

**EXHIBIT G**

**MATERIALS ANALYSIS**

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

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## G.1 INTRODUCTION

**OAR 345-021-0010(1)(g)** *A materials analysis.*

Response: Exhibit G identifies the inventory of industrial materials that would flow into and out of the facility in substantial quantities during construction and operation and, where applicable, describes how these materials would be stored and managed. See Exhibit V for information regarding solid waste and wastewater handling and disposal.

## G.2 INVENTORY OF INDUSTRIAL MATERIALS

**OAR 345-021-0010(1)(g)(A)** *An inventory of substantial quantities of industrial materials flowing into and out of the proposed facility during construction and operation.*

**OAR 345-021-0010(1)(g)(B)** *The applicant's plans to manage hazardous substances during construction and operation, including measures to prevent and contain spill.*

**OAR 345-021-0010(1)(g)(C)** *The applicant's plans to manage non-hazardous waste materials during construction and operation.*

Response:

### G.2.1 Fuel

The Carty Generating Station would be served by a gas pipeline lateral that would carry natural gas from an existing pipeline operated by Gas Transmission Northwest Corporation (GTN) to the Carty Generating Station. For an approximately 900-megawatt nominal generating plant, the total natural gas consumption of the facility is anticipated to be about 150 million standard cubic feet/day. Natural gas would be used on an as-needed basis directly from the pipeline lateral; therefore, no fuel would be stored on site. It is not anticipated that natural gas from the GTN lateral will be odorized, and Portland General Electric Company (PGE) does not plan to odorize the gas on site. PGE would use methane detectors placed throughout the facility to detect leaks.

### G.2.2 Solid Waste Materials

Generation, storage, and disposal of solid waste, hazardous waste, and wastewater are discussed in detail in Exhibit V. A summary is provided below.

Approximately 5 tons per month of solid waste would be produced during construction. Solid waste would consist of domestic refuse, office waste, packaging materials, steel cut-offs, and construction materials. Construction of the Carty Generating Station is expected to generate waste steel, other waste metals, and normal miscellaneous construction debris (consisting of

wood, concrete, and other refuse). During operation, approximately 20 tons per year of refuse would be produced; the waste would consist of office and maintenance waste. Facility retirement would produce construction debris of various quantities. Solid waste would be recycled or reused to the greatest extent possible; waste that cannot be recycled or reused would be collected and disposed of at a landfill.

Hazardous waste could include oil rags, spent batteries, and equipment and vehicle maintenance solvents and oils. Chemicals used to clean piping systems and the heat recovery steam generators (HRSGs) would also be managed as hazardous waste. The Carty Generating Station is expected to be classified as a Conditionally Exempt Generator, meaning that less than 220 pounds per month of hazardous waste would be produced by the Carty Generating Station during operation. Used oils, universal wastes, and hazardous wastes would be disposed of through an appropriate waste disposal service provider.

During construction and operation, the Carty Generating Station would produce sanitary sewage and wastewater of various quantities (see Exhibit V). Portable toilets would be used during construction, and the existing Boardman Plant sanitary waste treatment system would be used during operation and, to a limited extent, during construction. During operation, non-sanitary wastewater would be reused internally, sent back to Carty Reservoir, or sent to evaporation ponds.

### **G.2.3 Selective Catalytic Reduction System**

The selective catalytic reduction (SCR) system would utilize anhydrous ammonia as a reagent for control of nitrous oxide (NO<sub>x</sub>) emissions. The anhydrous ammonia would be delivered via tanker truck and transferred into an on-site storage tank. Ammonia unloading would be accomplished using the tanker truck mounted pump/compressor. Ammonia forwarding pumps would transfer liquid ammonia from the storage tank to a vaporizer. The vaporized ammonia would be diluted with heated ambient air prior to entering the ammonia injection grid within the SCR system. Secondary containment for the anhydrous ammonia storage tank would be provided by means of a dike around the storage tank. The dike area would have the capacity to contain 110 percent of the volume of the ammonia tank, plus the 100-year return frequency storm. The anhydrous ammonia system would be designed with proper handling, safety, and alarming equipment to minimize risk of release and exposure to ammonia.

The control systems for NO<sub>x</sub> and carbon monoxide utilize catalysts, which require periodic replacement. The spent catalysts would be removed for off-site recovery and/or disposal by the supplier.

### **G.2.4 Other Chemicals**

Sulfuric acid, used for pH control, and sodium hypochlorite and sodium bromide, used as biocides in cooling tower and service water, would be stored in tanks and totes on site. The tanks would be supported on saddles and surrounded by a secondary containment dike. The



secondary containment for sulfuric acid, sodium hypochlorite, and sodium bromide would be designed to hold 110 percent of the volume of the largest tank in the secondary containment.

Chemicals used for the treatment of process water are listed in Table G-1. These would be delivered and stored in bulk or semi-bulk tanks, totes, drums, or bags. The tanks, totes, drums, and bags would be stored within secondary containment.

Miscellaneous chemicals and equipment lubricants for equipment maintenance, fire pump operation, generator cooling, and fire suppression would be stored within either the warehouse or other proposed buildings at the Carty Generating Station.

### **G.2.5 Other Materials**

Lime and soda ash used for wastewater treatment softening would be stored in bulk storage silos. Compressed gases used at the Carty Generating Station, such as carbon dioxide and nitrogen, would be stored in approved returnable cylinders. Hydrogen would be stored in approved high-pressure storage cylinders mounted on pads, on mobile storage tanks, or in approved returnable cylinders. All cylinders containing compressed gases would be secured against falling by an approved method to prevent damage.

Table G-1 summarizes the proposed energy facility's chemical usage and storage containers.

**Table G-1 Anticipated Chemical Usage and Storage**

Material	Purpose	Usage	Maximum Amount Stored*	Storage Type
Natural gas	Primary fuel	150 million standard cubic feet/day	None	Not Applicable
Sulfuric acid (93 %)	Cir water and cooling tower; deionized water system regeneration	420 gpd – cooling tower 0.8 gpd – demineralized regeneration	2 x 6,000 gallons plus 400 gallons	Bulk storage tanks plus tote
Corrosion/scale inhibitor	Circ water system corrosion/scale control	16 gpd	400 gallons	Tote
Sodium hypochlorite	Biocide in cooling tower, service water	600 gpd – cooling tower, 3 gpd – service water	2 x 12,000 gallons plus 200 gallon	Bulk storage tank plus tote
Sodium Bromide	Biocide in cooling tower, service water	100 gpd – cooling tower	1 x 12,000 gallons	Bulk storage tank
Trisodium Phosphate	Boiler feed treatment	4 lb/day – avg, 20 lb/day – max	500 lb	Store 10 x 50 lb bags
Oxygen scavenger	Feed water oxygen control	5–10 gpd	400 gallons	Drums or tote
Neutralizing amine	Condensate system corrosion control, boiler pH control	1 gpd	400 gallons	Drum or tote
Filter Aid	Service water pretreatment	12 lb/day	200 gallons	Tote
Scale Inhibitor – reverse osmosis	Cycle makeup reverse osmosis and Wastewater reverse osmosis	1 gpd 1 gpd	400 gallons	Tote
Sodium Bisulfite	Dechlorination for reverse osmosis, cooling tower blowdown	25 lb/day – reverse osmosis, 11 lb/day – circulation water	400 gallons plus 400 gallons	Tote
Sodium hydroxide – 50 %	DI water system regeneration	0.8 gpd	400 gallons	Tote
Coagulant	Wastewater treatment softening	15 gpd	400 gallons	Tote
Coagulant aid	Wastewater treatment softening	15 lb/day	400 gallons	Tote
Lime	Wastewater treatment softening	700 lb/day	20 tons	Bulk storage silo
Soda Ash	Wastewater treatment softening	1000 lb/day	20 tons	Bulk storage silo
Anhydrous ammonia	NO <sub>x</sub> abatement in SCR	261.6 lb/hr	105,000 pounds	Bulk storage tank
Inhibitor	Closed cycle cooling water	0.4 lb/day	100 lb	Store 2 x 50 lb bags
Misc. cleaners/degreasers	Equipment maintenance	< 50 gal/month	5 and 55 gal drums	Drums
Insulating Oil	Electrical equipment (inside transformers, etc.)	Initial fill	55 gal drums	Drums
Diesel # 2	Fire pump operation	None, except in fire	100 gal	Tank, UL
Hydrogen	Electrical generator coolant	1500 cf/day – max	45,000 cubic feet	Bulk storage or returnable cylinders
Nitrogen	HRSg layup	As needed	2000 cubic feet	Returnable cylinders
Lubricating oil	Turbine lubricating oils	< 5 gpd	55 gal drums	Drums
Carbon dioxide	Gas turbine fire suppression	None, except in fire	4000 lbs	
Hydraulic oil	Equipment operations	Initial fill	55 gal drums	Drums
Misc. lubricants	Lube oils, greases, etc.	< 50 gal/month	5 and 55 gal drums	Drums

