with the BPA system by constructing a new substation in the eastern section of the project site on a graveled and fenced area of up to 2 acres, with a transformer, switching equipment and parking area. A transmission line approximately 4-miles long (see Figure C-2 in Exhibit C), will be built to the north side of the Klondike

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Schoolhouse Substation. This transmission line is proposed to be located adjacent to Sandon Road.

The second project substation would be located in the western portion of the project site and will also be approximately 2 acres, with a transformer, switching equipment and parking area. A transmission line approximately 11-miles long (see Figure C-2 in Exhibit C) will be constructed from this substation to BPA's John Day substation. The right-of-way for the transmission line to the John Day substation will be 200 feet wide for the 500 kV transmission line. Approximately 6 miles of this transmission line will be parallel to existing BPA 500 kV transmission line right-of-way.

The proposed transmission lines will be have a load carrying capacity adequate for the peak capacity of all of the connected turbines. The transmission line to John Day substation will be 11 miles long, on 120-foot high tubular steel or concrete towers; the 230 kV transmission line to Klondike Schoolhouse substation will be 4 miles long within an 150-foot right-of-way, on 100 to 110-foot high tubular steel or concrete towers.

K.3 COUNCIL DETERMINATION ON LAND USE

OAR 345-021-0010(1)(k)(C) *If the applicant elects to obtain a Council determination on land use:*

i. Identify the affected local government(s);

<u>Response</u>: The proposed Project will be sited solely in Sherman County, which is the affected local government.

ii. Identify the applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and that are in effect on the date the application is submitted and describe how the proposed facility complies with those criteria;

<u>Response</u>: The proposed Project complies with the applicable review criteria set forth in the SCCP and in the County Zoning Ordinance (SCZO or Zoning Ordinance) in the manner described in response to the County Zoning Ordinance development criteria and applicable County Comprehensive Plan goals and policies.

The proposed Project and all related or supporting facilities will be located within the Exclusive Farm Use (F-1) base zone (EFU zone). See Figure K-1. The Natural Hazards Combining District (Combining District) associated with Grass Canyon extends slightly into the analysis area south of Wasco near Moro. While portions of the micrositing corridors cross the Combining District, they are sufficiency wide enough that it is assumed the turbines will be placed outside of the Combining District because the turbines would be placed on the higher plateaus rather than in the steeper valleys where the Combining District is located. Therefore, it is assumed that the Project would not be built on any identified hazard area and the Combining District would not apply. See also Exhibit H, which indicates that the proposed wind turbines and other major project improvements appear to have been sited to avoid potential geologic hazard areas that could become destabilized by a seismic event. In addition, rock is present at shallow depths, and the groundwater table is deep. Considering these site conditions, the potential

for earthquake-induced landslides, lateral spreading, liquefaction and settlement/subsidence at the site are low. Moreover, Exhibit H also concludes that non-seismic geologic hazards, including slope instability and landslides, are not geologic hazards that will impact the project due to site conditions.

iii. Identify all Land Conservation and Development Commission administrative rules, statewide planning goals and land use statutes directly applicable to the facility under ORS 197.646(3) and describe how the proposed facility complies with those rules, goals and statutes.

<u>Response</u>: The acknowledged Comprehensive Plan and Zoning Ordinance incorporate all of the LCDC administrative rules, goals and statutes that are applicable to the Project.

iv. If the proposed facility might not comply with all applicable substantive criteria, identify the applicable statewide planning goals and describe how the proposed facility complies with those goals.

<u>Response</u>: The Sherman County Comprehensive Plan and Zoning Ordinance criteria have been acknowledged by LCDC and implement the statewide planning goals. As is described below, the Project complies with all applicable local substantive except that the size of the proposed Project exceeds the 20-acre maximum for development within the F-1 zone and will require an exception to statewide land use goal 3. The Project provides evidence in Section K.8 that justifies the exception.

v. If the proposed facility might not comply with all applicable substantive criteria or applicable statewide planning goals, describe why an exception to any applicable statewide planning goal is justified, providing evidence to support all findings by the Council required under ORS 469.504(2).

<u>Response</u>: The Project complies with all of the applicable substantive criteria and applicable goals, except that the Project will occupy more than 20 acres of non-high value farm land proposes an exception to goal 3 because the project. The Project provides evidence in Section K.8 that justifies the exception.

K.4 SHERMAN COUNTY ZONING ORDINANCE CRITERIA

- 1. SCZO Section 3.1.3—Conditional Uses Permitted in County EFU Zone SZCO Section 3.1.3(e) and (f), respectively, allow commercial utility facilities and transportation improvements to be developed in the EFU zone as conditional uses. Specifically, these sections provide as follows:
 - 3.1.3. <u>Conditional Uses Permitted</u>. In an F-1 zone the following uses are permitted when authorized in accordance with the requirements of Article 5 of this Ordinance and this Section:

* * *.

(e) Operations conducted for the following uses:

* * *

17 Commercial utility facilities.

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* * *

- Transmission Towers over 200 feet in height
- *(f)* Transportation Improvement.
 - 1 Construction, reconstruction, or widening of highways, roads, bridges or other transportation projects that are (1) not improvements designated in the Transportation System Plan; or (2) not designed and constructed as part of a subdivision or planned development subject to site plan and/or conditional use review. Transportation projects shall comply with the Transportation System Plan and applicable standards, and shall address the following criteria.
 - A The project is designed to be compatible with existing land use and social patterns including noise generation, safety, and zoning.
 - B. The project is designed to minimize unavoidable environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities.
 - C. The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.
 - D. The project includes provision for bicycle and pedestrian circulations as consistent with the comprehensive plan and other requirements of this ordinance.

The SCZO does not contain any provisions adopting "utility facilities necessary for public service," ORS 215.283(1)(d). As discussed below, given the lack of any County code provisions implementing the statute, ORS 215.275(1)(d) and ORS 215.275 are directly applicable to the elements of the Project proposed under these provisions.

Response: The Project proposes development of the turbine facilities and the following related or supporting facilities, which would be considered a conditional use under SCZO 3.1.3(e)(17), Commercial Utility Facilities:

- Underground collector lines with a capacity of 34.5 kV to transmit electric power generated by the wind turbines to two collector substations located within the project boundary;
- New private access roads;
- Up to six permanent meteorological ("met") towers with accompanying SCADA system; and
- An O&M facility to serve the Project.

The Project further proposes the following related or supporting facilities that would be considered a permitted use under ORS 215.283(1)(d):

One above ground 230 kV transmission line to transmit power between the

eastern collector substation and the BPA interconnection point on the north side of the Klondike Schoolhouse substation:

- One above ground 500 kV transmission line to transmit power between the western collector substation and the BPA John Day substation; and
- Two collector substations:

All of the project facilities will be located on land zoned EFU by the County. With the exception of the new access roads, which will be used by project personnel and by farmers in the area, all of these related or supporting facilities will be used exclusively by the Project.

Commercial Utility Facilities: SCZO 3.1.3(e)(17) allows "commercial utility facilities" located on EFU zoned land to be permitted as conditional uses. This section appears to implement ORS 215.283(2)(g), which provides that "commercial utility facilities for the purpose of generating power for public use by sale" are conditionally permitted on EFU land in Oregon subject to ORS 215.296. The requirements of ORS 215.296 are discussed later in this Exhibit K.

In prior cases, the Council has determined that related or supporting facilities determined to be a part of a facility evaluated under ORS 215.283(2)(g) include the underground collector system, met towers, and O&M facility because they do not have a use independent of the primary facility. The proposed turbine facilities and related or supporting facilities, other than the proposed new access roads, will not be used by others or made available to others for use. These facilities are necessary, accessory components of the generation and transmission of electricity by the Project, and have no independent utility beyond their use in connection with the proposed energy generating facilities. Accordingly, the proposed turbine facilities and the related or supporting facilities, other than the proposed new roads, transmission lines and collector substations are commercial utility facilities for purposes of both SCZO 3.1.3(e)(17) and ORS 215.283(2)(g) and are conditionally permitted under both state law and the Zoning Ordinance.

<u>Utility Facilities Necessary for Public Service:</u> The Council has determined in recent cases that private transmission lines and collector substations required for interconnection to the BPA substations are related and supporting facilities, but are evaluated separately under ORS 215.283(1)(d), which provides for "Utility facilities necessary for public service...not including commercial facilities for the purpose of generating electrical power for public use by sale or transmission towers over 200 feet in height. A utility facility necessary for public service may be established as provided in ORS 215.275." The transmission towers will be approximately 80 feet to 120 feet tall, less than the 200-foot height limit identified in ORS 215.283(1)(d) and under SCZO 3.1.3(e)(24), meeting the height limit requirement under ORS 215.283(1)(d).

As noted above, the Sherman County Zoning Ordinance does not include provisions implementing ORS 215.283(1)(d). With a few exceptions, it appears that the exclusive farm use provisions in the SCZO have not been significantly updated since 1994. The COB Energy Facility Final Order (2005) ("COB"), p. 305 describes a similar problem encountered with the Klamath County Code, related to portions of the proposed overhead electric transmission line located on lands zoned for exclusive farm use. In COB, the

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county code provisions for the EFU zone were not amended to implement a number of changes that had been made to the state laws for EFU zones. In particular, the code section for "utility facilities necessary for public service," categorized such facilities as a conditional rather than a permitted use. As noted in the COB Final Order:

"Under ORS 215.283(1)(d), "utility facilities necessary for public service" must be allowed on EFU-zoned lands if they meet the criteria in ORS 215.275. Klamath County LDC § 54.030.O treats the use as a *conditional use* rather than a use allowed outright. As a result, the Klamath County LDC subjects such uses to additional standards found in either Klamath County LDC § 54.020 (permitted uses) or ORS 215.275. The County may not impose additional criteria for uses allowed under ORS 215.283(1). *Brentmar v. Jackson County*, 321 Or 481, 900 P2d 1030 (1995). Due to the fact that Klamath County has not adopted land use regulations required under state law, the statutory and rule provisions of state law are directly applicable to the proposed transmission line, and to the other elements of the proposed facility that are classified as "utility facilities necessary for public service."

The Golden Hills overhead collector transmission lines and collector substations are addressed separately below. Similar to the situation in COB, the statutory and rule provisions related to "utility facilities necessary for public service" are directly applicable to the Golden Hills project. The "utility facilities" (transmission towers and substations) meet the criteria under ORS 215.275 (see Section K.7) because the facilities are necessary for public service to connect the "primary facility" to the BPA substations to distribute power to the regional grid system

Access Roads: Transportation Improvements as identified in SCZO 3.1.3(f), include the "construction, reconstruction, or widening of highways, roads, bridges or other transportation projects that are (1) not improvements designated in the Transportation System Plan; or (2) not designated and constructed as part of a subdivision or planned development subject to site plan and/or condition use review . . ." Transportation projects must comply with the Transportation System Plan (TSP) and applicable standards, which includes items such as roadway and pavement width. Construction methods etc., and must address four criteria: (i) the project's compatibility with existing land use and social patterns including noise generation, safety and zoning; (ii) the project's design must minimize unavoidable environmental impacts to wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities; (iii) the project must preserve or improve the safety and function of the facility through access management, traffic calming, or other design features; and (iv) the inclusion of bicycle and pedestrian circulations as consistent with the Comprehensive Plan and other requirements of the Zoning Ordinance.

The proposed new private access roads and the proposed reconstruction of existing roads are not improvements designated in the TSP, and are not being constructed as part of a

¹ See also ORS 197.646(3).

subdivision or planned development. The Project is compatible with existing land uses and social patterns including with respect to its level of noise generation, its safety and its zoning. As discussed in this Exhibit K, the Project is designed to minimize environmental impacts to identified wetlands, wildlife habitat, water quality, cultural resources, and scenic qualities. The Project preserves or improves the safety and function of the existing roads by resurfacing or restructuring selected area roads and highways. The public will benefit from the improved public road system. No bicycle or pedestrian circulations are appropriate for the project area roads and, therefore, none are proposed.

2. Provisions Applicable to All Permitted and Conditionally Permitted Uses (All Facility Components)

The SCZO contains provisions that are applicable to all development proposals. The Project complies with these provisions as provided below.

A. SCZO § 3.1.4(c) Dimensional Standards/Setback Requirements

In an F-1 (EFU) Zone, the minimum setback requirements shall be as follows:

- 1) The front and rear setbacks from the property line shall be 30 feet, except that the front yard setback from the right-of-way of an arterial or major collector or road shall be 50 feet unless approved otherwise by the Planning Commission.
- 2) Each side yard setback from a property line shall be a minimum of 25 feet, and for parcels or lots involving a non-farm residential use with side yard(s) adjacent to farm lands, said adjacent side yards shall be a minimum of 50 feet unless approved otherwise by the Planning Commission.

<u>Response</u>: No new lots will be created by the Project. As depicted on Figure C-2, all project structures will comply with the setback requirements set forth in SCZO 3.1.4(c). All of the wind energy generating turbines and other above ground elements of the Project with the exception of the transmission lines and poles will be located at least 50 feet from all property lines.

B. SCZO § 4.9(1) Compliance with State and Federal Agency Rules and Regulations

Approval of any use or development proposal pursuant to the provisions of this Ordinance shall require compliance with and consideration of all applicable State and Federal agency rules and regulations.

Response: The Council's rules governing this application are designed to identify all applicable permits, approvals and regulations needed for construction of the Project. In particular, Exhibit E identifies all of the federal, state and local permits and approvals needed to construct the Project. Exhibit E provides evidence demonstrating that the construction and operation of the Project will comply with all state and local statutes, rules and standards applicable to the permit. Exhibit E also provides evidence that for federal permits, the relevant federal agencies have received or will receive the information needed to allow the Project to comply with all applicable federal rules and regulations. Set forth below are the most notable requirements identified in Exhibit E.

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With respect to applicable federal rules and regulations, the Federal Aviation Administration (FAA) requires the Project to provide the FAA with a Notice of Proposed Construction or Alteration. The Project will file this notice with the FAA and will notify the Council as soon as the FAA's response has been received.

A Clean Water Act, Section 404 permit from the U.S. Army Corps of Engineers may be required because fill may be placed in the waters of the US, including wetlands. An Oregon Department of State Lands Removal-Fill permit application will be required if fill within wetlands is required for the Project (see Exhibit J). As such, consultation with the U.S. Fish and Wildlife Service (USFWS) under the Endangered Species Act be required. (see Exhibit Q). The Oregon Department of Environmental Quality's (DEQ's) noise regulations apply to the Project. *See* Exhibit X.

With respect to state agency rules and regulations, the Project is pursuing an Energy Facility Site Certificate from the Oregon Energy Facility Siting Council. In addition, as described in Exhibits E and I, the Project will apply for and obtain a National Pollutant Discharge Elimination System (NPDES) General Construction Stormwater (1200-C) Permit from the DEQ before constructing the Project. The new O&M facility will require an onsite sewage permit from the Wasco-Sherman Public Health Department. A permit to appropriate groundwater will not be required because the groundwater well will be exempt from permitting requirements because it will supply less than 5,000 gallons per day (See Exhibit O). Finally, the Project will meet state noise standards, as outlined in Exhibit X. In particular, noise levels are not projected to exceed DEQ noise impact criteria. Where necessary, the Project intends to obtain easements from property owners to allow for a greater than 10 dBA increase over ambient noise levels, as provided for in DEQ rules.

C. SCZO § 4.13 Additional Conditions to Development Proposals

The County may require additional conditions for development proposals

- 1) The proposed use shall not reduce the level of service (LOS) below a D rating for the public transportation system. For developments that are likely to generate more than a V/C ratio of 75 or greater, the applicant shall provide adequate information, such as a traffic impact study or traffic counts, to demonstrate the level of impact to the surrounding road system. The developer shall be required to mitigate impacts attributable to the project.
- 2) The determination of the scope, area, and content of the traffic impact study shall be coordinated with the provider of the affected transportation facility, i.e., city, county, state.
- 3) Dedication of land for roads, transit facilities, sidewalks, bikeways, paths or accessways shall be required where necessary to mitigate the impacts to the existing transportation system caused by the proposed use.
- 4) Construction of improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths or roads that serve the proposed use where necessary to mitigate the impacts to the existing transportation system caused by the proposed use.