**EXHIBIT H**

**GEOLOGY**

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

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## H.1 INTRODUCTION

OAR 345-021-0010(1)(h) *Information from reasonably available sources regarding the geological and soil stability within the analysis area, providing evidence to support findings by the Council as required by OAR 345-022-0020:*

Response: This exhibit presents the results of a preliminary geologic and geotechnical assessment for the proposed Carty Generating Station. This exhibit was prepared using information from previously published geologic and seismic studies and preliminary site-specific geotechnical explorations. Detailed geotechnical design recommendations will be prepared in a separate report after additional subsurface explorations are completed. The following sections present information required under Oregon Administrative Rule (OAR) 345-021-0010(1)(h).

## H.2 GEOLOGIC REPORT

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

Response: A geologic report that meets the general guidelines in open file report 00-04 is presented in Appendix H-1. This report was prepared by Portland General Electric Company's (PGE) geotechnical consultant, Cornforth Consultants, Inc., of Portland, Oregon. The report summarizes Cornforth Consultants' preliminary geotechnical investigation of the Site, which was performed in September 2009. A 2010 Supplement to the Preliminary Geotechnical Site Investigations is provided in Appendix H-1. The Supplement provides an additional site geologic map and an updated figure from the 2009 report.

## 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: Preliminary geologic and geotechnical site characterization was completed at the Site during the period of September 21–24, 2009. The preliminary site work included a geologic reconnaissance of the area and drilling three exploratory borings to depths ranging from 27 to 50 feet below the existing ground surface. The results of the preliminary site characterization are summarized in Appendix H-1. Additional site-specific geologic and geotechnical work would be performed in the final design phase, as outlined below.

Additional Site explorations would be completed as the design and permitting process progresses. The anticipated scope of work to be completed for final design of the facility would consist of the following tasks:

- Drill six to eight additional exploratory borings up to a depth of 75 feet. The borings would be drilled under proposed critical structure locations, including the gas turbine units, cooling tower, and switchyard. Standard penetration tests would be performed at 2.5- and 5-foot intervals and, depending on the depth of sampling, rock coring accomplished with HQ3 triple barrel coring in the bedrock units.
- Perform a test pit program to assess the extent and thickness of any loose, surficial soil layers at the Site. Key focus areas would include planned locations of critical structures, roadways, and landscaped areas where irrigation may occur.
- Perform laboratory testing to evaluate engineering properties of the soils. Specific tests would include natural water contents on all samples collected; mechanical and hydrometer gradations; Atterberg limits, and collapsibility and consolidation tests on select samples.
- Provide foundation recommendations for various structures. Recommendations would include allowable bearing capacities and estimated settlements, piling support, static and dynamic lateral earth pressures, and uplift pressures. Site grading recommendations would include provisions for treatment of collapsible soils.

The work tasks listed above would be completed prior to final design and construction.

#### **H.4 EVIDENCE OF CONSULTATION WITH DOGAMI**

**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: The Oregon Department of Geology and Mineral Industries (DOGAMI) was notified of PGE's intent to prepare an Application for Site Certificate (ASC) pursuant to OAR 345-021-0010 via a telephone conference that occurred on September 2, 2009. The telephone conversation occurred between Mr. Bill Burns of DOGAMI and Mr. Charles Hammond of Cornforth Consultants, Inc. In mid-October 2009, Mr. Hammond informed Mr. Burns during a brief in-person meeting of Cornforth's geologic reconnaissance and exploratory borings that occurred during September 21–24, 2009. PGE submitted an advance copy of Cornforth's preliminary geotechnical report (Appendix H-1) to Mr. Burns at DOGAMI on November 3, 2009. On November 10, 2009, DOGAMI indicated that it had received the advanced copy but had not reviewed it in detail. DOGAMI will complete a detailed review when requested by the

Energy Facility Siting Council. However, at the time of submittal DOGAMI had not identified any issues based on the advanced copy.

## **H.5 TRANSMISSION LINES**

**OAR 345-021-0010(1)(h)(D)** *For all transmission lines, include a description of locations along the proposed route where 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 geological 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: Power generated at the Carty Generating Station would be transmitted for distribution to customers by the existing Boardman to Slatt 500-kilovolt (kV) alternating current (AC) transmission line and a new 500-kV AC transmission line constructed adjacent to the existing line. The existing transmission line has been operating since the late 1970s and has not experienced any geotechnical- or geologic-related issues. The geology through the transmission line right-of-way is similar to that encountered at the Boardman Plant, dominated by silty overburden soil with volcanic basalt bedrock below.

The existing Boardman to Slatt transmission line does not have a history of landslide activity, and utilizing existing transmission lines would not increase the risk of landslides. The new transmission line would be subject to the same geologic hazards as the existing transmission line and would be expected to perform similarly. Prior to the construction of the new transmission line, additional geologic reconnaissance would be carried out with a focus on the Highway 74/Willow Creek crossing area. Existing subsurface information from design and construction of the existing transmission line would be utilized as much as practicable. If subsurface information is not available, exploratory borings will be drilled at critical locations during final design.

## **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 geological 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: Not Applicable. The proposed pipeline lateral is not included within the scope of this ASC. The proposed gas pipeline lateral is an interstate pipeline and is being permitted pursuant to the Federal Energy Regulatory Commission's jurisdiction.

## **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;*

Response: The Site is located in Eastern Oregon and mapped spectral accelerations at the Site, based on International Building Code (IBC) 2003 (2,475-year return period, 0.2s SA and 1.0s SA) are 0.422 and 0.136 g, for short ( $S_S$ ) and 1-second ( $S_1$ ) period motions, respectively. Based on preliminary subsurface explorations, the soil profile at the site corresponds to an IBC site class D. The maximum considered earthquake ground motions at the site,  $S_{DS}$  and  $S_{D1}$  are 0.41 and 0.20 g, respectively.

- (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);*

Response: Two principal types of earthquake sources that are capable of generating ground motions at the Site are the Cascadia Subduction Zone (CSZ) "interface" and local crustal faults. The CSZ results from the Juan de Fuca tectonic plate subducting (sliding) beneath the American continental tectonic plate. The CSZ interface events occur between the Juan de Fuca and North American plates. The crustal fault sources identified are those occurring on known, unknown, buried, or random faults. Table H-1 identifies and characterizes the sources capable of generating a peak bedrock acceleration of at least 0.05g at the site. Mean peak bedrock accelerations for crustal sources were calculated using the average of all five next-generation attenuation relationships (Idriss 2008; Campbell and Bozorgnia 2008; Abrahamson and Silva 2008; Boore and Atkinson 2008; Chiou and Youngs, 2008). The peak acceleration for the CSZ interface event was calculated using the average of Youngs et al. (1997) and Atkinson and Boore (2003) attenuation relationships.



**Table H-1 Deterministic Seismic Hazard Assessment Peak Bedrock Acceleration >0.05g**

Source	Probability of Activity	MCE	Minimum Distance (km)	Mean Peak Acceleration (g)
<b>Horse Haven Hills Structure</b>	1.0	7.1	65	0.06
<b>Rattlesnake-Wallula Fault System</b>	1.0	7.4	70	0.06
<b>Mill Creek Thrust Fault</b>	1.0	7.1	73	0.05
<b>Random Event</b>	1.0	6	10	0.17
<b>Interface Event</b>	1.0	8.3–9	310	0.05

As shown by the table, the random crustal event would control ground motions at the Site for potential crustal sources. Other crustal sources in eastern Oregon and Washington are located too far from the Site to produce a peak bedrock acceleration much greater than 0.05g at the site.

- (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 or region of highest intensity.*

Response: The vast majority of seismic events occur within the crust of the North American Plate. Even along the coastal portion of Oregon where the Juan de Fuca Plate dominates the tectonic setting of the region, less than 5 percent of historical seismicity is related to potential intraslab or interface events.

Seismicity documented for the period from 1827 through 1969 can be divided into two sub-periods. Pre-instrumental data for the period 1827 through 1935 are converted from maximum intensity data based on personal accounts of the shaking, i.e., on “felt” reports. In Oregon, the data from 1944 through 1969 were recorded instrumentally, but this instrumental coverage was not sufficient to accurately locate events or to record smaller events. After 1960, enough instrumental coverage was achieved to improve locations over felt reports; however, events below magnitude (M) 4.5 could not be located accurately prior to 1970.

A list of earthquakes recorded since 1970 within 50 miles of the Site is provided in Appendix H-2. None of these earthquakes exceeded M 4.1.

Six earthquakes that could have generated Modified Mercalli III intensity at the Site have been reported. These earthquakes of M 4.5 or greater are more than 50 miles from the Site. These larger earthquakes are listed in Table H-2 below. No earthquakes greater than M 7.1 have been recorded in the Pacific Northwest.

**Table H-2 Large Earthquakes >50miles from the Site**

Date	Latitude N	Longitude W	Magnitude	Maximum Mercalli Intensity
Dec. 15, 1872	47.90	120.30	7 M <sub>L</sub>	VIII
Jul. 16, 1936	46.00	118.21	5.7 M <sub>S</sub>	VI
April 13, 1949	47.08	122.75	7.1 M <sub>L</sub>	VIII
April 29, 1965	47.40	122.40	6.5 M <sub>L</sub>	VII
April 13, 1976	45.22	120.77	4.8 M <sub>L</sub>	V
Feb. 28, 2001	47.15	122.73	6.8 M <sub>w</sub>	VII

- (iv) *Assessment of the median ground response spectrum from the MCE and the MPE and identification of the spectral accelerations greater than 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.*

Response: The median ground response spectra for the MCE and MPE are compared with the Oregon Structural Specialty Code (2004 edition) design spectrum in Appendix H-1, Figure 2 of the 2010 Supplement. Figure 2 of the 2010 Supplement supersedes Figure 8 from the Preliminary Geotechnical Site Investigations report. The spectral accelerations for the MCE Random Crustal earthquake exceed the design spectrum over the period range 0.13 to 0.30 seconds. As part of final design studies, additional borings would be completed to investigate subsurface conditions. Preliminary borings indicate that subsurface materials generally consist of dense to very dense, sandy silt to silty sand. General site topography is gentle, without steep slopes. Based on site topography and preliminary boring information, it is anticipated that amplification of subsurface material is not expected to be greater than those of the MCE ground motions.

- (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.*

Response: Based on preliminary geotechnical studies, no significant seismic hazards at the Site are expected. In general, the subsurface conditions are similar to the adjacent Boardman Plant. The predominant foundation conditions include relatively dense cemented silt underlain by weathered rock, which, in turn, is underlain by hard basalt. These conditions should provide adequate bearing strata for the project foundations, and the predominantly stiff overburden soils would not be expected to liquefy, spread laterally, or significantly amplify ground shaking from a seismic event.

Due to the gently sloping topography of the Site, the likelihood of seismically induced landsliding is low. Additionally, the Site is not located near a body of water large enough to develop significant tsunami. Therefore, the risk of tsunami inundation at the Site is extremely low. Earthquake induced waves (seiche) from Carty Reservoir are not expected to exceed the height of the levees. No mapped active crustal faults are located within 6 miles of the Site. The risk of fault rupture is low.

## **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: Based on the preliminary geotechnical investigation, the Site does not appear to possess any significant, non-seismic geologic hazards. As discussed below, there is a thin, surficial layer of loose, dry silt in a localized area that may present minor geotechnical concerns; however, it can be dealt with during the investigation and design phases of the project. The predominant foundation conditions at the Site include relatively dense, cemented silt underlain by weathered rock, which, in turn, is underlain by hard basalt. These conditions would provide adequate bearing strata for project foundations.

The risk of landslide occurrences at the Site is very low due to: (i) gentle topography, (ii) relatively strong soils, and (iii) apparent low groundwater levels. In addition, the risk of flood damage is low due to the nearby Sixmile Canyon directing runoff away from the proposed facilities, combined with the control of additional up-canyon waters by the nearby Carty West Dam, approximately 0.5 miles from the Site Boundary.

Boring B-2 of the preliminary investigation program (performed in the proposed Carty Generating Station gas turbine area) encountered a relatively loose layer of silt at the ground surface. The looser soil layer is approximately 5 feet in thickness at this location and overlies stronger, cemented soils (see Summary Boring Logs in Appendix H-1). The key concerns for this layer include collapse and erosion. Collapse is a phenomenon where loose, dry silt consolidates upon saturation, which can cause distress to overlying structures and pavements. The final design exploration program would include a series of test pits to probe the depth and areal extent of the loose silt layer. Potential mitigation measures for the loose silt layer are discussed in Section H.9.

Soil erosion typically results from the uncontrolled flow of surface water across a site or from high winds acting on loose silty or sandy soils. Due to the Site's relatively flat topography, surface erosion from water flow is unlikely. Minor bank erosion as a result of flood waters in Sixmile Canyon is unlikely to affect the Site. The soils at the ground surface have a low to medium susceptibility to wind erosion. Except for the surficial layer of loose silt mentioned

above, it is not anticipated that wind erosion would be severe enough to adversely affect the Site due to the moderately vegetated nature of the surrounding land. If wind erosion became a problem, it could be mitigated with conventional hydro seeding or erosion control mats.

## **H.9 SECTION H: 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 OAR 345-021-0010(1)(h)(F). The applicant shall include proposed design and engineering features, applicable construction codes, and any monitoring for seismic hazards.*

Response: Ground shaking hazards would be addressed by use of the ground response spectra. The structural engineer would design the facilities to resist lateral base shear based on the spectral values. If the spectral values are significantly lower than the Oregon Structural Specialty Code values, the code values would be utilized.

## **H.10 SECTION I: 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 OAR 345-021-0010(1)(h)(G).*

Response: Siting the Carty Generation Station at the proposed location does not appear to pose significant geotechnical or geological design issues. In general, the subsurface conditions are similar to those at the adjacent Boardman Plant. As mentioned above under Section H.7, the key issue appears to be the potential for collapse in a localized surficial layer of loose, dry silt. This problem would be addressed in the design phase, and the approach would include: (i) extending foundations for buildings and appurtenant structures through the looser soil to stronger bearing layers, and/or (ii) excavating and replacing the looser soil with engineered fill that is moisture conditioned and placed and compacted in lifts. These measures would minimize the potential for landslides, flooding, or erosion resulting from construction and operation of the facility.

## **H.11 REFERENCES**

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# **APPENDIX H-1**

## **Preliminary Geotechnical Site Investigations**







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November 11, 2009

2047

Mr. Franco Albi, P.E.  
Portland General Electric  
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Portland, OR 97204

**Preliminary Geotechnical Investigation  
Proposed Carty Generating Station  
Boardman, Oregon**

Dear Mr. Albi:

As requested, we have completed our preliminary geotechnical investigation of the proposed Carty Generating Station near Boardman, Oregon. This letter-report summarizes our field investigation program and our geotechnical assessment of the proposed project site.

**Introduction**

**General.** Portland General Electric (PGE) is proposing to build a natural gas fuel combined-cycle generating plant. The proposed Carty Generating Station would consist of two gas turbine units and supporting cooling towers. Each turbine would be capable of generating 450 MW. The Carty site is approximately 2,000 feet northwest of the PGE's Boardman Plant, and situated on the east side of Sixmile Canyon (see Vicinity Map, Figure 1). The Carty project would include a new switchyard located on the west side of Sixmile Canyon, and transmission lines and towers linking the two new generating units. The switchyard site is approximately 4,000 feet west of the proposed Carty site. Both the Carty Generating Station and separate switchyard will be located within fenced areas consisting of approximately 35 acres and approximately 15 acres, respectively. The approximate locations of the proposed facilities are shown on the Site Plan, Figure 2.

The focus of this preliminary site investigation for the Carty Station was to provide an indication of the foundation conditions and potential geotechnical/geological hazards at the site to address Exhibit H of the Site Certificate Application for the Department of Energy's Energy Facility Siting Council. More detailed field investigations and geotechnical design analyses specific to the final plant layout are to be performed later in the project development.