Response: the Project will comply with all conditions of approval imposed by the Council. The Project addresses the transportation and access provisions under the applicable review criteria set forth below. The Project will not reduce the level of service for public transportation below a D rating, or generate a volume-to-capacity (V/C) ratio of 0.75 or greater. It is not necessary for the Project to dedicate any land for transportation facilities, nor for any road mitigation improvements other than the reconstruction of existing roads proposed in the application.

D. SCZO § 11.1 Design & Improvement Standards and Requirements, Compliance Required

Any land division or development and the improvements required, whether by subdivision, partitioning, creation of a street or other right of way, zoning approval, or other land development requiring approval pursuant to the provisions of this Ordinance, shall be in compliance with the design and improvement standards and requirements set forth in this Article, in any other applicable provisions of this Ordinance, in any other provisions of any other applicable County or affected City ordinance, and in any applicable provision of State statutes or administrative rules.

Response: The Council's rules governing the application are designed to identify all applicable design and improvement standards, permits, approvals, and regulations needed for construction of the facility. In particular, Exhibit E identifies all of the federal, state, and local permits and approvals needed to construct the Project, and elsewhere in this Exhibit K all of the applicable County design standards are identified. No land division, subdivision, or partition approval or creation of a public street is required in order to site the Project. For the reasons described in this Exhibit K and in the application, the facility complies with this provision.

E. SCZO § 11.2 Design & Improvement Standards and Requirements, Zoning or Other Land Development Permit or Approval

Prior to the construction, alteration, reconstruction, expansion or change of use of any structure, lot or parcel for which a permit or other land development approval is required by this Ordinance, a permit or approval shall be obtained from the County or the designated official.

Response: The Council has exclusive jurisdiction to issue site certificates for energy facilities that are under its jurisdiction, such as the proposed facility. The Project has elected to seek a Council determination of compliance with the Council's land use standard. This Exhibit K demonstrates compliance with that standard. Upon the Council's approval of a site certificate for the Project and prior to any development activities, the Council will direct the County to issue all necessary land use permits approved by the Council. *See* ORS 469.401(3). No construction, alteration, reconstruction, expansion or change of use of any structure, lot or parcel will occur until the County issues the required permits.

F. SCZO Section 5.2 General Conditional Use Provisions (Energy Facility, Access Roads, and Associated Equipment)

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In determining whether or not a Conditional Use proposal shall be approved or denied, it shall be determined that the following criteria are either met or can be met through compliance with specific conditions of approval.

- 1) The proposal is compatible with the applicable provisions of the County Comprehensive Plan and applicable Policies.
- 2) The proposal is in compliance with the requirements set forth by the applicable primary zone, by any other applicable combining zone, and other provisions of this Ordinance that are determined applicable to the subject use.
- 3) That, for a proposal requiring approval or permits from other local, state and/or federal agencies, evidence of such approval or permit compliance is established or can be assured prior to final approval.
- 4) The proposal is in compliance with specific standards, conditions and limitations set forth for the subject use in this Article and other specific relative standards required by this or other County Ordinance.
- 5) That no approval be granted for any use which is or expected to be found to exceed resource or public facility carrying capacities, or for any use which is found to not be in compliance with air, water, land, and solid waste or noise pollution standards.
- 6) That no approval be granted for any use violation of this Ordinance.

Response: Each criterion is addressed separately in Section K.5.

K.5 COMPLIANCE WITH APPLICABLE COMPREHENSIVE PLAN PROVISIONS

1. SCZO § 5.2.1. Compliance with Applicable Comprehensive-Plan Goals and Policies

The proposal is compatible with the applicable provisions of the County Comprehensive Plan and applicable policies.

<u>Response</u>: The Project complies with all relevant provisions of the Comprehensive Plan as set forth below.

A. SCCP § VIII Planning Process and Citizen Involvement

Finding I. This Plan was drafted to conform with the State-wide planning goals relating to citizen involvement (goal 1) and land use planning (goal 2).

<u>Response:</u> As is described in detail below, the Council's process for considering and approving a site certificate application provides significant opportunity for citizen involvement that comply with statewide goals 1 and 2.

- Goal II. To provide the opportunity for all citizens and effected [sic] agencies to participate in the planning process.
 - Policy I. All land use planning meetings shall be advertised in a general circulation newspaper and be open to the public.
 - Policy II. All affected [sic] agencies and effected [sic] landowners shall be notified by written notice of any proposed site specific land use change.

Response: Because the Project has elected to seek a Council determination of compliance with the land use standard, the Council's procedures (rather than the County's specific procedures at SCZO § 5.6) will apply to the land use determination. The Council's process includes opportunities for interested persons and governmental agencies to comment on the application. Following the submittal of the application, determination of completeness, and public notice in local newspapers, the Oregon Department of Energy will conduct a public information meeting concerning the application that will provide an opportunity for public comment. Thereafter, a noticed public hearing will be held on the Council's proposed order, offering another opportunity for public input. The Council's process also provides affected public agencies and area landowners with notice of the application and an opportunity to comment. See e.g., ORS 469.370; ORS 469.505; OAR Chapter 345, Divisions 15 and 21.

The Applicant has consulted with the USFWS, the Sherman County Historical Society (SCHS), the Sherman County Planning Department (County Planning Department), the U.S. Bureau of Land Management (BLM), the Oregon State Historical Preservation Office (SHPO) and the Oregon Natural Heritage Information Center (ONHIC). These agencies, offices and organizations have provided information regarding the project site and adjacent lands, including whether listed and sensitive species occur within the analysis area. The Applicant also contacted the Oregon Department of Agriculture (ODA) for information about plant distribution and protection and conservation programs, and the Oregon Department of Fish and Wildlife (ODFW) for information on fish and wildlife habitat regulations and requirements.

B. SCCP § XI Physical Characteristics

- Goal V. Improve or maintain the existing quality of the physical environment within the County.
- Policy I. The County Court recognizes the Policy Advisory Committee and the Agricultural Sub-Committee recommendations for a state-wide non-point source pollution control program as the appropriate implementation technique to achieve the intent of Public Law 95.217.
- Policy II. Erosion control provisions shall be incorporated into the subdivision ordinance. These shall require that the best practical methods be used to control erosion from road and

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building construction sites as well as other changes in land use which may degrade the quality of the land, air and water.

<u>Response</u>: The Project will maintain the existing quality of the physical environment within the County. Construction of the Project will not create a pollution source. The majority of the project site consists of agricultural fields where bare soils are often exposed to wind and water. The Project will not significantly increase the amount of exposed soils in the project area. *See* Exhibit I.

Temporary impacts to land within the project area will occur with the creation of the staging areas and excavation for underground collector lines. To minimize soil exposure during installation of the collector lines, the Project will endeavor to open only as much trench in a day as can be excavated and backfilled; in no case will a trench remain open for more than the 7 days allowed by the general NPDES Construction Stormwater (1200-C) Permit issued by DEQ.

Establishing the proposed staging areas will involve stripping and temporarily stockpiling topsoil before placing gravel on the laydown areas. Because stockpiling will occur during the time of year when rainfall is lowest, very little erosion will result from precipitation. Construction of the Project will be conducted pursuant to a NPDES General Construction Stormwater (1200-C) Permit issued by the DEQ. The NPDES permit will require the use of best management practices to minimize the potential for erosion.

Best management practices will include a variety of means to minimize the impacts of wind erosion. In actively farmed areas, the wheat crop will protect the stockpiles from wind erosion. In other areas, hay bales or other similar containment features will be used during construction of the Project. As needed, water from water trucks will be sprayed on disturbed areas to keep wind borne erosion losses to a minimum. After the need for the staging areas ends, the staging area locations will be brought back to their original contours, topsoil will be spread in these areas, and they will be revegetated or prepared for planting of wheat or barley, or for use as range land. Any disturbed Conservation Reserve Program (CRP) areas and other non-cropped vegetated areas will be revegetated with the appropriate species.

No non-point source pollution control or erosion control is required for wastewater, as the only wastewater generated during construction will be from washdown of concrete trucks after concrete loads have been emptied. Washdown will be done by the contractor and will occur at a contractor-owned batch plant.

No industrial wastewater will be generated during operations. See further discussion in Exhibit V.

Goal VI. To protect life and property from natural disasters and hazards.

<u>Response</u>: The project site involves no designated hazard areas. Exhibit H provides an analysis of the local geology and the Applicant's efforts to address geotechnical issues in project siting and design.

Goal VII. Provide for the rational development and conservation of the aggregate resources within the County.

<u>Response</u>: The Project does not propose to develop aggregate resources. Aggregate will be purchased from local gravel operations that already have applicable permits and developed resources in accordance with Sherman County standards.

Goal VIII. To provide a detailed investigation of the County's groundwater resources.

<u>Response</u>: The Project will use a small amount of groundwater. The new O&M facility will be served by a new well. No permit is required to draw from this well because Oregon law allows the project to use up to 5,000 gallons of water per day from a groundwater well without a water right or permit.

Goal IX. To maintain the multiple use management concept on Bureau of Land Management Lands within Sherman County.

Response: The project site does not include any BLM lands.

Goal X. Preserve the integrity of the Sherman County Landscape.

Policy I. Trees should be considered an important feature of the landscape and therefore the County Court shall encourage the retention of this resource when practical.

<u>Response</u>: The Project site occurs in a largely treeless landscape and is not expected to impact trees. Development of the Project will not require the removal of any trees. *See* Exhibit P.

- Goal XI. To maintain all species of fish and wildlife at optimum levels and prevent the serious depletion of any indigenous species.
 - Policy I. Fish and Wildlife management policies should be implemented to enhance the public enjoyment of wildlife and fish in a manner that is compatible with the primary uses of the lands and waters.

Response: The Energy Facility Siting process requires the applicant to consider and comply with the ODFW Fish and Wildlife Habitat Mitigation Policy as set forth in OAR 635-415-0000 through -0025. As part of the process, the Project identified and categorized all fish and wildlife habitats within the habitat analysis area, which are described in Exhibit P. There are approximately 2.9 acres of Category 1 habitat in the analysis area, none of which will be permanently affected by the Project. The bulk of the habitat within the analysis area and the majority of Project impacts would be to Category 6 habitat, which accounts for 68% of the habitat to be impacted temporarily during construction and 92% of the habitat to be impacted permanently. The Applicant has proposed to mitigate for all impacts in accordance with the ODFW Policy, as set forth in Exhibit P. Based on field reviews and the fish and wildlife habitat analysis described in Exhibit Q, no impacts are anticipated to threatened and endangered species from the construction, operation, and retirement of the Project. As described in Exhibit Q, the turbines are sited approximately 4-miles from both the Columbia River and the Deschutes River, in part, to avoid and

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minimize impacts to wildlife including bald eagles and peregrine falcons, which are much more concentrated along these features. With this mitigation, there are no anticipated impacts to the bald eagle from the construction and operation of the wind power facility.

Policy III. Fence rows, ditch banks and brush patches should be considered for retention of wildlife use.

<u>Response:</u> No fence rows, ditch banks or brush patches would be affected by this Project as the project site is primarily in large-scale wheat crop production.

- Policy IV. The existing habitat plantings and water developments constructed for wildlife use shall be maintained by the Oregon Department of Fish and Wildlife. Additional planting and guzzler developments will be encouraged. Long-term agreements between landowners and the Department of Fish and Wildlife for the maintenance of such sites shall be encouraged.
- Policy V. The County Extension agent shall encourage the use of pesticides, which have a low toxicity to wildlife, fish and people.

<u>Response:</u> As described in Exhibit P, the study area provides only limited wildlife habitat. Therefore the Project is not expected to have a significant impact on wildlife populations. A monitoring plan will be developed in consultation with ODFW to evaluate actual project impacts.

These policies concern the protection of fish and wildlife in the County. One issue of potential concern can be the use of pesticides to control weeds in crop fields. Construction equipment is a source of the dispersal of weed seed that may not otherwise be found in the area, and disturbed ground offers an opportunity for weeds to establish themselves. The Project will develop a weed management plan to prevent the establishment of weeds, as described in Exhibit P, Mitigation Measures. The plan will be developed in consultation with the Sherman County Soil and Water Conservation District and will likely include a restoration effort to clear weeds through a combination of burning (if possible), spraying, and mowing. Additional steps may include the use of Roundup on newly emerging weeds, the planting of a native grass seed mix (certified weed free) with a no-till drill in the fall, followed by application of broadleaf-specific and post-emergent herbicides as needed.

Goal XII. Provide for the rational use of all resources within the designated Deschutes and John Day Oregon State Scenic Waterways.

Response: Exhibit T evaluates impacts to recreation resources. The project site is not located in or near either the Deschutes or John Day scenic waterway. *See* all Exhibit R, which does not identify any visual impacts to either the Deschutes or John Day Oregon State Scenic Waterways. Primary traffic routes for construction will originate near the I-84/US 97 Biggs Junction. Increased construction traffic would likely result in short-term traffic delays on these roads, particularly on hill climbs on US 97, but would not be detrimental to recreational opportunities near the Deschutes

or the John Day scenic waterway. Long-term detrimental impacts (i.e., increased traffic as a result of operation) are not anticipated.

- Goal XIII. Attempt to maintain the diversity of plan[t] and animal species within the County.
 - Policy I. The following sites or areas shall be considered as critical habitat, unique vegetative and/or natural areas: Department of Fish and Wildlife plantings and guzzlers; and areas containing plant species listed on either the Provisional List of Endangered or Threatened Plant Species or the listing of Endangered and Threatened Plant Species in the United States.
 - Policy II. The County Court shall encourage the preservation of these critical habitats, unique vegetative and/or natural areas.

 Landowners will be encouraged to provide long term protection to these areas. * * *.

Response: As described in Exhibits P and Q, the Project is not expected to significantly affect any listed endangered or threatened species or adversely affect fish and wildlife species or habitat. As described in Exhibit Q, there are no direct project-related impacts to any federal or state listed species, and there is little or no habitat in the project area to support such species. A monitoring plan will be developed in coordination with ODFW to evaluate actual project impacts.

C. SCCP § XII Social Characteristics

- Goal XIV. To improve or maintain the current level of social services available within the County and to assure the provision of public facilities consistent with the intensity of land use.
 - Policy I. The County Court shall encourage the location of industries, businesses and commercial service agricultural developments within the County consistent with the desired population growth and other goals and policies herein contained.

* * *

Policy XIX The continuing loss of economic opportunities for residents of the County is of great concern to the citizenry. The reduction of need for agricultural based jobs due to improved farming technology and practices, the inability to keep families employed or offer employment opportunities to attract new citizens or the children of existing residents results in a stagnant or declining population. It is therefore a matter of great urgency that the County Court make every effort to streamline its land use approval and amendment process. It is likewise a matter of great urgency that the Court give increased consideration to land use applications which will

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increase economic diversity and employment opportunities. This increased consideration shall not be made to the detriment of existing residential structures. This consideration should focus on long term job creation and should not be used as a means to allow residential and commercial uses to locate outside urban growth and rural service center (communities) boundaries.

<u>Response</u>: Regarding Policy I, Exhibit U indicates that the personnel necessary to operate the Project who move to the Sherman County area from other areas would not have a significant impact on the local population. During its anticipated 20 to 30-year operation, the project would employ 10 to 15 full-time and part-time employees.

Project construction is anticipated to take about 9 months and employ an estimated 175 workers at peak construction periods, with preference given to local employees as skills are available. Construction workers will include locally hired workers for road and turbine pad construction as local expertise and availability allows. The remaining workers used to construct the Project will be in-migrant. When feasible, preference will be given to local workers.

Development of the Project will increase economic diversity within the County and offer non-agricultural employment opportunities for local residents. The Project will provide agricultural property owners with an additional revenue stream to supplement farming income, and insulate agricultural owners from market and weather fluctuations. The Project therefore should better enable farmers to continue farming operations. Operation of the Project is projected to produce additional tax revenue for the County. This additional tax revenue would contribute to improved local services like roads, schools, police and fire, that benefit the entire area while the Project is not anticipated to have any significant new impact to public facilities or services.