**Geotechnical Performance of Boardman Plant.** Based on discussions with PGE personnel, it is our understanding that the adjacent Boardman Plant has not experienced any geotechnical- or geological-related issues since its construction in the late 1970's. Most of the structures are founded upon deep foundations (drilled shafts), which penetrate into cemented soils and basalt bedrock underlying the site. There have been no problems associated with soil collapse, heave,

settlement, and there have been no damages from minor seismic events that have occurred during the life of the facility. Considering the satisfactory performance of the Boardman Station, part of the emphasis for our assignment was to check the new Carty site for similar subsurface conditions.

### **Scope of Work**

Our scope of work included the following tasks:

- Geological reconnaissance of the proposed Carty site, switchyard, and transmission lines to check for geologic hazards
- Perform three exploratory borings: one at the proposed east power block area, one at the proposed cooling tower area, and one at the proposed switchyard location. The drilling program included piezometer installation at each of the three drill locations to monitor groundwater conditions in the foundation areas for the new structures.
- Perform a limited laboratory testing program including moisture contents on all soil samples collected, and grain size analyses and Atterberg limits tests on representative samples.
- Prepare a preliminary geologic and geotechnical report, which would summarize: the geologic reconnaissance, the site investigation and subsurface conditions, results of the laboratory testing, and an overview of geological/geotechnical issues with regard to design and construction of the proposed facilities.
- Preparation of Exhibit H, Subsections A through I in the Site Certificate Application, in accordance with the Oregon Administrative Rules OAR 345-021. It is understood that the overall Site Certificate Application would be prepared by PGE, with input from our firm as required for Exhibit H. Our Exhibit H subsections will be submitted to PGE in a package under separate cover.

### **Geologic Setting**

The proposed site is located on Poverty Ridge, approximately 12 miles south of Boardman, Oregon, within the Deschutes-Columbia Plateau physiographic province. The Deschutes-Columbia Plateau is predominantly a volcanic area covering about 63,000 square miles in Oregon, Washington, and Idaho and contains the widespread flows of the Columbia River Basalt Group. At the Carty Generating Station site, the terrain is a gently sloping downhill to the north toward the Columbia River at  $\frac{1}{2}$  to  $1\frac{1}{2}$  degrees (Figure 1). This sloping terrain is interrupted occasionally by geologic folds, one of which is Poverty Ridge.

Mapped approximately  $1\frac{1}{2}$  miles northeast of the site is an inferred, concealed northwest-trending normal fault. This fault does not appear in the USGS databases for faults displaying known Quaternary displacement. The closest faults that are known to be active are approximately 50 miles to the west and are part of The Dalles fault system. Two other Quaternary fault systems are present approximately 50 miles to the east of the site: the Ukiah Valley faults and the Hite fault system.

The geology of the site consists of an overburden of caliche-cemented silt and sand and bedrock of weathered, fractured basalt and volcanic sediments. The overburden encountered in two borings beneath the proposed Carty site is approximately 40 feet deep, and generally consists of dense to very dense, fine sandy silt to silty fine sand, with trace clay that has been cemented with caliche (a calcium carbonate deposit common to arid regions). These sediments generally have two origins: wind blown loess and soil deposited within the Dalles Formation, a fine-grained sedimentary deposit. The loess consists of a low plasticity to non-plastic fine sandy silt that has been moderately cemented with caliche. The Dalles Formation consists of slightly clayey, fine sandy silt with occasional gravel-sized basalt fragments encountered near the bottom of the deposit.

Beneath the overburden soil units, the geologic formations at the site are associated with the Columbia River Basalt Group and consist of the Elephant Mountain Flow (10.5 million years), the Rattlesnake Ridge tuff unit (10.5 to 12 million years), and the Pomona Flow (12 million years).

The Elephant Mountain basalt beneath the proposed Carty site consists of very highly jointed, hard basalt in a matrix of slightly clayey to clayey silt in the upper 10 feet of the unit, grading to a less-fractured hard basalt. The high degree of jointing was noted to decrease with depth until the joints were generally 2 to 6 inches apart and the degree of joint-infilling decreased. The unit is generally 20 to 30 feet in thickness according to borings at the nearby Boardman Station. From previous explorations at the Boardman Station, the unit is described as a hard to very hard, gray, fine- to medium-grained basalt with core recovery and Rock Quality Designation (RQD) both higher than those encountered at the Carty site.

The Rattlesnake Ridge unit underlies the Elephant Mountain flow and is generally 20 to 35 feet in thickness beneath the Boardman Station. It consists of weakly cemented, weathered tuff and tuffaceous sediments. This unit has been altered to the extent that it exhibits soil-like engineering characteristics as a very stiff to hard, clayey silt.

The Pomona basalt flow underlies the Rattlesnake Ridge unit and consists of three distinct portions: an upper breccia zone, a middle vesicular zone, and a bottom dense basalt zone. When encountered beneath the Boardman Station, the breccia zone consists of vesicular to scoriaceous basalt fragments within a tuffaceous matrix. This unit has not been fully penetrated by drilling at the Boardman Station or for the proposed Carty Station.

The topography of the site is dominated by Poverty Ridge, where the proposed Carty Station is sited, and Sixmile Canyon directly west. The ridge elevation is approximately 670 feet and the floor of Sixmile Canyon is 590 feet just west of the plant. The ridge surface is generally flat with an approximate elevation decrease of 10 feet per 1,000 feet toward the Columbia River. The canyon slopes are gently inclined at 8 to 10°, or about 15 feet vertically for every 100 feet horizontally. Surface water currently infiltrates into the soil or flows west towards Sixmile Canyon.

### **Geologic Reconnaissance**

A senior geologist from our firm performed a geologic reconnaissance of the proposed power plant, switchyard, and transmission lines on September 9, 2009. The reconnaissance entailed examining published maps, aerial photos, and walking the site in the location of the planned facilities. Due to the site's straightforward conditions and setting (i.e. consistent level ground with silt and sand over bedrock), a site specific geologic map was deemed not necessary.

The reconnaissance confirmed the geology previously mapped in the area from both publicly and privately available geologic information. The units in the area are as described above. The ground surface near the power plant is comprised of a loose sandy silt 6 to 12 inches in depth, which becomes cemented (i.e. caliche) to the point of inability to dig with a shovel. Just to the north of the site, the caliche is visible on the surface. The risk to the site from geologic hazards such as landslides, flooding, rapid erosion, or liquefaction is judged to be low. Geotechnical considerations such as collapsibility and settlement will be addressed during the design phase; however the preliminary explorations and the satisfactory performance of the nearby Boardman Plant suggest that these issues are not significant concerns.

### **Geotechnical Explorations**

Three geotechnical borings were completed at locations staked and surveyed by PGE crews. Two borings were drilled at the proposed generating station location (one at the proposed gas turbine area, B-1, and the other boring at the proposed cooling tower, B-2). The third boring, B-3, was completed at the proposed switchyard location. Boring locations are shown on Figure 2.

Borings were advanced between September 21 and 24, 2009 by Boart Longyear of Tualatin, Oregon using a truck mounted Mobile B-59 drill rig. Holes were advanced using mud rotary and HQ3 wireline coring techniques. Standard Penetration Tests (SPT) were performed at 5-foot intervals in overburden materials. Details of materials encountered during drilling are presented in the Summary Boring Logs, Figures 3 through 5. A geologist from Cornforth Consultants was present at the site during all the drilling operations to log samples and direct the drilling operations.

Standpipe piezometers were installed in each of the borings. Each piezometer consisted of a 1-inch nominal diameter 5-foot PVC screen with 1-inch PVC riser pipe. Each piezometer was finished with a flush-mount monument. Details of the piezometer installation are shown on the Summary Boring Logs.

### **Laboratory Testing**

Samples retrieved from the borings were re-examined in the laboratory to confirm field descriptions. The natural water content of selected samples was determined in general accordance with ASTM D2216. Results of classification and water content testing have been incorporated into the Summary Boring Logs, Figures 3 through 5.

Two representative samples were selected from the exploration program for Atterberg limit tests. The tests were performed on samples from the overburden to classify the plasticity of fine-

grained portion. Results are shown plotted on Figure 6. The tests were performed in accordance with ASTM D4318.

Gradation testing was completed on two representative samples from the overburden loess. Results are shown on Figure 7. The tests were performed in general accordance with ASTM D422.

### **Subsurface Conditions**

Overburden materials consisted of two sedimentary units: wind-blown silt and fine sand (loess) and The Dalles Formation. The loess generally consisted of fine sandy silt with trace clay that had been cemented to varying degrees. These units ranged in thickness from approximately 9 to 34 feet in the borings. Boring B-1 encountered a thin (8-inch) layer of silty clay just above the weathered bedrock surface. This lens was not found in Boring B-2. Future explorations may assist in determining the lateral extent, if any, of this thin lens of sediment.

A weathered rock horizon was encountered below the loess and formed the upper part of the Elephant Mountain bedrock. The weathered basalt generally consisted of angular gravel-sized rock fragments in a matrix of slightly clayey, sandy silt. The encountered unit ranges in thickness from approximately 7 to 10 feet.

The bedrock encountered is a hard (R4), slightly weathered basalt identified as the Elephant Mountain member of the Columbia River Basalt Group. It is generally very highly to highly jointed with high sample recovery during drilling and a low RQD. All borings were terminated in this unit. The depth of this unit from the surface ranged between approximately 19 and 43 feet below ground surface, with the shallow level encountered at the proposed switchyard location.

Piezometers installed in the three borings were all observed to be dry at one day following drilling, which suggests that there was not a perched water level or water standing directly atop the bedrock surface at that time.

### **Site Seismicity**

As described previously, there are no mapped faults beneath the proposed Carty site. An inferred fault is mapped approximately 1½ miles to the east. This fault does not appear in the USGS Quaternary fault database and no mapped historic earthquakes appear tied to the mapped location, indicating a low likelihood of rupture on a known fault. There have been 60 reported earthquakes since 1975 within a 50 mile radius with a minimum magnitude of 2.5, at a rate of just under 2 per year. The maximum recorded earthquake magnitude is 4.1 centered approximately 38 miles to the southwest near Condon, Oregon, which occurred in 2000.

Two principal types of earthquake sources that are capable of generating ground motions at the site are the Cascadia Subduction Zone (CSZ) “interface” zone and local crustal faults. The CSZ results from the Juan de Fuca tectonic plate subducting (sliding) beneath the American continental tectonic plate. The CSZ interface events occur between the Juan de Fuca and North American plates. The crustal fault sources identified are those occurring on known, unknown, buried, or random faults. Table 1 identifies and characterizes the sources capable of generating a peak bedrock acceleration of at least 0.05g at the site. Mean peak bedrock accelerations for

crustal sources were calculated using the average of all five Next-Generation Attenuation (NGA) relationships (Idriss, 2008; Campbell and Bozorgnia, 2008; Abrahamson and Silva, 2008; Boore and Atkinson, 2008 and Chiou and Youngs, 2008). The peak acceleration for the CSZ interface event was calculated using the average of Youngs, et al (1997) and Atkinson and Boore (2003) attenuation relationships.

Table 1: Deterministic Seismic Hazard Assessment Peak Bedrock Acceleration >0.05g

Source	Probability of Activity	MCE	Minimum Dist. (km)	Mean Peak Acceleration (g)
Horse Haven Hills Structure	1.0	7.1	65	0.06
Rattlesnake-Wallula Fault System	1.0	7.4	70	0.06
Mill Creek Thrust Fault	1.0	7.1	73	0.05
Random Event	1.0	6	10	0.17
Interface Event	1.0	8.3-9	310	0.05

As shown in the table, the random crustal event would control ground motions at the site for potential crustal sources. Other crustal sources in eastern Oregon and Washington are located too far from the site to produce peak bedrock acceleration much greater than 0.05g at the site.

The spectral accelerations for the MCE Random Crustal earthquake exceed the design spectrum over the period range 0.11 to 0.24 seconds (Figure 8). General site topography is gentle and without steep slopes. Based on site topography and the preliminary boring information discussed above, it is expected that amplification of subsurface material are not expected to be greater than those of the Maximum Considered Earthquake ground motions. Additionally, earthquake induced landslides or liquefaction are not likely due to the gentle topography and the lack of groundwater in the overburden.

Mapped spectral accelerations at the site based on IBC 2003 (2,475-year return period, 0.2s SA and 1.0s SA) are 0.422 and 0.136, for short (SS) and 1-second (S1) period motions, respectively. Based on preliminary subsurface explorations, the soil profile at the site corresponds to an IBC site class D. The maximum considered earthquake ground motions at the site, SDS and SD1 are 0.34 and 0.15, respectively.

### **Preliminary Geotechnical Design Considerations**

Siting the Carty Generating Station at the proposed location does not appear to pose significant geotechnical or geological design issues. In general, the subsurface conditions are similar to the adjacent Boardman Plant. The predominant foundation conditions include relatively dense cemented silt underlain by weathered rock, which in turn, is underlain by hard basalt. These conditions should provide adequate bearing strata for the project foundations, and the predominantly stiff overburden soils would not be expected to significantly amplify ground shaking from a seismic event. One notable feature occurred in Boring B-2 (performed in the Carty Station gas turbine area) where we encountered a relatively loose layer of silt (loess) at the ground surface. The looser soil layer is approximately five feet in thickness at that location, and

overlies stronger/cemented soils (see Summary Boring Log, Fig. 4). Based on this finding, the key geotechnical issue for the Carty project appears to be the potential for collapse of the relatively loose, surficial layer of silt that may occur in localized areas. Collapse is a phenomenon where loose, dry silt consolidates upon saturation, which can cause distress to overlying structures and pavements due to differential settlement. This problem is simple to address in the design phase, and the approach would include: (i) extending foundations for buildings and appurtenant structures through the looser soil to stronger bearing layers, and/or (ii) excavating and replacing the looser soil with engineered fill that is moisture conditioned, and placed and compacted in lifts.

### **Preliminary Geotechnical Recommendations**

Based on the foregoing, we recommend that the geotechnical design phase of the project include the following tasks:

- Drill two additional borings at each of the final selected locations for: the gas turbine units, the cooling tower, and switchyard, and any other heavily loaded structure to further characterize the site conditions, as well as collect information for foundation design. For planning purposes, we would anticipate boring depths on the order of 75 feet to achieve 20 to 25 feet of penetration into basalt bedrock
- Perform a test pit program to assess the extent and thickness of the loose, surficial silt layer at the site. Key areas of focus would be within the footprints of the critical structures discussed above, roadways, and planned landscaped areas where irrigation may occur.
- Complete a laboratory testing program to provide additional data on the soils for design studies. The laboratory data would be used to estimate collapse and settlement potential for any loose, compressible soil layers.
- Conduct geotechnical engineering studies and prepare final recommendations for design.
- Prepare a geotechnical design report summarizing the information outlined above.

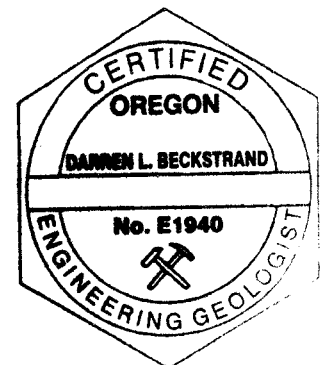
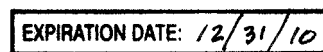
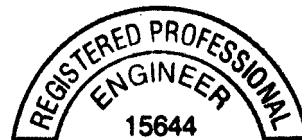
We appreciate the opportunity to be of assistance on this project. If you have any questions, please contact Mike Meyer at 503-452-1100.

Very truly yours,

CORNFORTH CONSULTANTS, INC.

*Darren Beckstrand*  
Darren L. Beckstrand, C.E.G.  
Associate Geologist

*Michael R. Meyer*  
Michael R. Meyer, P.E.  
Senior Associate Engineer



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## **Limitations in the Use and Interpretation of This Geotechnical Report**

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Our professional services were performed, our findings obtained, and our recommendations prepared in accordance with generally accepted engineering principles and practices. This warranty is in lieu of all other warranties, either expressed or implied.

The geotechnical report was prepared for the use of the Owner in the design of the subject facility and should be made available to potential contractors and/or the Contractor for information on factual data only. This report should not be used for contractual purposes as a warranty of interpreted subsurface conditions such as those indicated by the interpretive boring and test pit logs, cross-sections, or discussion of subsurface conditions contained herein.