[Goal XIV] Policy IV. The County will support and assist efforts to secure adequate hospital or emergency clinic facilities to serve the needs of the local residents.

* * *

Policy VI. The County Court shall continue to cooperate with the school districts within the County to assure the provision of educational facilities in an efficient manner consistent with the demands of the Sherman County populace.

* * *

Policy VIII. Sanitary landfills shall continue to be provided for the use of the County citizenry. The County will continue to provide the leadership in the location and development of such sites.

<u>Response</u>: The Project is not expected to have any adverse impacts on the availability of social services, such as hospital or emergency service facilities, educational facilities or sanitary landfills. Exhibit U evaluates the capacity of service

providers in the project area. The Dalles Disposal Company provides solid waste service for all of Sherman County and portions of Gilliam County. The Dalles Disposal Company also operates a transfer station that is open to the public on the second and fourth Saturdays of each month. 20, 30, and 40-yard construction waste disposal boxes are also available. Following pickup, refuse is transported via truck to the Columbia Ridge Recycling and Landfill site located near Arlington. Columbia Ridge is a large regional facility that accepts refuse from the northwest and Canada.

Solid waste generated in the construction and operation of the proposed Project is described in Exhibit V. The Project will generate minimal construction waste and very little solid waste that would require off-site disposal. The nearest landfill is the Columbia Ridge Recycling and Landfill Center located near Arlington. The landfill is not projected to reach capacity for at least 56 years and conversations with landfill operators did not identify any concerns regarding solid waste generation from construction or operation of the Project.

- [Goal XIV] Policy X. The County road system shall be maintained and improved consistent with the needs of the Sherman County citizenry.
- Policy XII. The construction of new public roads and highways shall be located whenever possible to avoid dividing existing farming units.

Response: No new public roads or highways will be constructed as part of the project. The design for the private access roads and for the improvements to existing public roads have been developed by the Applicant and will meet or exceed road standards for the road classifications in the County's TSP and Zoning Ordinance because roads will require a more substantial section to bear the weight of the vehicles and turbine components than would usually be constructed by the County. The improved public and new private roads will enhance access by land managers and farmers to their fields and will improve conditions for all users of the public road system. The new private access roads will be designed and constructed to minimize dividing existing farming units.

[Goal XIV] Policy XX. Transportation Planning Policies (Ord No. 21-05-2003

- A. The Transportation System Plan and Land Use Review Policies.
- * * *
- 2. All development proposals, plan amendments, or zone changes shall conform with the adopted Transportation System Plan.
- 3. Operation, maintenance, repair, and preservation of existing transportation facilities shall be allowed without land use review, except where specifically regulated.

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* * *

<u>Response</u>: No new public roads are proposed with this application. The proposal will result in upgrades to existing public and private roads, that either meet or exceed the road classification standards for the roads that have a classification.

B. Local-State Coordination Policies

* * *

2. The County shall provide notice to ODOT of land use applications and development permits for properties that have direct frontage or direct access onto a state highway. Information that should be conveyed to reviewers includes project location, proposed land use action, and location of project access points.

* * *

C. Protection of Transportation Facilities Policies

* * *.

- 2. The County shall include a consideration of a proposal's impact on existing or planned transportation facilities in all land use decisions.
- 3. The County shall protect the function of existing or planned roadways or roadway corridors through the application of appropriate land use regulations.

<u>Response</u>: The Applicant is coordinating with the Oregon Department of Transportation (ODOT) about one (1) proposed new and improvements to two (2) existing access points along OR 206, and one (1) new and improvements to one (1) existing access points on US 97.

Construction vehicles that must access the project site will use public roads. The primary travel routes that will be used by the Project during construction activities begins at the I-84/OR 206 interchange east of Celilo Village or the I-84/US 97 interchange at Biggs Junction depending on the location of construction. Construction vehicles would then proceed south on OR 206 or US 97 to county roads or the proposed new access points along the highway. Traffic may also approach the project site on US 97 from the south. The County's roads are generally composed of a pavement or gravel surface. Traffic on these roads is light and generally consists of local residential or farm equipment traffic.

Some of the local roadways will require a 6-inch gravel overlay prior to use by project construction vehicles. These improvements are necessary to accommodate

the length and weight of vehicles that will deliver the turbines and other machinery necessary to construct the project. Sections of local roads in poor condition will be completely reconstructed. Areas anticipated to require reconstruction or substantial improvement are shown on Figure C-2 in Exhibit C. Reconstructed roadways will be improved as described in K.2.1.

Project construction vehicles may cause brief traffic delays when trucks deliver the turbines and other project equipment, but the delays are unlikely to significantly impair through-traffic movements on area highways and roads. Once the Project is constructed, trips generated by the 10-15 permanent employees will not have any effect on the functioning of the area roads or highways in the vicinity of the Project.

New private access roads will be constructed to access the project turbines and will extend from the County roads as show in the Project Component map at Figure C-2. In general, these roads will be up to approximately 6-feet wide during construction, and up to approximately 16-feet wide during operation, with an additional 4-feet of shoulders. Where feasible, these roads will be located adjacent to the turbine towers to minimize the length.

All road work will be conducted in compliance with the project's erosion control plan as part of the Project's NPDES Construction Stormwater (1200-C) Permit. The erosion control plan will include "best management practices" for erosion control during and after construction, and permanent drainage and erosion control facilities as necessary to allow stormwater passage without damage to local roads or to adjacent areas and without increasing sedimentation to any intermittent streams in the vicinity of the project.

Constructing project roads will require substantial amounts of sand and gravel. The Applicant will contract with one or more construction companies to improve existing and construct new access roads. The construction contractor will be responsible for locating and providing aggregate for construction.

- Goal XV. To protect historical, cultural and archeological resources from encroachment by incompatible land uses and vandalism.
 - Policy I. The following areas and structures shall be considered historically, archaeologically or culturally significant: all archeological sites; the Sherman County Courthouse; portions of the Old Oregon Trail which are visible and pass over rangeland; and the old Union Pacific Railroad bed through DeMoss Park.
 - Policy II. The County Court shall encourage the preservation of these archaeologically or culturally significant areas. Landowners will be encouraged to provide long term protection to these areas.

<u>Response</u>: As discussed in Exhibit S, results of the cultural resource survey conducted for the Project identified eight (8) archeological sites including two (2) prehistoric-period sites and six (6) historic-period sites. In addition, seven (7) isolated finds were identified, including two (2) prehistoric isolate and five (5)

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historic isolates. A Cultural Resource Management Plan (CRMP) will be developed by the Applicant in coordination with the with the Oregon State Historic Preservation Office (OSHPO). The CRMP will include specific protocols and procedures for protecting cultural resources, including any additional archeological sites and possible human remains (pursuant to ORS 97.745(4)) accidentally discovered during construction.

All of the archeological sites are recommended for avoidance during construction, operation, and retirement of the proposed facilities. Archaeological sites and historic homesteads will be temporarily flagged in the field and on project construction maps before and during construction. Archaeological construction monitors will be present during construction in selected locations to prevent accidental damage to these cultural resources. Additional consultations will be conducted with OSHPO concerning approved avoidance and/or mitigation measures for the Oregon Trail and Barlow Cutoff.

During construction in archeologically sensitive locations, such as near recorded archeological sites, on-site archaeological monitors will be present to ensure that no accidental damage to known cultural resources occurs, if required by OSHPO. The CRMP will address long-term management of the known/recorded resources and will include a section on accidental discovery of cultural resources. This section will provide a detailed plan of protocols and procedures (measures) to be followed if cultural resources are accidentally discovered during construction or operation of the facilities.

D. SCCP § XIII Housing

Goal XVI. To encourage the provision of sound affordable housing units for the citizenry of the County.

Response: As described in Exhibit U, the Project is not expected to affect long-term housing availability in the County. The housing vacancy rate is sufficient to accommodate the project's permanent employees. Temporary housing needs during construction can be accommodated by existing housing stock or hotel and motel rooms available in Wasco, The Dalles, and other nearby communities. No impacts on the supply of affordable housing are expected to occur as a result of construction personnel moving to the local area during the development of the Project. Temporary construction employees are likely to use hotels or rental housing for the short-term housing needs, but the numbers are not significant enough to pose a concern, given the number of communities nearby. Permanent employees are likely to be able to afford housing in the median price housing market.

E. SCCP § XIV Economics

Goal XVII. Diversify the economic base of the County and maintain the viability of the agricultural sector.

* * *.

Policy II. Appropriate provisions shall be incorporated into the zoning, subdivision and other necessary ordinances to assure

conservation and retention of agricultural lands in agricultural uses. At a minimum, agricultural lands shall be zoned as exclusive farm use and taxed accordingly.

Response: This Goal and Policy are principally aimed at directing County land use and regulatory policy development to encourage economic development. The Project will substantially contribute to the diversification of the County's economic base. The development of the Project is consistent with the purposes of the F-1 (EFU) zone, which allows for the development of commercial utility facilities as a conditional use. Further, the Project will result in a net benefit to farm incomes. The minimal loss of farm income based on the limited amount of land that the Project proposes to withdraw from farm production will be more than offset by revenue to local farmers from wind turbine leases. An average of 50 bushels of wheat per acre is harvested in this area that, as of July 2007, sells for an average of \$6.25 per bushel for a revenue of approximately \$315 per acre. The Project will permanently remove approximately 96 acres of land from farm production. Revenues from 96 acres of wheat sold at \$315 per acre would be \$30,240 annually. Royalty payments to landowners and operators vary, but typically range from \$2,000 to \$4,000 per turbine, per year. If the project consists of 267 turbines, the total in annual lease payments that would be paid by the Project would be between \$534,000 and \$1,068,000, which will more than offset the annual losses in revenue from growing wheat. The additional revenues received by farmers from wind project lease payments will provide a stable and predictable source of income that will supplement farm revenues and help assure that lessor-landowner's farming operations can remain viable in years with lower crop yields or prices.

F. SCCP § XV Energy

Goal XVIII. Conserve energy resources.

Policy I. Cooperate with public agencies and private individuals in the use and development of renewable resources.

Policy III. New high voltage electrical transmission lines with nominal voltage in excess of 230 kV and gas transmission line shall be constructed within or adjacent to the existing electrical and gas transmission line right-of-way, respectively. Upon approval of the County Court, the General Standards for Issuance of Site Certificates, Energy Facility Siting Council (OAR 345-80-010 through OAR 345-80-051) may be utilized for proposals deviating from the existing rights-of-way will be considered a plan amendment and subject to the approval of the Sherman County Court.

<u>Response</u>: The Project is a renewable wind resource project. The County has recognized that it has "solar and wind resources which have not been utilized since widespread use of electricity was introduced." Comprehensive Plan § XV Finding III. This application represents a new opportunity to develop those resources, and directly implements this land use plan policy.

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Wind power is a clean and renewable source of energy. Wind facilities do not emit greenhouse gases or particulates, do not produce hazardous wastes, and do not deplete other natural resources. The construction of the Project represents an implementation of Policy I.

SCCP Goal XVIII, Policy III, addresses "high voltage electrical transmission lines" but does not incorporate the definition as it is defined in ORS 469.300(11)(a)(C), which defines a high voltage transmission line as a line "...of more than 10 miles in length with a capacity of 230,000 volts or more to be constructed in more than one city or county in this state. This application does not propose high voltage electrical transmission lines as that term is defined at ORS 469.300(11)(a)(C) because both transmission lines would be located entirely within Sherman County and would not cross more than one jurisdiction. However, Energy Facility Siting Council standards in OAR 345-024-0090, which address "any high voltage transmission line under Council jurisdiction," including transmission lines considered related and supporting facilities as defined in OAR 345-001-0010(47) to include transmission lines proposed to be built in connection with the construction or operation of an energy facility, would apply to the Project.

OAR 345-024-0090 requires that the Applicant can (1) design, construct and operate the proposed transmission line so that alternating current electric fields do not exceed 9 kV per meter at one meter above the ground surface in areas accessible to the public; and (2) can design, construct and operate the proposed transmission line so that induced currents resulting from the transmission line and related or supporting facilities will be as low as reasonably achievable. As described in Exhibit AA, the electric field within the transmission line rights-of-way of the proposed 230kV and 500 kV lines will not exceed 2.5 and 7.3 kV per meter, respectively, meeting standard (1). The 230 kV and 500 kV transmission lines will be designed in accordance with current NESC codes and will provide appropriate grounding of fences that parallel the transmission line. Any metal-roofed buildings in proximity to the line will be similarly grounded. This grounding practice is commonly done for transmission lines and will mitigate the shock hazard associated with the induced voltage, meeting standard (2).

The Project's transmission lines and substations are also described in K.7 in response to ORS 215.275, which demonstrates the Project's compliance for siting utility facilities necessary for public services within an EFU zone.

G. SCCP § XVI Land Use

Goal XIX. To provide an orderly and efficient use of the lands within Sherman County.

* * *

Policy IV. Commercial businesses, except those related to agricultural uses, should be located within the incorporated cities or within areas served by the Biggs or Kent special service districts.

<u>Response</u>: The County's EFU zone expressly permits the proposed Project as a conditional use. The Project is locationally dependent and, accordingly, cannot be

located within any of the area's incorporated cities. Furthermore, the Project will not have a large impact on services in the County. Its co-location and compatibility with existing and ongoing agricultural activities provides an example of orderly and efficient land use.

H. Section XVII Comprehensive Land Use Plan Map

Cropland. Cropland is the "prime agricultural" lands within the County.

Lands so designated shall be preserved for exclusive farm use. All uses, which are not directly or indirectly related to farm use shall be limited to those, which provide public service and could not be provided for within other lands.

Response: As noted above, the County's F-1 (EFU) zone expressly permits the Project as a conditional use in the F-1 zone. The Project is dependent on optimal wind resources and proximity to transmission facilities. Accordingly, it cannot be located within any of the nearby cities. The Project will be co-located and compatible with existing and ongoing agricultural activities and other wind energy generating facilities. Although the Project will permanently remove (i.e. for the life of the facility) approximately 96 acres from agricultural enterprises, an exception to Goal 3 is warranted as described in this Exhibit K.

K.6 COMPLIANCE WITH ADDITIONAL ZONING ORDINANCE PROVISIONS

1. SCZO § 5.2.2 Compliance with Applicable Zoning Ordinance Provisions

The proposal is in compliance with the requirements set forth by the applicable

primary Zone, by any other applicable combining zone, and other provisions of this

Ordinance that are determined applicable to the subject use.

Response: The following criteria are applicable to the Project as described below.

A. SCZO § 3.1.3(f)(1)—Transportation Standards (Access Roads)

- 1) Construction, reconstruction, or widening of highways, roads, bridges or other transportation projects that are (1) not improvements designated in the Transportation System Plan; or (2) not designed and constructed as part of a subdivision or planned development subject to site plan and/or conditional use review. Transportation projects shall comply with the Transportation System Plan and applicable standards, and shall address the following criteria. ***
 - a. The project is designed to be compatible with existing land use and social patterns including noise generation, safety, and zoning.

Response: The proposed private access roads are a conditionally permitted use in the EFU zone and will be compatible with the existing agricultural uses in the project area. SCZO 3.1.3(f). The new private access roads will be constructed to access the project facilities and will extend from the County roads as shown in the map at Figure C-2. In general, these roads will be up to approximately 36-feet wide during construction, and up to approximately 16-feet wide during operation, with an additional 4-feet of shoulders. The additional width of the roadway required for

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construction will be returned to its prior vegetated condition upon completion of road construction. To the extent reasonably possible, these roads will be located adjacent to the turbine towers to minimize the length of these roads. The private access roads will not increase traffic in the area but will provide improved access by land managers and farmers to their fields.