The analyses, conclusions and recommendations contained in the report are based on site conditions as they presently exist and assume that the exploratory borings, test pits, and/or probes are representative of the subsurface conditions of the site. If, during construction, subsurface conditions are found which are significantly different from those observed in the exploratory borings and test pits, or assumed to exist in the excavations, we should be advised at once so that we can review these conditions and reconsider our recommendations where necessary. If there is a substantial lapse of time between the submission of this report and the start of work at the site, or if conditions have changed due to natural causes or construction operations at or adjacent to the site, this report should be reviewed to determine the applicability of the conclusions and recommendations considering the changed conditions and time lapse.

The Summary Boring Logs are our opinion of the subsurface conditions revealed by periodic sampling of the ground as the borings progressed. The soil descriptions and interfaces between strata are interpretive and actual changes may be gradual.

The boring logs and related information depict subsurface conditions only at these specific locations and at the particular time designated on the logs. Soil conditions at other locations may differ from conditions occurring at these boring locations. Also, the passage of time may result in a change in the soil conditions at these boring locations.

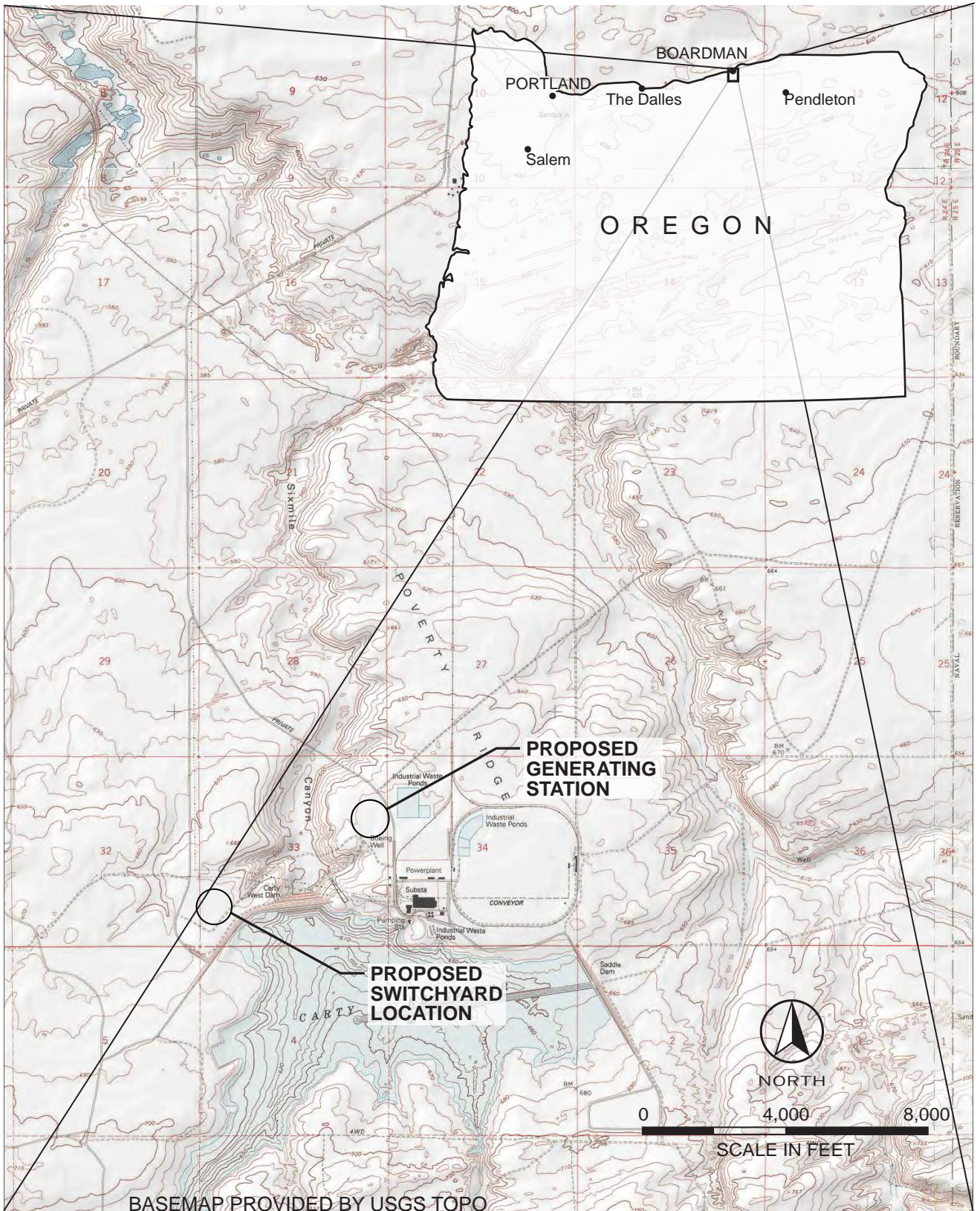
Groundwater levels often vary seasonally. Groundwater levels reported on the boring logs or in the body of the report are factual data only for the dates shown.

Unanticipated soil conditions are commonly encountered on construction sites and cannot be fully anticipated by merely taking soil samples, borings or test pits. Such unexpected conditions frequently require that additional expenditures be made to attain a properly constructed project. It is recommended that the Owner consider providing a contingency fund to accommodate such potential extra costs.

This firm cannot be responsible for any deviation from the intent of this report including, but not restricted to, any changes to the scheduled time of construction, the nature of the project or the specific construction methods or means indicated in this report; nor can our firm be responsible for any construction activity on sites other than the specific site referred to in this report.







10250 S.W. Greenburg Road, Suite 111  
Portland, Oregon 97223  
Main 503-452-1100 Fax 503-452-1528

2047/01.AI.NAS

## VICINITY MAP

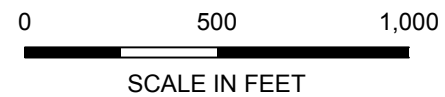
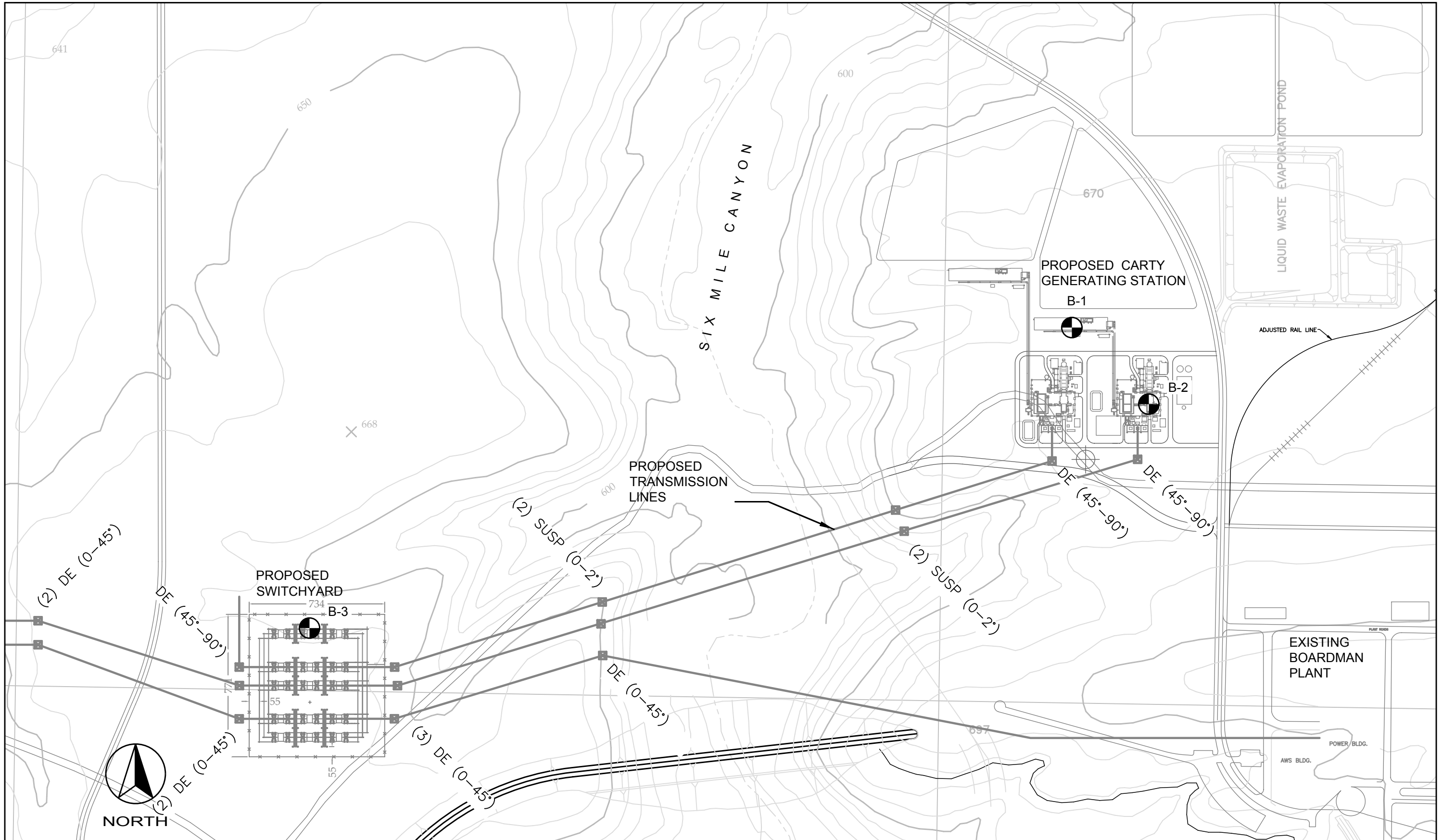
CARTY GENERATING STATION  
BOARDMAN, OREGON