The primary travel routes that will be used by the Project during construction activities begins at the I-84/OR 206 interchange east of Celilo Village or the I-84/US 97 interchange at Biggs Junction depending on the location of construction. Construction vehicles would then proceed south on OR 206 or US 97 to county roads or the proposed new access points along the highway. Traffic may also approach the project site on US 97 from the south. The County's roads are generally composed of a pavement or gravel surface and carry light traffic consisting of local residential or farm equipment traffic.

Some of the local roadways will require a 6-inch gravel overlay prior to use by project construction vehicles. These improvements are necessary to accommodate the length and weight of vehicles that will deliver the turbines and other machinery necessary to construct the project. Sections of local roads in poor condition will be completely reconstructed. Areas anticipated to require reconstruction or substantial improvement are shown on Figure C-2 in Exhibit C. Reconstructed roadways will be improved as described in K.2.1. Construction-related traffic may cause brief traffic delays when trucks deliver the turbines and other project equipment but these delays are unlikely to impair the function of the public roadways. Once the Project is constructed, trips generated by the 10-15 operational staff will not have any perceptible effect on the functioning of the roads or highways in the vicinity of the project because general usage of these highways and roads will remain low.

b. The project is designed to minimize unavoidable environmental impacts to identified wetlands, wildlife habitat, air and water quality, cultural resources, and scenic qualities.

Response: Based on the wetland assessment (see Exhibit J) no permanent impact would occur. Temporary impacts would occur to approximately 0.05 acres of four wetlands as a result of the proposed project all will be restored when construction is completed. Other locations within the project boundary were noted as having wetlands or other waters of the state, but potential impacts to these areas will be avoided through appropriate siting and construction techniques. As demonstrated in Exhibits P and Q, there is little suitable habitat for federal or state listed species.

As discussed in Exhibit S, results of the cultural resource survey conducted for the Project identified eight (8) archeological sites were identified including two (2) prehistoric-period sites and six (6) historic-period sites. In addition, seven (7) isolated finds were identified, including two (2) prehistoric isolate and five (5) historic isolates. A Cultural Resource Management Plan (CRMP) will be developed by the Applicant in coordination with the Oregon State Historic Preservation Office (OSHPO). The CRMP will include specific protocols and procedures for protecting cultural resources, including any additional archeological sites and possible human remains (pursuant to ORS 97.745(4)) accidentally discovered during construction.

All of the archeological sites are recommended for avoidance during construction, operation, and retirement of the proposed facilities. Archaeological sites and historic homesteads will be temporarily flagged in the field and on project construction maps before and during construction. Archaeological construction monitors will be present during construction in selected locations to prevent accidental damage to these cultural resources. Additional consultations will be conducted with OSHPO concerning approved avoidance and/or mitigation measures for the Oregon Trail and Barlow Cutoff.

During construction in archeologically sensitive locations, such as near recorded archeological sites, on-site archaeological monitors will be present to ensure that no accidental damage to known cultural resources occurs, if required by OSHPO. The CRMP will address long-term management of the known/recorded resources and will include a section on accidental discovery of cultural resources. This section will provide a detailed plan of protocols and procedures (measures) to be followed if cultural resources are accidentally discovered during construction or operation of the facilities.

There will be no substantial adverse impacts on air quality from the construction or operation of the Project. The construction activities for the Project will create dust but this would not be significant in a rural area where farming also creates dust. Standard best management practices to control dust and wind erosion will be used, such as spraying areas of the site with water periodically. See Exhibit I.

c. The project preserves or improves the safety and function of the facility through access management, traffic calming, or other design features.

Response: Several local roadways will be improved or completely reconstructed to accommodate project construction vehicles. Many of the existing local roads are in poor condition, so the proposed improvements to existing roads will have a long-term beneficial effect for all of those who use these roads. There is little traffic on roads in the area, so access management, traffic calming or other such features designed to reduce traffic conflicts are not necessary.

d. The project includes provision for bicycle and pedestrian circulations as consistent with the comprehensive plan and other requirements of this ordinance.

<u>Response</u>: No bicycle or pedestrian facilities are required by the County to permit the Project and none are appropriate for the project area. The access roads will be located in a rural agricultural area where pedestrian and bicycle facilities are not appropriate, safe, or required by the County's ordinances or plans.

B. SCZO § 4.13 Additional Conditions to Development Proposals (Access Roads)

The County may require additional conditions for development proposals.

1) The proposed use shall not reduce the level of service (LOS) below a D rating for the public transportation system. For developments that are likely to generate more than a V/C ratio of 75 or greater, the applicant shall provide adequate

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information, such as a traffic impact study or traffic counts, to demonstrate the level of impact to the surrounding road system. The developer shall be required to mitigate impacts attributable to the project.

- 2) The determination of the scope, area, and content of the traffic impact study shall be coordinated with the provider of the affected transportation facility, i.e., city, county, state.
- 3) Dedication of land for roads, transit facilities, sidewalks, bikeways, paths or accessways shall be required where necessary to mitigate the impacts to the existing transportation system caused by the proposed use.
- 4) Construction of improvements such as paving, curbing, installation or contribution to traffic signals, construction of sidewalks, bikeways, accessways, paths or roads that serve the proposed use where necessary to mitigate the impacts to the existing transportation system caused by the proposed use.

Response: The Project will comply with all conditions of approval necessary to achieve compliance with the SCZO and the Council's land use standard. Once completed, the Project will not generate a significant number of trips. Traffic levels on area roads are low and will not increase beyond the network capacity with the addition of project traffic. Thus, the project will not reduce the LOS in the area, will not generate V/C ratios of 75 or greater, and will not require the dedication of land for transportation facilities or the construction of mitigation improvements, other than the reconstruction and resurfacing of existing roadways. According to the County, no traffic analysis is required due to the small expected impact on the transportation system.

C. SCZO § 4.14 Access Management (Access Roads)

<u>Response</u>: The access management provisions of the Zoning Ordinance do not apply to the proposed Project.

D. SCZO § 11.8 Design & Improvement Standards and Requirements, Streets and Other Public Facilities (Access Roads)

Response: The Council's rules governing the application are designed to identify all applicable design and improvement standards, permits, approvals and regulations needed for construction of the Project. In particular, Exhibit E identifies all of the federal, state and local permits and approvals needed to construct the facility, and elsewhere in this Exhibit K all of the applicable County design standards are identified. No land division, subdivision or partition approval, or zone change is required in order to site the Project. For the reasons described in this Exhibit K and in the application, the Project complies with this provision.

E. SCZO § 5.2.3 Other Permits

That, for a proposal requiring approval or permits from other local, state and/or federal agencies, evidence of such approval or permit compliance is established or can be assured prior to final approval.

Response: The Council's rules governing the application are designed to identify all applicable permits, approvals and regulations needed for construction of the Project. In particular, Exhibit E identifies all of the federal, state and local permits and approvals needed to construct the project. Exhibit E provides evidence demonstrating the construction and operation of the Project will comply with all state and local statutes, rules and standards applicable to the permit. Exhibit E also provides evidence that for federal permits, approvals and regulations the responsible agency has received that permit information.

The Applicant will send the following required notice to the FAA:

- 1. Federal Aviation Administration Notice. Prior to beginning construction of the Project, the Applicant will send the FAA a Notice of Proposed Construction or Alteration to the FAA with the proposed location of the turbines and related or supporting facilities.
 - The Applicant is likely to receive the following state and local approvals for construction of the Project:
- 2. Oregon Department of Environmental Quality. The Applicant will apply for a NPDES General Construction Stormwater (1200-C) Permit before beginning the construction of the project.
- **3. Sherman County Sanitarian**. The Applicant will obtain an on-site sewage permit from the County sanitarian for the subsurface sewage disposal system at the new O& M building.

F. SCZO § 5.2.3 Compliance with Specific Standards

The proposal is in compliance with specific standards, conditions and limitations set forth for the subject use in this Article and other specific relative standards required by this or other County Ordinance.

Response: The Project complies with this criterion as described below.

2. SCZO § 5.8(14) Specific Requirements for Nonfarm Uses in F-1 Zone, Public Facilities and Services (Energy Facility, Access Roads)

- (a) Public facilities including, but not limited to, utility substations, * * * electrical generation and transmission devices * * * shall be located so as to best serve the County or area with minimum impact on neighborhoods, and with consideration for natural or aesthetic values.
- (b) Structures shall be designed to be as unobtrusive as possible. Wherever feasible, all utility components shall be placed underground.
- (c Public facilities and services proposed within a wetland or riparian area shall provide findings that: Such location is required and a public need exists; and Dredge, fill and adverse impacts are avoided or minimized.

<u>Response</u>: For the reasons stated elsewhere in this Exhibit K, the substations, energy generating facilities, collector lines, and transmission lines will be located to best serve the County with minimum impacts to surrounding uses, natural features and values. All of the collector lines will be located underground, which will cross four

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small linear wetlands. Impacts to wetlands will be temporary in nature and restored to their original condition when construction is complete. See Exhibit J.

- 3. SCZO § 5.8(16)—Specific Requirements for Nonfarm Uses in F-1 Zone, Nonfarm Uses (Energy Facility, Access Roads and associated construction areas) Nonfarm uses * * * may be approved upon a findings [sic] that each such use:
 - (a) Is compatible with farm uses described in ORS 215.203(2);

Response: SCZO section 5.8(16) provides criteria for conditional uses.

As previously noted, the Project is consistent with the purposes of the F-1 (EFU) zone, which allows for the development of commercial utility facilities as a conditional use.

Based on interviews with the farm owners and operators of parcels directly impacted by the Project, the Project would not be incompatible with farm uses. A technical memorandum included as Appendix K-1 identifies adjacent agricultural crops, practices, impacts and mitigation measures. The current farm use is dry land wheat and barley farming.

Two common sources of conflict between farm and non-farm uses are the ability of farmers to maneuver equipment or vehicles around obstacles (like turbines), and timely access to parcels without conflicts with construction-related delays. For this Project, access roads will be located to minimize disturbance and maximize transportation efficiency. Existing public and private farm roads will be used to the extent feasible.

Minimizing conflict with the turbines as obstacles depends to a large part on the size and configuration of the parcel they are on, the topography, and proximity to property lines or fences. The Project, to maximize energy generation, is very limited in where it can place turbines in the project area. The turbine strings are planned for locations well outside the minimum width of the largest farm equipment such as 50-foot-wide rod weeder. However, manipulating around the tight radius of a wind turbine may be difficult and may increase the opportunity for weeds to grow and infest crops. These on-the-ground conflicts in compatibility are significantly offset by the lease revenue to local farmers, which will exceed historic revenue from the land being displaced and will stabilize a portion of farm revenues as long as the Project is in operation. The Applicant will contact with the County weed officer to work with him to develop a plan to minimize potential invasion by weed species. This plan will include parameters for reseeding bare ground areas and for vegetation management.

The Project will have minimal impact on farm uses, and the Applicant will take steps to minimize any disruption to farming practices. Wherever feasible, turbines and transmission interconnection lines will be placed along the margins of cultivated areas to reduce the potential for conflict with farm operations. The Project will require approximately 96 acres of land to be permanently removed from farm use while 709 acres of farmland will be affected temporarily by construction laydown sites. Approximately 30,310 acres are within the project lease area and assuming conservatively that 50 percent is actively farmed; the amount removed from

production is about 0.3 percent of the farm land in the vicinity of the proposed Project. If comparing the loss of production to all of Sherman County where there are approximately 129,000 acres in wheat and barley production, the total amount of land removed from production would amount to 0.08 percent of the land devoted to barley and wheat production in Sherman County. Due to the minimal amount of land being permanently disturbed and the proposed mitigation measures, the Project is compatible with the farm uses of the property.

(b) Does not interfere seriously with accepted farming practices on adjacent lands devoted to farm use;

Response: Adjacent EFU lands contain primarily dry land wheat and barley crop farming. The Project will not "seriously interfere" with accepted farming practices on adjacent lands. "Accepted farming practices" is defined at ORS 215.203(2)(c) as "a mode of operation that is common to farms of a similar nature, necessary for the operation of such farms to obtain a profit in money, and customarily utilized in conjunction with farm use." Farm practices for farming wheat and barley in the area are described in the technical memorandum at Appendix K-1.

The land adjacent to the sites where the turbines, access roads, and construction areas will be located is devoted to the production of wheat or barley crops. While the presence of the turbine pads and turbines may have a minor impact on the use of adjacent land, the Project will not seriously interfere with farm practices, based on interviews with the farm owners and operators. Farmers noted that some minor changes to plowing and harvesting patterns will be required, but none will seriously interfere with accepted farming practices on adjacent farmland.

Weed control is anticipated to occur in the same fashion as today. Crop dusters are accustomed to avoiding similar wind power facilities within the County, including power transmission lines. In addition, the local landowners already manually spray around fence lines to cover surface areas missed during crop dusting. A similar method will be used for areas missed by crop dusters due to the presence of the turbines.

Weed management will be undertaken by the Applicant during construction and will also closely coordinate with farmers to ensure adequate and timely access to properties during critical periods in the farming cycle, such as during harvest.

(c) Does not materially alter the overall land use pattern of the area;

<u>Response</u>: The overall land use pattern of the area consists of wheat or barley crops with some rangeland. The analysis area for the Project is described in Section K.2 as a one-half mile from the project facilities. Beyond the analysis area, and except for incorporated towns and rural nodes, the topography consists of similar rolling hills and drainages with wheat farming as the main use. In 1997, 80 percent of the land in Sherman County was in farmland, with 30 percent in harvested cropland (*Source: Atlas of Oregon*). Agricultural areas that are enrolled in the CRP are found throughout the analysis area, occurring as narrow strips in previously plowed drainageways and as large blocks in other areas. CRP areas have been planted with a mix of native and non-native bunchgrasses with the primary intent of increasing

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wildlife habitat in the area. Similarly, proposed access roads, turbine facilities, staging areas, the new O&M building, and under ground and above ground collector lines and access roads will not materially alter the land use pattern in the area, which already includes other wind energy facilities either operating, under construction, or planned for construction located to the east of Wasco.

The Project will not materially alter the overall land use pattern in the area. The Project will require approximately 96 acres of land to be permanently removed from farm use while 709 acres of farmland will be affected temporarily (by construction laydown sites). The amount removed from production is about 0.3 percent of the total lease area, a very small amount of agricultural land. Any financial impacts on the affected farmers resulting from removal of lands from farm production will be offset by the lease payments they will receive for use of their land to site the Project, as demonstrated in the technical memorandum supporting this exhibit (Appendix K-2) and elsewhere in the site certificate application.

The Project and private access roads will not materially alter the stability of the existing land use pattern that prevails over this area and much of the County. Local farmers will be able to maneuver around the turbine strings and transmission towers and across the gravel access roads, although minor changes in sowing and harvesting patterns in the immediate vicinity of the strings will be necessary. Since the farming in the area is dry land farming, no irrigation patterns will be affected

The Project will not materially alter the stability of the existing land use pattern because the Project and all of the related or supporting facilities are compatible with farming when they are limited to a reasonably small percentage of the area farmed. Land uses may be induced to change by altering factors that affect value, either lowering or raising it. In this case, some of the optimum sites for the wind energy generation will be taken by this Project and will maximize the value of this land for energy generation. The land leases provide an additional source of private income without creating major obstacles to farming. The stability of this lease income will help stabilize the inherent volatility associated with farming.

(d) Is situated upon generally unsuitable land for the production of farm crops and livestock, considering the terrain, adverse soil or land conditions, drainage and flooding, vegetation, location and size of the tract, and the availability of necessary support resources for agriculture;

Response: The roads, turbines, and associated construction areas are proposed on land that is currently being farmed for wheat and barley. The soils in the area, absent sufficient rainfall or irrigation, would not support any other crops except perhaps hay. Soils that support the wheat and barley farming are not top quality soils; they are Class IIc soils. The chief positive characteristics of these soils is their depth and that they are well drained. These soils, however, do not support a diversity of crops, nor crops that are high value. They also do not generally support livestock in the County. With the exception of recent price increases in wheat, due to drought overseas, the price of wheat has dropped steadily over the last 10 years. The wind turbines displace minor amounts of land on parcels that vary in size, but are generally large enough to accommodate both farm and wind energy uses. As a

result the displacement impacts are minor and are offset by the lease allowances, which create stability in the economy of each farmer and compensate for the volatility of crop production and prices. Thus, the Applicant submits that the Project would be sited on property that is "generally unsuitable" for the production of farm crops and livestock. In the alternative, the Applicant has submitted a proposal for a goal 3 exception to allow the project to be located on EFU land in the County.