OCT 2009

PROJ. 2047

FIG. 1





BASEMAP PROVIDED BY PGE, DATED AUGUST 2009

**CORNFORTH**  
CONSULTANTS  
10250 S.W. Greenburg Road, Suite 111  
Portland, Oregon 97223  
Phone 503-452-1100 Fax 503-452-1528

**SITE PLAN**

**CARTY GENERATING STATION  
BOARDMAN, OREGON**

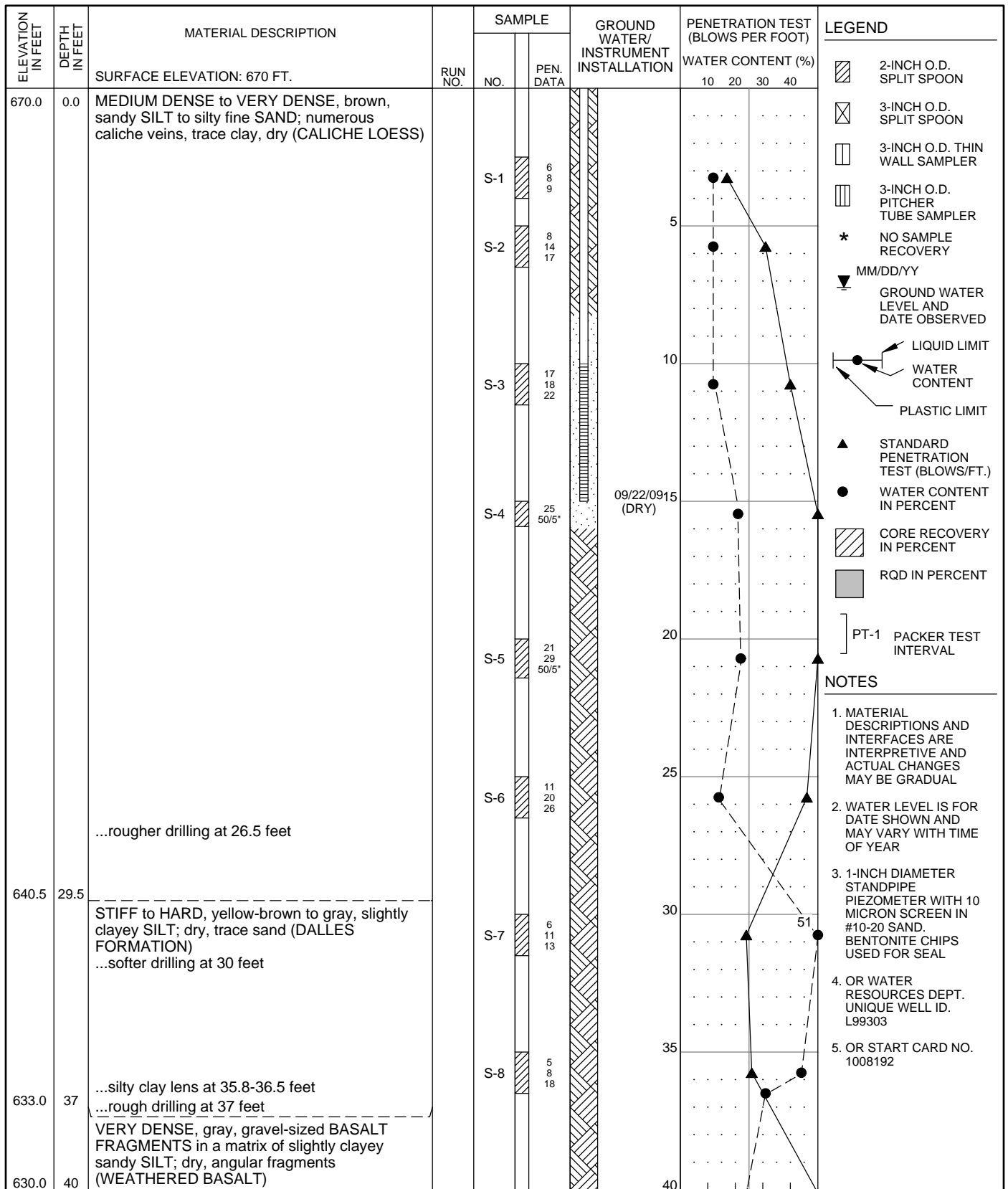
OCT 2009

PROJ. 2047

FIG. 2















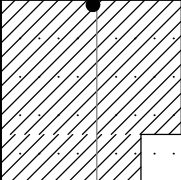





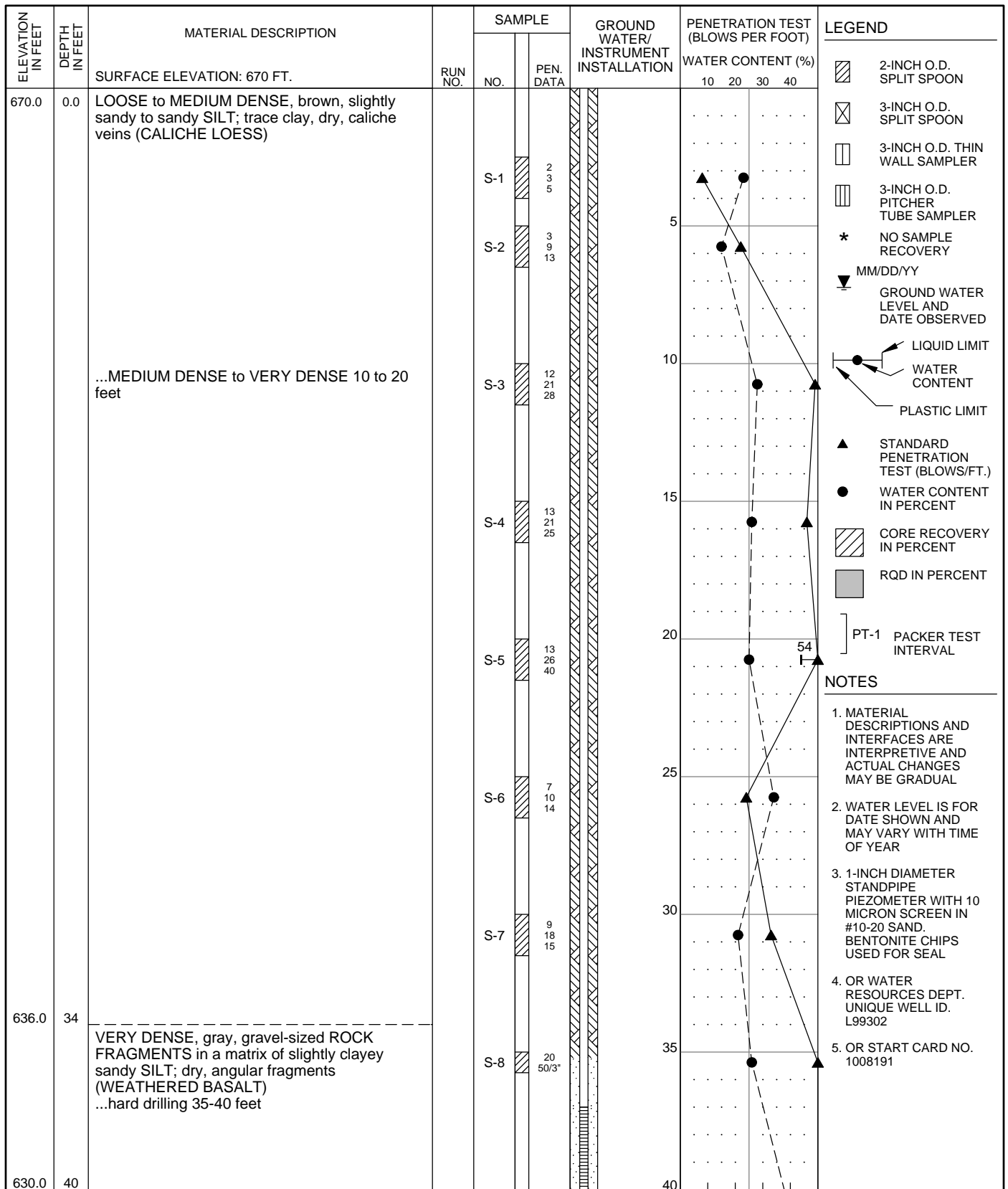
HAMMER ASSEMBLY: AUTO TRIP      SPT SAMPLER: NOT APPLICABLE      RECOVERY/RQD (%)