(e) Complies with other applicable significant resource provisions; and

<u>Response</u>: There are no known other significant resource provisions applicable to the Project.

(f) Complies with such other conditions as deemed necessary.

<u>Response</u>: The Project will comply with all conditions of approval imposed by the Council in granting the site certificate.

4. SCZO § 5.2.5. Resource Carrying Capacities

That no approval be granted for any use which is or expected to be found to exceed resource or public facility carrying capacities, or for any use which is found to no be in compliance with air, water, land, and solid waste or noise pollution standards.

Response: As described in this application, the Project will not exceed resource or public facility carrying capacities, and the Project will comply with all applicable air, water, land, solid-waste or noise-pollution standards. See Exhibit E (listing permits needed for construction and operation), Exhibit I (soils), Exhibit J (wetlands and other waters), Exhibit O (water resources), Exhibit P (fish and wildlife habitat), Exhibit Q (threatened and endangered species), Exhibit V (waste minimization), and Exhibit X (noise).

5. SCZO § 5.2.6. Violation of Ordinance

That no approval be granted for any use violation of this Ordinance.

Response: There are no use violations related to the Project.

K.7 DIRECTLY APPLICABLE STATUTES, GOALS AND LCDC RULES

1. The Principal Use and Access Roads

A. ORS 215.283(2)(g) and 215.296 – Development on EFU Land

Response: ORS 215.283(2)(g) conditionally permits commercial utility facilities for the purpose of generating power for public use by sale, subject to ORS 215.296. Similarly, the conditional use criteria in ORS 215.296 are also applicable to the access roads as required by ORS 215.283(3)(b) and OAR 660-012-0065 which are discussed below.

1). Principal Facility.

ORS 215.296(1) requires a use allowed under ORS 215.283(2), such as the proposed Project, to be approved if it does not: (i) force a significant change in accepted farm or forest practices on "surrounding lands" devoted to farm or forest use, or (ii) significantly increase the cost of accepted farm or forest practices on

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"surrounding lands" devoted to farm or forest use. ² Land in the vicinity of the Project is devoted to farm use and is used to grow wheat or barley. There is no forest use within this area. Very little land in this area is irrigated, rainfall is low, and soils and terrain are consistent in type. Accepted farm practices include soil preparation in the spring and fall, sowing, fertilizing, pest and weed management, and harvesting.

The development and operation of the proposed Project has the potential to minimally and temporarily affect these practices. The development of the Project, including all related and supporting facilities as well as the transmission lines and substations addressed in responses to ORS 215.275, below, may cause small changes in harvest patterns, access to farm fields, processes for delivering and applying fertilizers and other products to crops, and the harvesting of crops. Development of the Project will also displace approximately 96 acres of actively farmed land from agricultural use during the life of the proposed Project. Ground disturbance during construction can encourage weeds that temporarily interfere with crop yields until eradicated. The development of access roads and turbine tower pads create margins in the wheat fields that may also temporarily cause the spread of weeds. In conjunction with the Sherman County Weed District, the Applicant intends to develop and implement a weed control management plan within the project boundary to minimize the growth of weed species in the areas in which the Project will be built.

Construction of the energy facility will take approximately 9 months to complete. During construction, there will be a temporary disturbance of approximately 709 acres of agricultural land. Once the Project is completed, it will preclude approximately 96 acres of actively farmed agricultural land from being used for farming during the life of the Project. As described elsewhere the size of the area taken for Project use is small in comparison to the amount of land in the project area that will otherwise be available for continued farming uses.

Upon completion of project construction, all of the staging areas used to construct the energy facility will be rehabilitated and made available for agricultural and wildlife use. Further, where necessary and feasible, the Project will provide access across construction trenches to fields within the project area. The Applicant will undertake measures to avoid or mitigate impacts to soil, such as employing dust-control and erosion-control measures. The Applicant will also consult with area landowners during construction and operation of the Project to minimize or avoid any adverse impacts to surrounding agricultural practices. To the extent reasonably possible, the Project will use existing access roads to minimize the Project's impact to resource land. Some new access roads, however, are necessary. These roads will not significantly adversely impact farming practices or increase farming costs, either during the construction or use of these roads. Instead, they will provide farmers with better access to local

² As described above, the County imposes similar standards in the F-1 zone. See discussion of SCZO § 5.8(16), above.

agricultural lands. Further, during operation of the Project these roads will be used infrequently by project employees, thus producing minimal, if any, impact on surrounding farming practices or costs. For these reasons the development and operation of the Project will not force a significant change in accepted farm practices on surrounding lands devoted to farm use.

The Project will also not significantly increase the cost of accepted farm practices on surrounding farmland. The Applicant surveyed area farmers to determine the impact of the Project on the cost of farming. The survey results show that, while development and operation of the Project would cause some minor change to harvesting patterns or various farming practices associated with the application of fertilizers and other products, representing some slight loss of efficiency in some cases, the changes would not significantly increase the cost of farming in the surrounding area. In fact, any slight cost increase to area farmers associated with these minor changes in farming practices would be more than offset by compensatory lease payments paid to farmers in the area in order to develop the Project.

The Applicant will mitigate any impacts to area farmers, including coordination with farmers concerning timely and adequate access during construction of the Project, weed management during construction and operation of the Project, restoration of disturbed areas during construction and after construction is completed, and lease payments to lessor-farmers.

B. Access Roads Compliance with ORS 215.283(3).

ORS 215.283(3) authorizes the proposed access roads as a conditional use. The SCZO does not expressly incorporate ORS 215.283(3). Accordingly, under ORS 197.646(3), ORS 215.283(3) applies to the application directly.

ORS 215.283(3) provides in pertinent part:

- (3) Roads, highways and other transportation facilities and improvements not allowed under subsections (1) and (2) of this section may be established, . . . in areas zoned for exclusive farm use subject to:
 - (a) Adoption of an exception to the goal related to agricultural lands and to any other applicable goal with which the facility or improvement does not comply;
 - (b) ORS 215.296 for those uses identified by rule of the Land Conservation and Development Commission as provided in section 3, chapter 529, Oregon laws 1993.

LCDC rules OAR 660-033-0120 and 660-033-0130(13) identify as allowed uses "transportation improvements on rural lands allowed by OAR 660-012-0065." OAR 660-012-0065(1) identifies transportation facilities, services and improvements that may be permitted on rural lands without a goal 3, 4, 11 or 14 exception. OAR 660-012-0065(3)(o) permits transportation facilities, services and improvements "that serve local travel needs" on rural lands without a goal 3, 4, 11 or 14 exception. Under that rule, the travel capacity and level of service of facilities and improvements serving local travel needs are limited to "that necessary to support rural land uses identified in the acknowledged

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comprehensive plan or to provide adequate emergency access." OAR 660-012-0065(5) requires that when such facilities or improvements are within an EFU zone, as is the case with the proposed Project, the facilities or improvements must: (a) comply with ORS 215.296; (b) identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost; (c) assess the effects of the identified alternatives on farm and forest practices, movement of farm and forest vehicles and equipment, and effects on access to farm and forest parcels; and (d) select the alternative that will have the least impact on farm or forest lands in the immediate vicinity.

Wind energy is a rural land use identified in the Comprehensive Plan at Section XV, Finding III. The proposed access roads would serve the local travel needs of the Project and farmers who operate in the project area. ORS 215.296(1) requires a use allowed under ORS 215.283(3) to be approved if it does not: (i) force a significant change in accepted farm or forest practices on "surrounding lands" devoted to farm or forest use, or (ii) significantly increase the cost of accepted farm or forest practices on "surrounding lands" devoted to farm or forest use within this area, land that is devoted to farm use is used to grow wheat or barley. There is no forest use within this area. Very little land in this area is irrigated, rainfall is low, and soils and terrain are consistent in type. Accepted farm practices include soil preparation in the spring and fall, sowing, fertilizing, pest and weed management, and harvesting.

To the extent reasonably possible, the Project will use existing access roads to minimize the Project's impact to resource land. Some new access roads, however, are necessary. These roads will not significantly adversely affect farming practices or increase farming costs, either during the construction or use of these roads. Instead, they will provide farmers with better access to local agricultural lands. Further, during operation of the Project these roads will be used infrequently by project employees, thus producing minimal, if any, impact on surrounding farming practices or costs. For these reasons, development and use of the proposed roads will not force a significant change in accepted farm practices on surrounding lands devoted to farm use.

The proposed roads also will not significantly increase the cost of accepted farm practices on surrounding farm land. The Project surveyed area farmers to determine the impact of the Project, including the proposed roads, on the cost of farming. The survey results show that while development and operation of the Project would cause some minor change to harvesting patterns or various farming practices associated with the application of fertilizers and other products, representing some slight loss of efficiency in some cases, the changes would not significantly increase the cost of farming in the surrounding area. Any slight cost increase to area farmers associated with these minor changes in farming practices would be more than offset by compensatory lease payments paid to farmers in the area in order to develop the Project. (See Appendix K-1).

The Applicant considered alternative locations for the proposed wind turbines and related or supporting facilities, but determined that the proposed site plan would maximize the efficiency of the project and have the least possible impact on

adjacent farm practices, including the movement of farm vehicles and equipment, and on access to farm parcels. The Applicant thus submits that pursuant to ORS 215.283(3), 215.296 and OAR 660-0120-0065, the proposed new private roads may be built without taking an exception to Goal 3. In the alternative, the Applicant proposes that the roads be allowed under a Goal 3 exception.

C. Compliance with OAR 660-012-0065—Transportation Improvements on Rural Lands (Access Roads)

In pertinent part, OAR 660-012-0065(3) provides:

(3) The following transportation improvements are consistent with goals 3, 4, 11, and 14 subject to the requirements of this rule:

"***"

(o) Transportation facilities, services and improvements other than those listed in this rule that serve local travel needs. The travel capacity and level of service of facilities and improvements serving local travel needs shall be limited to that necessary to support rural land uses identified in the acknowledged comprehensive plan or to provide adequate emergency access.

* * *

- (5) For transportation uses or improvements listed in subsection (3)(d) to (g) and (o) of this rule within an exclusive farm use (EFU) or forest zone, a jurisdiction shall, in addition to demonstrating compliance with the requirements of ORS 215.296:
- (a) Identify reasonable build design alternatives, such as alternative alignments, that are safe and can be constructed at a reasonable cost, not considering raw land costs, with available technology. Until adoption of a local TSP pursuant to the requirements of OAR 660-012-0035, the jurisdiction shall consider design and operations alternatives within the project area that would not result in a substantial reduction in peak hour travel time for projects in the urban fringe that would significantly reduce peak hour travel time. A determination that a project will significantly reduce peak hour travel time is based on OAR 660-012-0035(10). The jurisdiction need not consider alternatives that are inconsistent with applicable standards or not approved by a registered professional engineer.
- (b) Assess the effects of the identified alternatives on farm and forest practices, considering impacts to farm and forest lands, structures and facilities, considering the effects of traffic on the movement of farm and forest vehicles and equipment and considering the effects of access to parcels created on farm and forest lands; and

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(c) Select from the identified alternatives, the one, or combination of identified alternatives that has the least impact on lands in the immediate vicinity devoted to farm or forest use.

<u>Response</u>: No new public road alignments are proposed, only improvement to existing public roads to accommodate the weight and size of turbine components. No changes to road capacity would result, however some widening of these roads to include shoulders would occur to enable the transportation of project equipment and to assist farmers in maneuvering equipment without impeding traffic.

The proposed new private access roads are intended to serve local travel needs of project personnel and local farmers. In view of the location of the wind resource and of the existing public road system, there are no reasonable build design alternatives for the proposed roads. The proposed roads will have no impact on peak or non-peak travel time. Any alternative road alignments would not reduce the anticipated minor impacts, if any, to farm lands, structures and facilities, or on the movement of farm vehicles and equipment. The Applicant considered the possible locations of the new roads and has proposed them in those locations that would have the least impact to adjacent farm and other existing land uses.

2. Overhead Electric Transmission Lines and Substations

A. ORS 215.275, Utility Facilities necessary for Public Service; Criteria; mitigating impact of facility

The substations and overhead transmission lines are within the scope of ORS 215.283(1)(d), which allows "utility facilities necessary for public service" on EFU land subject to the provisions of ORS 215.275. ORS 215.275 lists factors for deciding whether a utility facility is "necessary for public service." The proposed substations are necessary to convert the voltage from the 34.5-kV collector system to voltages that can be transmitted over the interconnection lines to the BPA interconnection point north of the Klondike Schoolhouse and BPA John Day substations and ultimately to public customers.

The statute provides:

- (1) A utility facility established under ORS 215.213 (1)(d) or 215.283 (1)(d) is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service.
- (2) To demonstrate that a utility facility is necessary, an applicant for approvalunder ORS 215.213 (1)(d) or 215.283 (1)(d) must show that reasonable alternatives have been considered and that the facility must be sited in an exclusive farm use zone due to one or more of the following factors:
- (a) Technical and engineering feasibility;
- (b) The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross land in one or more areas zoned for exclusive farm use in order to achieve a reasonably direct route or to meet unique geographical needs that cannot be satisfied on other lands;

- (c) Lack of available urban and nonresource lands;
- (d) Availability of existing rights of way;
- (e) Public health and safety; and
- (f) Other requirements of state or federal agencies.

The proposed utility facilities under ORS 215.275 include two substations and two transmission lines, all of which must be located in an EFU zone because there is no non-EFU land outside of existing urban growth boundaries in northern Sherman County near the project site, as shown on Figure K-1. The Project is not compatible with land inside UGBs because the substations and transmission lines must be located in the vicinity of the Project to minimize the length of the transmission lines necessary for interconnection at the BPA interconnection points. There are no reasonable alternatives to these locations.

ORS 215.275(2)(a-c) apply to the Project. "Technical and engineering feasibility" requires that there be substations and interconnecting transmission lines to accommodate interconnection with the BPA system. It is not feasible or technically possible to interconnect with the main transmission grid without these facilities. The proposed substations and interconnection lines are also "locationally dependent." They must be located in proximity to the proposed wind turbines, because that is where the power would be generated. They must also be located near the point of interconnection with the BPA system so that the power can be transmitted to customers. There are no urban or nonresource lands available to locate the substation and interconnection line where they could serve their purpose. For these reasons, location of the substations and interconnection lines on EFU land are "necessary for public service."

ORS 215.275(4) requires that the owner of a utility facility approved under ORS 215.283(1)(d) be responsible for restoring agricultural land and associated improvements to their former condition if they are damaged or disturbed by the siting, maintenance, repair or reconstruction of the facility. The proposed substations and support structures for the interconnection lines would be located on land that would be part of the permanent "Project footprint." When project construction is completed, lands temporarily affected by construction would be returned its original condition.

ORS 215.275(5) requires the imposition of "clear and objective conditions" on siting a utility facility under 215.283(1)(d) "to mitigate and minimize the impacts of the proposed project, if any, on surrounding lands devoted to farm use in order to prevent a significant change in accepted farm practices or a significant increase in the cost of farm practices on the surrounding farmlands." Construction of the substations and transmission lines would not substantially add to the impacts on agricultural land caused by the principal use and access roads, which would occupy a larger area of land. As described in K.2.1, permanent impacts to F-1 (EFU) land for proposed substations and transmission lines would be approximately 4 acres, compared to approximately 92 acres for the principal use and approximately 104 acres for the entire Project (approximately 8 acres of land is zoned F-1, but is reserved for habitat and is not actively farmed, see Exhibit P). Locating the proposed substations and interconnection lines on approximately 4 acres of agricultural land would not cause a significant change in accepted farm practices or significantly

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increase the cost of those practices.

In addition landowners and farm operators would be compensated for the loss of land for agricultural production. Landowners and farm operators surveyed for the Project did not identify any significant impacts related to the project. Some landowners did state that the location of project facilities, may slightly alter how they farm, they did not identify significant changes in farming practices.

K.8 GOAL 3 EXCEPTION

State law permits "commercial utility facilities for the purpose of generating power for public use by sale" that preclude 20 acres or less of non-high-value-farmland from commercial agricultural enterprise. OAR 660-033-0130(22). If such a project, as here, exceeds this limit, the provision permits the use of an exception to goal 3 to allow the siting of the project. The SCZO does not contain a similar criterion. Under ORS 197.646(3), the administrative rule criteria directly apply to the proposed Project.

ORS 469.504(2) provides that the Council may find goal compliance for a facility that does not otherwise comply with one or more of the statewide planning goals by taking an exception to the applicable goal. Notwithstanding the requirements of ORS 197.732, the statewide planning goal pertaining to the exception process or any rules of LCDC pertaining to an exception process goal, the Council may take an exception to a goal. In pertinent part, ORS 469.504(2)(c)(A)-(C) provides that the Council may take a "reasons" exception if the Council finds:

- (A) Reasons justify why the state policy embodied in the applicable goal should not apply;
- (B) The significant environmental, economic, social and energy consequences anticipated as a result of the proposed facility have been identified and adverse impacts will be mitigated in accordance with the rules of the council applicable to the siting of the proposed facility; and
- (C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

1. Exception for Energy Facility and Related or Supporting Facilities.

The general state policy embodied in Goal 3 is "to preserve and maintain agricultural lands." As discussed above, the Project will not have significant adverse effects on accepted farm or forest practices. However, the application must nonetheless demonstrate why the policy contained in the 20-acre limitations should not apply to the Project. As is explained in Exhibit I, the Project will preclude 104 acres of EFU land, of which 96 acres is actively farmed and the remaining acreage is used for habitat (see Exhibit P), from use as a commercial agricultural enterprise. As set forth below, there are several reasons for not applying the Goal 3 acreage limitation to the Project.

A. Reasons that Justify the Exception.

The Applicant has chosen the project site because it offers an optimal wind energy resource to produce the desired energy production. Extensive evaluation of wind resources in various areas within Sherman County indicates that the

project site has among the best wind resources for the development of wind energy generating facilities. This conclusion is further supported by the successful operation of the nearby wind energy projects, which have collected substantial information about wind energy resources, and have determined that the project area possesses among the most optimal, accessible wind energy resources in the area.

Wind power projects by their nature require large tracts of land because each turbine must be placed several hundred feet apart. That, in addition to substation, access roads and the operation and maintenance facility will require more than 20 acres of F-1 land.

In addition, area farmers are willing to enter into land leases to allow the Project to be built and control properties of a sufficient size and appropriate configuration to accommodate the Project. Further, any alternative site in the County would involve the leasing of EFU land, because the areas of the County with the best wind resources are all located on EFU land.

The site is also located to take advantage of existing transmission facilities. The proposed collector lines, substations, transmission line, staging areas and operation and maintenance facility are all necessary to operate the Project, and must be located in the project area. The collector lines between the turbines will be built next to the access roads to minimize EFU land disturbance. All of the collector lines will be underground. The new transmission lines will occupy approximately 0.1 acres of EFU-zoned land. The new collector substations and O&M building will occupy up to 9 acres of EFU-zoned land. Overall, less than 0.3 percent of EFU-zoned land in the vicinity of the Project will be used for project related and supporting facilities.

The Project will minimize impacts from constructing new access roads by using existing roads where possible and designing the new roads for the minimum size possible that can provide safe and adequate access to the turbine string sites. The Project will improve approximately 50 miles of existing roads, minimizing the construction of new roads. The access roads must be designed for use by cranes, excavators, supply trucks and line trucks and will, therefore, be 36-feet wide. Access to and along the turbine strings for proper operation and maintenance is crucial, and the Project has located the new access roads to minimize disruption to resource lands.

The only non-EFU land in the area is located in the cities of Moro, Wasco, Rufus and Biggs Junction. None of these locations has the necessary wind resource, adequate parcels of land, or proximate transmission system necessary to build the Project. Hence, the Project must be sited on EFU land in order to provide the service.

The topography and remote location of the project site will minimize visual impacts to the surrounding community. Further, the agricultural value of the site is generally marginal because it is not irrigated and Sherman County does not consider it high value farmland. The Project will not displace highly productive agricultural activity.

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As described in Applicant's responses to the applicable criteria above, the Project encourages the efficient siting of land uses. The Project will facilitate the multiple use of land. The Project will allow access to farmland on those acres occupied by turbine facilities.

The Project will benefit the local economy through employment opportunities, particularly during construction, and contributions to the local tax base. The number of construction jobs will fluctuate during the approximate 9-month construction period, ranging from 175 jobs. Operation of the Project will require 10 to 15 full-time and part-time employees at any given time. The 10 to 15 permanent jobs will provide additional salaries to contribute to the local economy. In addition, the capital investment in the Project is estimated at over five hundred million dollars, and the Project is expected to provide substantial tax revenues to the County over the life of the Project, with insubstantial countervailing public service demands.

The affected landowners will also benefit. In return for granting leases and easements over small amounts of their farmland, the landowners will receive significant financial compensation.

B. ESEE Consequences Favor the Exception.

Environmental. The Project's environmental consequences are discussed primarily in Exhibits J (Wetlands), L (Protected Areas), P (Fish and Wildlife), and Q (Threatened and Endangered Species). These exhibits demonstrate that the Project will not cause significant adverse environmental consequences. Indeed, by and large, the Project will avoid impacts to such resources altogether. The Project will mitigate for any unforeseen impacts to wildlife habitat based on habitat categorization, as is required under ODFW policy (discussed above), and for any unforeseen impacts to the visual setting in which the Oregon Trail alignment occurs (also discussed above and in Exhibit R). In short, the Project does not anticipate any significant adverse impacts to soils, wetlands, protected areas, water resources, threatened and endangered species, scenic and aesthetic resources, historic and cultural and archaeological resources, or public services.

Socioeconomic. The Project's socioeconomic consequences will not be adverse. The Project will not have significant adverse impacts on scenic, cultural, historical, archeological, or recreational resources. Exhibit U (Public Services and Socio-Economic Impacts) demonstrates that the Project will not have significant adverse impacts on community services such as housing, sewer, water supply, waste disposal, health care, education, and transportation. As discussed above, the Project will create jobs and contribute income to the County. These benefits should be measured against the relatively small amount of agricultural activity that will be displaced by the Project.

The Project will supplement farmers' income with lease payments and without significantly reducing the land base available for farming practices. Similarly, although some farming will be displaced where certain portions of the Project will be located, the Project will be compatible with area farming.

Energy. The energy consequences of the Project are discussed briefly above. The Project will utilize existing electric energy capacity from the Wasco Electric Cooperative to operate the new O&M building. The energy produced by the Project will be clean energy that will help Oregon and the northwest region meet increasing energy demands.

C. The Facility Is Compatible with Other Adjacent Uses.

As discussed in detail above, the Project is compatible with adjacent land uses. The Project will not significantly alter the farming land use pattern or practices in the area, nor will it significantly increase farming costs.

In sum, there are compelling reasons that justify siting the Project at the proposed location, and doing so will not create any significant adverse economic, social, environmental or energy consequences. The Project will be compatible with adjacent land uses, as are the existing adjacent wind energy facilities. The Applicant therefore requests approval of a Goal 3 exception for the energy generating facility and all related or supporting facilities, including the new roads.

K.9 FEDERAL LAND MANAGEMENT PLANS

OAR 345-021-0010(1)(k)(D) *If the proposed facility will be located on federal land:*

- i. Identify the applicable land management plan adopted by the federal agency with jurisdiction over the federal land;
- ii. Explain any differences between state or local land use requirements and federal land management requirements;
- iii. Describe how the proposed facility complies with the applicable federal land management plan;
- iv. Describe any federal land use approvals required for the proposed facility and the status of application for each required federal land use approval;
- v. Provide an estimate of time for issuance of federal land use approvals; and
- vi. If federal law or the land management plan conflicts with any applicable state or local land use requirements, explain the differences in the conflicting requirements, state whether the applicant requests Council waiver of the land use standard described under paragraph (B) or (C) of this subsection and explain the basis for the waiver.

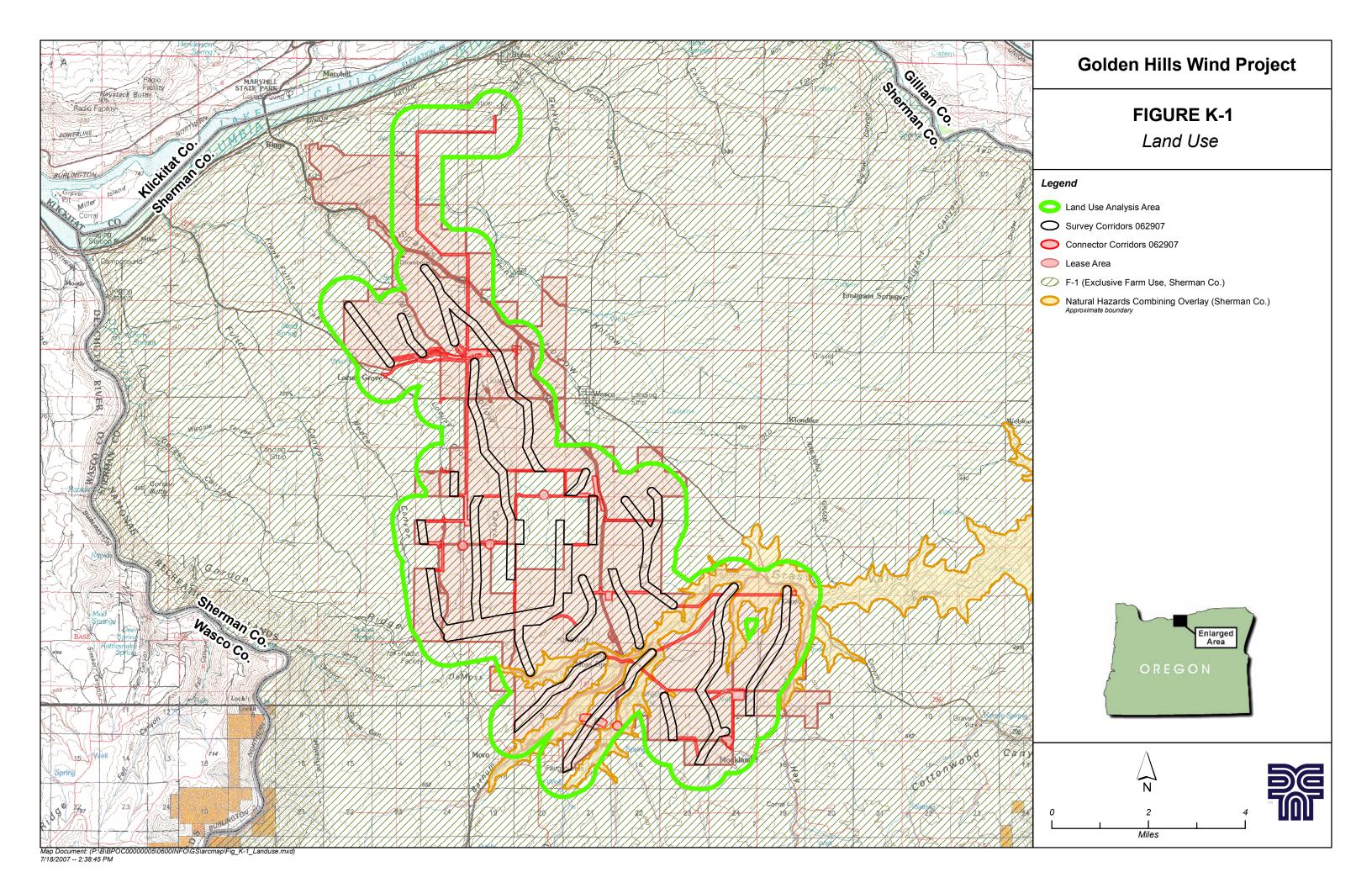
<u>Response</u>: These provisions are not applicable to the Project. No portion of the Project will be located on federal land.

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K.10 REFERENCES

- Allan, S., Buckley, A., and Meacham, J. 2001. Atlas of Oregon. Second Edition. William Loy, Ed. University of Oregon Press.
- Renewable Northwest Project. 2004. Windfall from the Wind Farm, Sherman County, Oregon. Ouderkirk, B. and Pedden, M. August 2004 (Revised December 2004).
- Soil Conservation Service. 1964. Soil Survey of Sherman County, Oregon.
- USDA National Agricultural Statistics Service . 2002. Census of Agriculture. http://www.nass.usda.gov/census/census02/volume1/or/index2.htm

FIGURE



ATTACHMENT K-2

Farmland Technical Memorandum



MEMORANDUM

DATE: July 2007

TO: File

FROM: Alex Dupey

SUBJECT: Farm Impacts Analysis

PROJECT: Golden Hills Application for Site Certificate

PROJECT NO: BPOC0000-0005

COPIES:

This memorandum addresses existing conditions in the vicinity of the proposed Golden Hills Wind Farm Project, potential impacts and costs on farming practices from the proposed project, and available mitigation. This memo is intended to support findings in Exhibit K of the Application for Site Certificate.

State law under Chapter 215.200 (Agricultural Land Use, Exclusive Farm Use Zones) of the Oregon Revised Statutes requires an analysis of a proposed project's impacts on agricultural lands when they are proposed to be impacted by non-agricultural uses. ORS 215.203(1) states that zoning ordinances may designate areas as exclusive farm use zones, within which land shall be used exclusively for farm use except as otherwise provided in ORS 215.213, 215.283 or 215.284. ORS 215.203(2)(a) defines "farm use," in part, as "the current employment of land for the primary purpose of obtaining a profit in money by raising, harvesting and selling crops."

Methodology

Information on farm crops and farm practices in the area came from interviews with owners and/or farm operators affected by the Project. A blank copy of the survey is attached. The anticipated impact to landowners/farm operators is based on lost revenue from farmland permanently converted to utility use, while revenue generated for property owners and farm operators is based on the anticipated lease payment from the Applicant. Crop yields were provided by survey respondents. Revenue per bushel of wheat was estimated based on the current value of wheat based on current market conditions reported by the United States Department of Agriculture Portland Daily Grain Report (July 9, 2007).

Existing Conditions

Land in the vicinity of the proposed project is zoned F-1 (Exclusive Farm Use). Generally speaking, most of Sherman County is zoned F-1, except for some isolated nodes of commercial, industrial, and residential zoning designations. A Natural Hazards (NH) Combining District is applied to areas of surface water accumulations and high groundwater, unstable or fragile soils, geological hazards, and steep slopes (generally 30 percent or greater) in the county. A portion of the NH district extends into the Project lease area along Grass Canyon, but the Project is not expected to affect the NH district because turbines and access roads would be placed outside of those areas.

The soils in the project area are grouped into five General Soil Units (GSU) – Walla Walla-Anderly, Wato Anders, Wrentham-Lickskillet-Rock Outcrop, Lickskillet-Nansene, and Mikkalo-Ritzville. The Walla Walla-Anderly and Mikkalo-Ritzville GSUs provide the basis for wheat and barley production while the others are used mainly for grazing and wildlife habitat (see Exhibit I for detailed discussion of soils.). The soil survey performed for Sherman County identifies the Walla Walla silt loam, deep and very deep as being well suited to wheat and moderately well suited barley. Figure J-5 of Exhibit J shows the soil types. As shown on that figure, the flatter areas of the analysis area where the Project would be primarily located are dominated by Walla Walla silt loam on shallow slopes, which is a Class II soil. While ORS 215.710 includes land with soils rated as prime, unique, Class I, or Class II by the Natural Resource Conservation Service in its definition of high-value farmland, under Statewide Planning Goal 3 implementation, counties are allowed to make finer distinctions about agricultural land. Sherman County does not consider any soils in Sherman County as high-value farmland based on their analysis of soil types in the county (pers. comm., Georgia McNab, March 22, 2005 and July 29, 2005).

The vast majority of the analysis area (and Sherman County) is under dryland wheat or barley production, with some areas in open range for cattle. In 2002, the most recent agricultural census data available, Sherman County had approximately 129,000 acres in wheat and barley production. Portions of the land have also been enrolled in the Conservation Reserve Program (CRP). The Project leased area encompasses over 30,310 acres, of which approximately 113 acres of agricultural land will be directly affected by the Project.

Farm Practices

"Accepted farming practices" is defined at ORS 215.203(2)(c) as "a mode of operation that is common to farms of a similar nature, necessary for the operation of such farms to obtain a profit in money, and customarily utilized in conjunction with farm use." Typical farm practices for dryland wheat farming consist of land preparation in the spring, such as plowing, aerial fertilizing, sowing, followed by mechanical weeding with rod weeders and hand removal of weeds where rod weeders cannot reach, and harvesting. Soil preparations for winter wheat can involve burning stubble, spreading straw or crop residue, and reducing tall stubble by discing or harrowing. Farming in this area according to survey respondents occurs between March and October. None of the surveyed farmers mentioned aerial spraying. However, aerial spraying is known to occur in the area.

Access to the parcels is important for moving farming vehicles or equipment that is not stored on-site. All of the survey respondents said they use local roads to transport equipment. Some equipment is large, with 28-foot-wide combines up to 50-foot-wide rod weeders, and require dismantling or "folding up" before they can be moved. Because the vehicles move slowly compared to regular traffic, transportation along well-traveled roads can be a challenge. The time needed to fold up and move the vehicles can affect profitability as well, particularly at critical times such as harvesting if there are large areas to cover when the crops are at their peak. Most respondents said they move equipment early in the mornings to avoid traffic, but if needed they will move it at any time during the day.

Potential Farm Impacts

Permanent impacts consist of replacement of farmed land with utility use (including roads to access the turbine strings) and forced changes in harvesting patterns to avoid the turbine strings. If the turbine strings are long and

bisect a parcel, they effectively convert the site into two parcels for farming purposes, primarily from the aspect of difficulty in moving and manipulating equipment and vehicles to, across, and around the property. Rod weeders, for example, can be 50 feet wide. Another potential permanent impact is the chance for new weeds to become established as a result of construction. Equipment brought from other parts of the state can carry weed seeds that opportunistically establish themselves and threaten crop yields and quality. Weed control is a major concern of farmers.

The Project will require approximately 96 acres of land to be permanently removed from farm use while 709 acres of farmland will be affected temporarily (by construction laydown sites etc.). Approximately 30,310 acres are within the Project lease area and assuming conservatively that 50 percent is actively farmed; the amount removed from production is about 0.3 percent of the farm land in the vicinity of the proposed project. If comparing the loss of production to all of Sherman County where there are approximately 129,000 acres in wheat and barley production, the total amount of land removed from production would amount to 0.08 percent of the land devoted to barley and wheat production in Sherman County lost to production.

Temporary impacts consist of delays in access to roads or property by construction traffic, and temporary displacement of crops by construction activities. Several of the roads listed by farm owners or operators are slated for improvements, which will cause temporary delays but when completed will improve the functionality of the roads for transporting farm equipment and vehicles. There would be little to no effect from permanent changes in traffic volumes due to the small number of permanent employees of the energy facility (up to 15, on shifts).

To the extent that disruptions cause delays in harvesting, more time spent moving equipment, and interruptions to harvesting patterns, farm revenues can be adversely affected. This depends on the timing of construction (temporary) and on the general configuration of each parcel (a permanent impact). If parcels are fenced, manipulating the equipment between towers and property lines can be difficult if not impossible. Of the five survey respondents, one cited the turbines as having the potential to negatively affect their farm operations because it could require changes in how the fields are farmed and the increased edges could also increase the areas that support weeds because crops cannot be harvested there and could require spraying.

When asked whether the location of the turbines and the roads is compatible with farming, all respondents replied that they had not yet seen where the turbines would be located, but one said that they thought the strings and roads were planned to be placed in a manner that reduces impacts to farming operations. When asked if the location of the turbines and roads would force a significant change in farm practices, no one was able to answer the question because the turbine locations had not yet been disclosed.

Additional Analysis

The potential impacts on individual farms depends on the size of the farm and the number of turbines proposed—which in turn determines the length of the turbine string and access road, the amount of land converted to utility use, and the relative difficulty of farming around the strings. It is also important to recognize that, unlike other projects that can affect farmlands (such as public roads), the proposed project offers offsetting benefits that will positively affect farm owners' incomes and access to their properties.

As noted above, part of the local road network will be improved substantially beyond county road standards (because of the need to support the weight and size of the turbine components). The improvements should help to ease the movement of equipment and farm vehicles, thus also contributing to more efficient (less costly) operations. The private access roads that will parallel the turbine strings will provide better access for farmers to their parcels. The roads will be maintained by the Applicant, which will lower maintenance costs for farmers. In addition, and most importantly, this Project will provide annual leasing fees to farmers that exceed the historical yields from the same amount of land. An average of 50 bushels of wheat per acre is harvested in this area that, as of July 2007, sells for an average of \$6.25 per bushel for a revenue of approximately \$315 per acre. The Project will permanently remove approximately 113 acres of land from farm production. Revenues from 113 acres of wheat sold at \$315 per acre would be \$35,595 annually. Royalty payments to landowners and operators vary, but typically range from \$2,000 to \$4,000 per turbine, per year. If the Project consists of 267 turbines, the total in annual lease payments that would be paid by the Project would be between \$534,000 and \$1,068,000, which will more than offset the annual losses in revenue from growing wheat.

The Project will pay the incremental taxes that will be assessed on the land occupied by the turbines.

Summary of Impacts

On balance, there would be some disruption to farming practices in terms of equipment movement to and around properties to avoid the turbine strings. None of the respondents said that the disruption would force a significant change in farm practices. Some said that the loss of farm land would negatively affect farm revenues; however, this is offset by annual lease revenues from the Applicant. Most farm operators or owners either had no opinion or said the Project would not be incompatible with farming.

Therefore, the project will not seriously interfere with accepted farming practices on adjacent lands, and will not force a significant change in farm practices or significantly increase the costs of farming.

Available Mitigation

No mitigation other than the annual lease revenue is proposed for loss of revenue from cropland converted to utility use. Wherever possible, turbines and transmission interconnection lines will be placed along the margins of cultivated areas to reduce the potential for conflict with farm operations. There is little other mitigation available for offsetting difficulties of maneuvering equipment around the turbine strings if the strings are close to property lines or fences so efforts will be made to allow sufficient room. The Applicant will coordinate with each property owner/farm operator to strike a balance between the Project's locational needs and the farmer's need for maneuverability around the turbines and the roads.

A weed control plan will be developed with the Sherman County Weed District. It will consist of preventive measures such as cleaning vehicles that arrive from off-site and revegetating disturbed areas. Monitoring to look for weed invasions should be done regularly throughout the year. Chemical control can be used as needed, provided they are applied by licensed users.

Farmed areas that are disturbed by construction temporarily would be restored. The proposed restoration plan calls for bringing the site back to the original contours, spreading topsoil on the site, and re-seeding for crops or

other vegetation. Any disturbed CRP areas and other non-cropped vegetated areas will be revegetated with the appropriate species.

Ongoing coordination with farmers and operators will occur during construction and road improvements, to ensure timely and adequate access to the crops for sowing, fertilizing, pest management and harvesting. Other mitigation measures as identified in Exhibits I, J, and P and Q will also reduce impacts to farmland.

Initials: WAD

Project Number: BPOC0000-0005

Klondike III Wind Power Project Farmer Survey

Date		:			
Name		:			
Address	3	:			
Telepho	one Number	: Day	Evenir	ng	
	Farm S	Survey for Golden H	lills Wind Power	<u>Project</u>	
1.	Are you the pro	pperty owner?		Yes	No
2.	Do you farm th	e property?		Yes	No
	If you do not fanumber of the	arm the property, plea farm operator.	ase provide the nar	ne, address,	and telephone
	Name:				
	Address:				
	Phone:				
3.	Do you live on	the property?		Yes	No
	on the property questions will h presence of the	rbines for the wind poor you own and/or farm along the left us understand how turbines and new mets and facilities.	n, or on adjacent p w both the constru	roperty. The	following project and the
4.	How large is the the project?	e parcel (or parcels)	hat you own and/c	or farm that a	re affected by
5.	How much of y	our parcel is actively	farmed?		

	If not all of the parcel is farmed, is the area not farmed suitable for farming, or are there constraints (such as poor soils, steep slopes) that make it unsuitable?
_	
_	What is the total size of the land you own and/or farm in Sherman County?
	Approximately what proportion of your business in terms of acreage or income does the affected parcel represent?
	What crop(s) do you grow on this parcel?
	How many crop(s) annually could you grow?
	Is the equipment or machinery used to farm the crop(s) kept on the property, or is it moved from another location?
	If moved from another location, which public roads and access points to your property are used?

How frequently and at what time of day or year do you need access to those roads? Do you think the location of the wind turbines and the maintenance roads will negatively affect your ability or increase the cost of farming your parcel? Why or why not? Do you expect the loss of agricultural land as a result of the project to have a significant negative impact on the annual revenues you earn from your farmin operations? Why or why not? Would you be willing to estimate the net cost or benefit of the project to you i terms of agricultural revenue as well as revenue from leasing the land for the power project? If "yes," please estimate the net cost or benefit to you.		
Do you think the location of the wind turbines and the maintenance roads will negatively affect your ability or increase the cost of farming your parcel? Why or why not? Do you expect the loss of agricultural land as a result of the project to have a significant negative impact on the annual revenues you earn from your farmin operations? Why or why not? Would you be willing to estimate the net cost or benefit of the project to you i terms of agricultural revenue as well as revenue from leasing the land for the power project?		
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would you be willing to estimate the net cost or benefit of the project to you i terms of agricultural revenue as well as revenue from leasing the land for the power project?		
terms of agricultural revenue as well as revenue from leasing the land for the power project?	significant nega operations?	ative impact on the annual revenues you earn from your farming
terms of agricultural revenue as well as revenue from leasing the land for the power project?		
terms of agricultural revenue as well as revenue from leasing the land for the power project?		
If "yes," please estimate the net cost or benefit to you.		
	terms of agricul	

Agree Disagree Do you think the location of the wind farm turbines and roads that will be access the turbines are compatible with your ability to farm your parcel? Why or why not? Will the location of the wind turbines force a significant change in farming practices on your land? If so, why? Will the location of the wind turbines significantly increase the cost of farming your property? Yes Note that the location of the wind turbines significantly increase the cost of farming your property?	I project? They estimated a on loss of ½ acre of farmed	If not willing to estimate, do you agree o provided by wheat farmers affected by K losses of approximately \$125 per turbine 25 bushels of wheat per ½ acre at \$5 pe
why or why not? Will the location of the wind turbines force a significant change in farming practices on your land? If so, why? Will the location of the wind turbines significantly increase the cost of farming your property? Yes No		Agree Disagre
Will the location of the wind turbines force a significant change in farming practices on your land? If so, why? Will the location of the wind turbines significantly increase the cost of farming your property? Yes No		
practices on your land? If so, why? Will the location of the wind turbines significantly increase the cost of farming your property? Yes No		Why or why not?
practices on your land? If so, why? Will the location of the wind turbines significantly increase the cost of farming your property? Yes No		
Will the location of the wind turbines significantly increase the cost of farming your property? Yes No	nificant change in farming	
increase the cost of farming your property? Yes No		If so, why?
increase the cost of farming your property? Yes No		
Comments:	•	3
		Comments:

EXHIBIT L

PROTECTED AREAS

OAR 345-021-0010(1)(L)

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L.1 INTRODUCTION

Exhibit L addresses impacts the Project will have on Protected Areas in the facility analysis area. This Exhibit responds to the provisions of OAR 345-021-0010(1)(L), which requires the submission of:

OAR 345-021-0010(1)(L) Information about the proposed facility's impact on Protected Areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including:

L.2 LIST OF PROTECTED AREAS

OAR 345-021-0010(1)(L)(A) A list of the protected areas within the analysis area showing the distance and direction from the proposed facility and the basis for protection by reference to a specific subsection under OAR 345-022-0040(1).

Response: The analysis area for impacts on Protected Areas includes the area within the site boundary and extends 20 miles beyond the site boundary in Oregon and Washington. Figure L-1 illustrates the analysis area and 21 identified Protected Areas within the analysis area. Table L-1 lists these Protected Areas, the state in which they occur, their approximate minimum distance from the proposed facility, and the applicable OAR 345-022-0040(1) subsection defining the basis for protection. Subsections for Protected Areas in Washington have been extrapolated because the OARs do not address resources in states other than Oregon.

Table L-1. Protected Areas Within Analysis Area and Their Approximate Minimum Distance from the Proposed Facility

Protected Area	State	Direction and Distance from Golden Hills site (miles)	OAR 345-022- 0040(1) Subsection
John Day Wildlife Refuge	OR	East, 5.3	(a)
Goldendale Hatchery	WA	Northwest, 12.5	(f)
Columbia River Gorge National Scenic Area	OR and WA	West, 2.7	(g)
Deschutes River State Recreation Area	OR	West, 4.3	(h)
Heritage Landing (Deschutes)	OR	West, 5.4	(h)
JS Burres State Recreation Site/BLM Cottonwood Facility	OR	Southeast, 6,8	(h)
Goldendale Observatory State Park	WA	North, 11.8	(h)
Columbia Hills (Horsethief Lake) State Park	WA	Northwest, 14.0	(h)
Doug's Beach State Park	WA	Northwest, 19.9	(h)
Maryhill State Park	WA	North, 1.0	(h)
Brooks Memorial State Park	WA	North, 19.7	(h)
Columbia Hills Natural Area Preserve	WA	Northwest, 11.7	(i)

Protected Area	State	Direction and Distance from Golden Hills site (miles)	OAR 345-022- 0040(1) Subsection
Badger Gulch Natural Area Preserve	WA	Northeast, 15.6	(i)
John Day Federal Wild and Scenic River	OR	East, 5.2	(k)
John Day State Scenic Waterway (Parrish Creek to Tumwater Falls)	OR	East, 5.3	(k)
Deschutes Federal Wild and Scenic River	OR	West, 2.3	(k)
Deschutes State Scenic Waterway (Pelton Dam to Columbia River)	OR	West, 2.4	(k)
Lower Klickitat Federal Wild and Scenic River	WA	Northwest, 16.2	(k)
Columbia Basin Agriculture Research Center (Moro)	OR	Southwest, 0.4	(m)
Lower Deschutes Wildlife Area	OR	Southwest, 1.8	(p)
Klickitat Wildlife Area	WA	Northwest, 16.6	(p)

The proposed facility is not located within any of the Protected Areas as defined by OAR 345-022-0040.

L.3 MAP OF PROPOSED FACILITY IN RELATION TO PROTECTED AREAS

OAR 345-021-0010(1)(L)(B) A map showing the location of the proposed facility in relation to the protected areas listed in OAR 345-022-0040 located within the analysis area.

Response: See Figure L-1.

L.4 POTENTIAL IMPACTS

OAR 345-021-0010(1)(L)(C) A description of significant potential impacts of the proposed facility, if any, on the Protected Areas including, but not limited to, potential impacts such as:

<u>Response</u>: Through an evaluation of potential impacts, it has been determined that the design, construction, and operation of the facility are not likely to result in significant adverse impacts to Protected Areas. The evaluation is described below.

(i) Noise resulting from facility construction or operation;

<u>Response</u>: The noise analysis conducted for the proposed facility indicated the proposed facility would be inaudible from all Protected Areas except the Columbia Basin Agriculture Research Center. The maximum noise level at the Center would be approximately 34 dBA which would be audible at times at a very low level, mostly late at night.

Noise resulting from facility construction or operation would not adversely impact Protected Areas.

(ii) Increased traffic resulting from facility construction or operation;

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<u>Response</u>: A detailed description of traffic resulting from facility construction and operation is included in Exhibit U.

The construction access route includes using US 97 from Biggs Junction at I-84 to the US 97/OR 206 intersection near Wasco. Construction traffic may also approach the site from the south on US 97. Construction traffic would use OR 206 to reach Wasco, and then use a series of local Sherman County roads to reach construction sites within the site boundary. Several local roads would need to be improved to accommodate heavier construction equipment, resulting in a long-term improvement to the local road system.

Temporary impacts such as short-term traffic delays on US 97 and local roads may affect access to Protected Areas associated with the John Day River and the Columbia Basin Agriculture Research Center. The construction route is not a primary access route to the John Day River, and several passing lanes on US 97 will alleviate potential impacts along the travel corridor. Impacts to Protected Areas associated with the Deschutes River would be negligible because access to the river is primarily from I-84 and from state and local roads south of the analysis area. Traffic demands on local roads are currently low. Any effects are expected to be temporary, negligible, and would not adversely impact Protected Areas. Long-term negative impacts due to traffic would be negligible because the facility would employ 10 to 15 people.

The remaining Protected Areas are distant enough from the Project that they would not be affected by increased traffic. In conclusion, increased traffic resulting from facility construction or operation would not adversely impact Protected Areas.

(iii) Water use during facility construction or operation;

Response: As stated in Exhibit O, water use during facility construction will primarily involve dust control and making concrete. During operations, water use will be minimal and will include normal domestic use associated with the O&M facility. During construction, water will be trucked in from offsite. During operation, water for the O&M facility will be supplied from an exempt well near the O&M building.

Water use during facility construction or operation would not impact Protected Areas.

(iv) Wastewater disposal resulting from facility construction or operation;

<u>Response</u>: The use of water for construction practices is not anticipated to generate runoff. Wastewater would not be discharged into wetlands or other adjacent resources. Sanitary effluent would be treated via an on-site septic system and stormwater would infiltrate on site. Therefore, wastewater resulting from facility construction or operation would not impact Protected Areas.

(v) Visual impacts of facility structures or plumes.

<u>Response</u>: A visibility analysis was conducted to determine areas within the analysis area from which any part of any turbine would potentially be visible. The details of the modeling method are discussed in Exhibit R; the results for the Protected Areas visibility analysis are included in Figure L-2. The results were ground-truthed during site investigations on June 13 and 14, 2007.

The proposed project will not be visible from the following Protected Areas, according to the computer modeling results and site investigations:

- Goldendale Hatchery
- Deschutes River State Recreation Area
- Heritage Landing (Deschutes)
- JS Burres State Recreation Site/BLM Cottonwood Facility
- Goldendale Observatory State Park
- Columbia Hills (Horsethief Lake) State Park
- Doug's Beach State Park
- Maryhill State Park
- Brooks Memorial State Park
- Badger Gulch Natural Area Preserve
- Lower Klickitat Federal Wild and Scenic River
- Klickitat Wildlife Area

Since the proposed project would not be visible from these Protected Areas, there would be no visual impact to them.

The proposed project would be potentially visible, in very limited areas, from the following Protected Areas:

- John Day Federal Wild and Scenic River
- John Day State Scenic Waterway (Parrish Creek to Tumwater Falls)
- John Day Wildlife Refuge
- Deschutes Federal Wild and Scenic River
- Deschutes State Scenic Waterway (Pelton Dam to Columbia River)
- Lower Deschutes Wildlife Area

The proposed project would be visible from limited isolated rims of the John Day River canyon including areas within the boundaries of the John Day Federal Wild and Scenic River (WSR), John Day State Scenic Waterway, and John Day Wildlife Refuge (see Figure L-2). The proposed project would be visible from

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very limited isolated rims of the Deschutes River canyon, including areas within the Deschutes Federal WSR, Deschutes State Scenic Waterway, and Lower Deschutes Wildlife Area boundaries (see Figure L-2). The John Day Federal WSR, John Day State Scenic Waterway, Deschutes Federal WSR, and Deschutes State Scenic Waterway are managed for outstanding scenic quality (USDI 1986, USDI 1993, USDI 2000, USDI 2001). The John Day Wildlife Refuge and Lower Deschutes Wildlife Area are not managed for visual quality (Kohl, 2007).

The US Department of Interior Bureau of Land Management (BLM) has indicated that its primary concern would be visual impacts seen from the rivers, not from the canyon rims (Mottl, H. 2007, Mottl, T. 2007). The proposed project would not be visible from the John Day River, the Deschutes River, or either of the river canyons' interior and would therefore have negligible impacts, if any, on these Protected Areas.

The proposed project would be visible from the following Protected Areas:

- Columbia Hills Natural Area Preserve
- Columbia Basin Agriculture Research Center (Moro)
- Columbia River Gorge National Scenic Area

The Columbia Hills Natural Area Preserve (NAP) is located within the Columbia River Gorge National Scenic Area (CRGNSA) and is managed for rare plant habitat; the NAP itself is not managed for visual quality. The proposed project would likely be visible from the NAP, but would not adversely impact the NAP nor interfere with its management objectives. Photos L-1 and L-2 depict typical views from the NAP, including views of existing wind turbines that are barely discernable to the naked eye.

The proposed project would be visible from the Columbia Basin Agriculture Research Center in Moro, Oregon. The center is not managed for visual quality. The proposed Project would not adversely affect operations at the center (Petrie, 2007).

The proposed project would be visible from the eastern end of the CRGNSA. Much of the visible area identified in the visibility analysis is not publicly accessible; there is limited road access and most land is held in private ownership. The most likely locations from which to view the proposed Project occur along Washington SR-14, near Wishram, Washington. Turbines may potentially be visible in the distant middleground and background. Views from SR-14 are currently encroached upon by multiple transmission corridors and steel lattice towers, distribution lines, radio towers, rail lines, the I-84 and US 30 corridors, and rural development. Photos L-3 and L-4 depict views from SR-14 near Wishram. Given the relative amount of existing encroachment in the foreground and middleground views, that proposed turbines (or portions of turbines) would likely be visible in the background, and limited opportunities to

view turbines, the proposed project would result in minimal impacts to the CRGNSA.

In summary, visual impacts of project structures would not significantly impact Protected Areas.

(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 Areas as described in OAR 340-204-0050.

<u>Response:</u> The proposed project would not create air emissions, so no impacts would occur. There are no Class 1 Areas within the analysis area.

L.5 REFERENCES

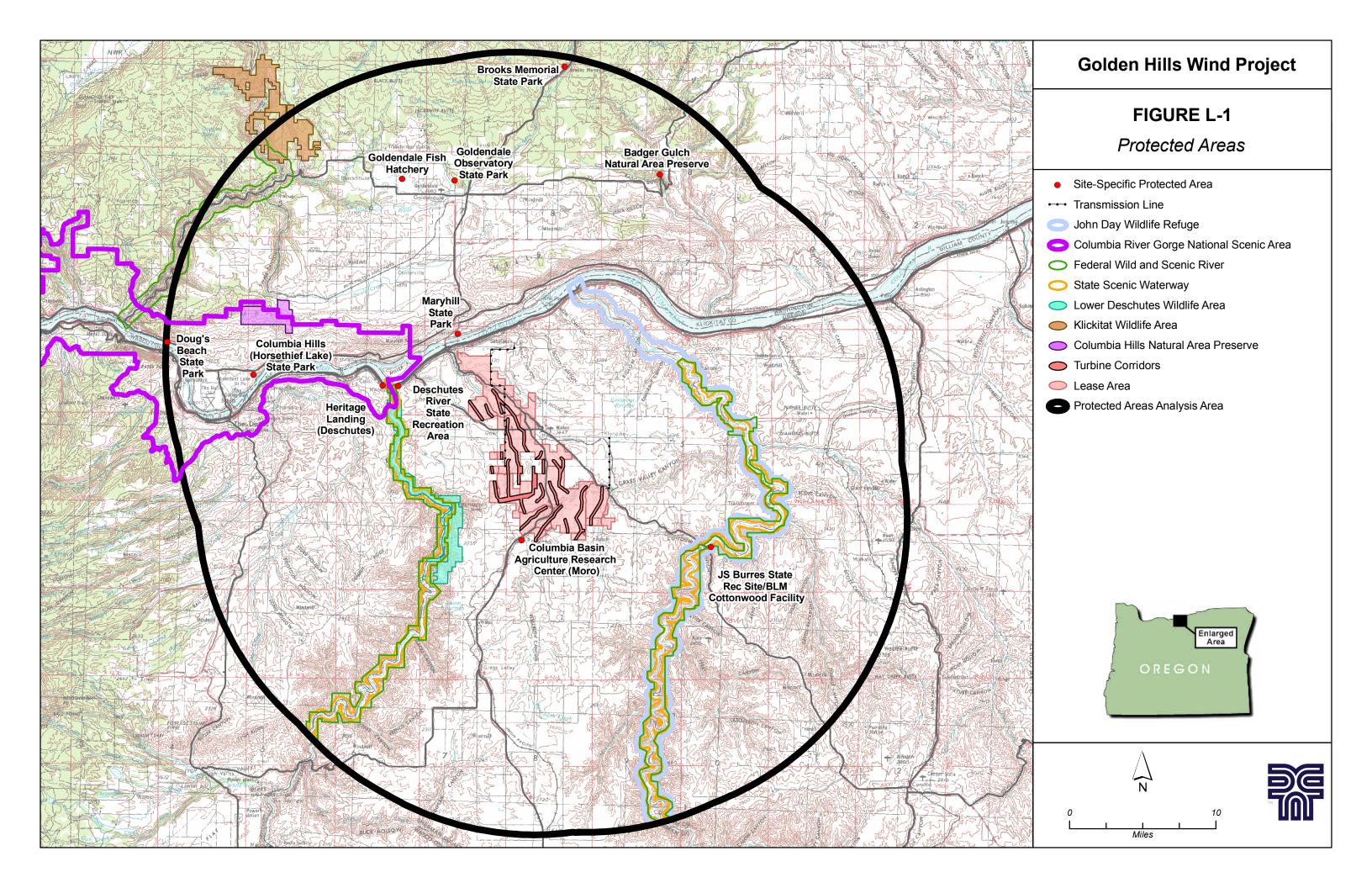
L.5.1 Telephone Contacts/Personal Interviews

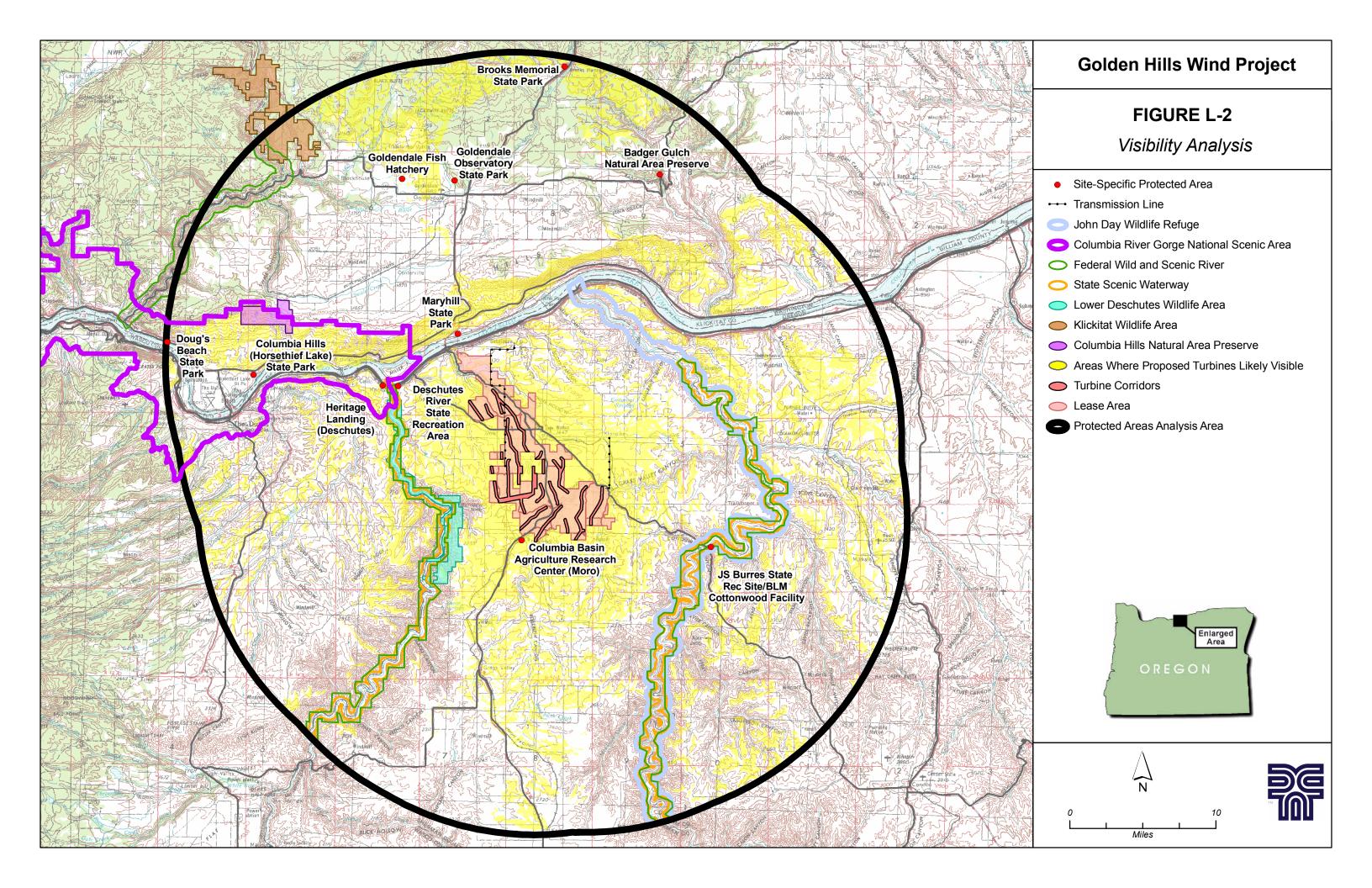
- Kohl, Keith. District Wildlife Biologist. Mid-Columbia District. Oregon Department of Fish and Wildlife. Telephone conversation with Sean Sullivan. June 28, 2007.
- Mottl, Heidi. Recreation Planner. Prineville District, Bureau of Land Management. Telephone conversation with Sean Sullivan. June 25, 2007.
- Mottl, Tom. District Recreation Planner. Prineville District, Bureau of Land Management. Telephone conversation with Sean Sullivan. June 26, 2007.
- Petrie, PhD., Steve. Director. Columbia Basin Agriculture Research Center (Moro). Oregon State University. Voicemail message for Sean Sullivan July 5, 2007.

L.5.2 Website/Document References

- USDI Bureau of Land Management. Two Rivers Resource Management Plan Record of Decision. June 1986.
- USDI Bureau of Land Management. Lower Deschutes River Management Plan Record of Decision. February 1993.
- USDI Bureau of Land Management. John Day River Proposed Management Plan, Two Rivers and John Day Resource Management Plan Amendments and Final Environmental Impact Statement. June 2000.
- USDI Bureau of Land Management. John Day River Management Plan, Two Rivers, John Day, and Baker Resource Management Plan Amendments Record of Decision. February 2001.

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ATTACHMENT L-1 PHOTOGRAPHS



PHOTO L-1: Columbia River Gorge National Scenic Area viewed from Columbia Hills Natural Area Preserve looking southeast. Existing turbines barely discernable center background.



PHOTO L-2: Columbia River Gorge National Scenic Area viewed from Columbia Hills Natural Area Preserve looking southwest. Transmission line and City of The Dalles visible center middleground.



PHOTO L-3: SR-14 overlook near Wishram, Washington. View of Columbia River looking southeast. Deschutes River confluence at center right.



PHOTO L-4: SR-14 at Mile Post 97, near east boundary of CRGNSA, looking east. Transmission and distribution lines silhouetted center left and right.