DRILL ROD USED: NWJ      BOREHOLE DIAM.: 5-INCH TO 40 FEET, 4-INCH TO 46 FEET

DRILLER: BOART LONGYEAR DATE START: 9/21/2009 FINISH: 9/21/2009 DRILLING TECHNIQUE: MUD ROTARY/HQ3 CORING	 <b>CORNFORTH</b> CONSULTANTS 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528	<b>SUMMARY BORING LOG</b> <b>B-1 (1 of 2)</b> CARTY GENERATING STATION BOARDMAN, OREGON	OCT 2009 PROJ 2047 <b>FIG. 3</b>
--	--	--	--

ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	RUN NO.	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)	WATER CONTENT (%)	LEGEND
				NO.	PEN. DATA				
		SURFACE ELEVATION: 670 FT.		S-9	50/3'				 2-INCH O.D. SPLIT SPOON  3-INCH O.D. SPLIT SPOON  3-INCH O.D. THIN WALL SAMPLER  3-INCH O.D. PITCHER TUBE SAMPLER * NO SAMPLE RECOVERY MM/DD/YY  GROUND WATER LEVEL AND DATE OBSERVED  LIQUID LIMIT WATER CONTENT PLASTIC LIMIT  STANDARD PENETRATION TEST (BLOWS/FT.)  WATER CONTENT IN PERCENT  CORE RECOVERY IN PERCENT  RQD IN PERCENT  PT-1 PACKER TEST INTERVAL
630.0	40.0	MEDIUM HARD to HARD (R3-R4), gray, slightly weathered BASALT; very highly jointed, numerous randomly inclined joints relative to core axis, rough, irregular dominant, up to 1/16 inch staining on joints, slightly vesicular, porphyritic, trace clay film on joints (ELEPHANT MOUNTAIN FLOW) ...trace clay film	R-1				45		
			R-2						
624.0	46		R-3						
		Bottom of Boring: 46 FT							
									20 40 60 80 RECOVERY/RQD (%)

HAMMER ASSEMBLY: AUTO TRIP		SPT SAMPLER: NOT APPLICABLE		RECOVERY/RQD (%)	
DRILL ROD USED: NWJ		BOREHOLE DIAM.: 5-INCH TO 40 FEET, 4-INCH TO 46 FEET			
DRILLER: BOART LONGYEAR DATE START: 9/21/2009 FINISH: 9/21/2009 DRILLING TECHNIQUE: MUD ROTARY/HQ3 CORING		 <b>CORNFORTH</b> CONSULTANTS		<b>SUMMARY BORING LOG</b> <b>B-1 (2 of 2)</b>  CARTY GENERATING STATION BOARDMAN, OREGON	
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HAMMER ASSEMBLY: AUTO TRIP

SPT SAMPLER: NOT APPLICABLE

DRILL ROD USED: NWJ

BOREHOLE DIAM.: 5-INCH 0-45 FEET, 4-INCH 45-49.5 FEET

DRILLER: BOART LONGYEAR

DATE START: 9/21/2009 FINISH: 9/21/2009

DRILLING TECHNIQUE: MUD ROTARY/HQ3

CORING



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**SUMMARY BORING LOG**  
B-2 (1 of 2)

CARTY GENERATING STATION  
BOARDMAN, OREGON

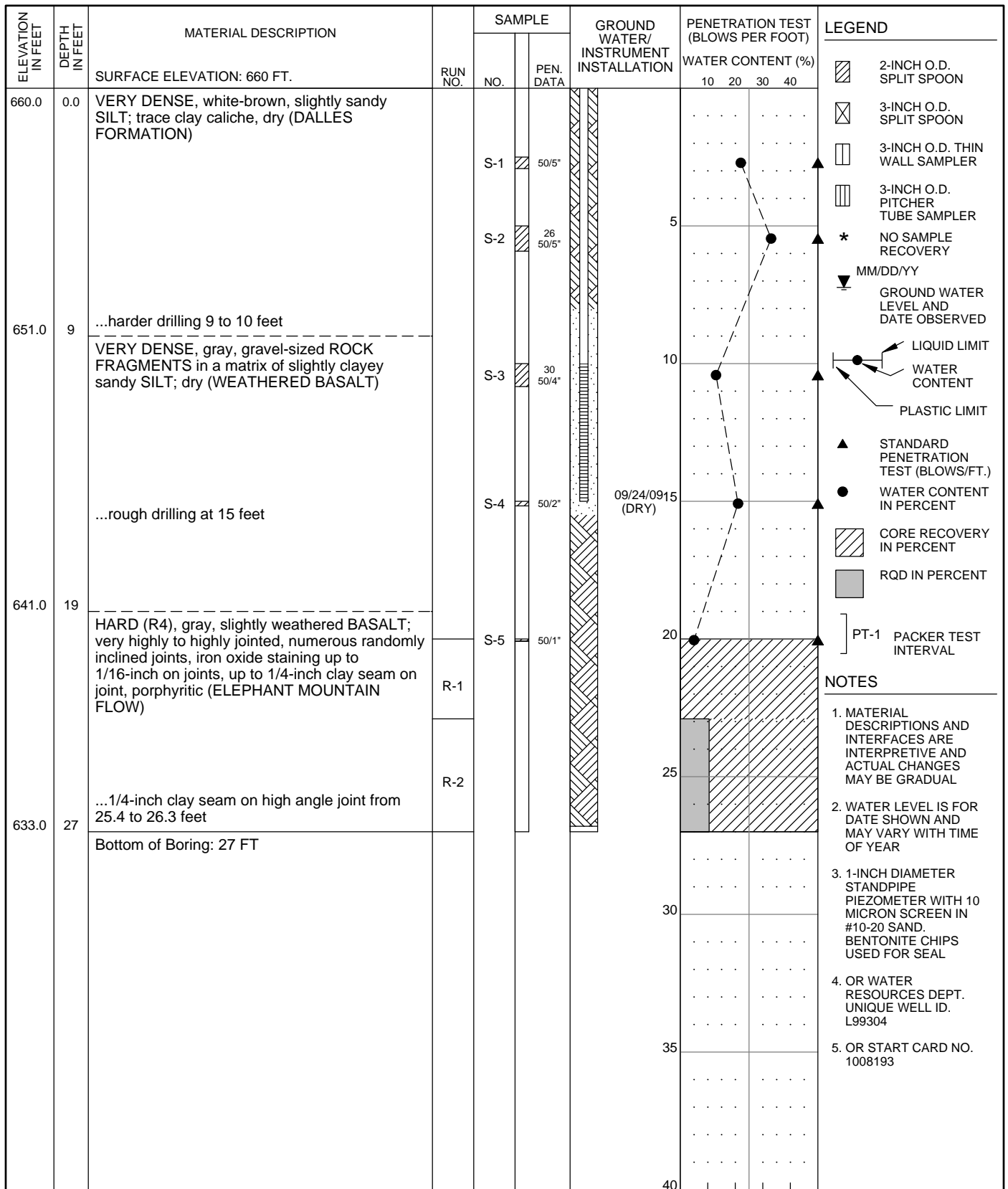
OCT 2009

PROJ 2047

FIG. 4

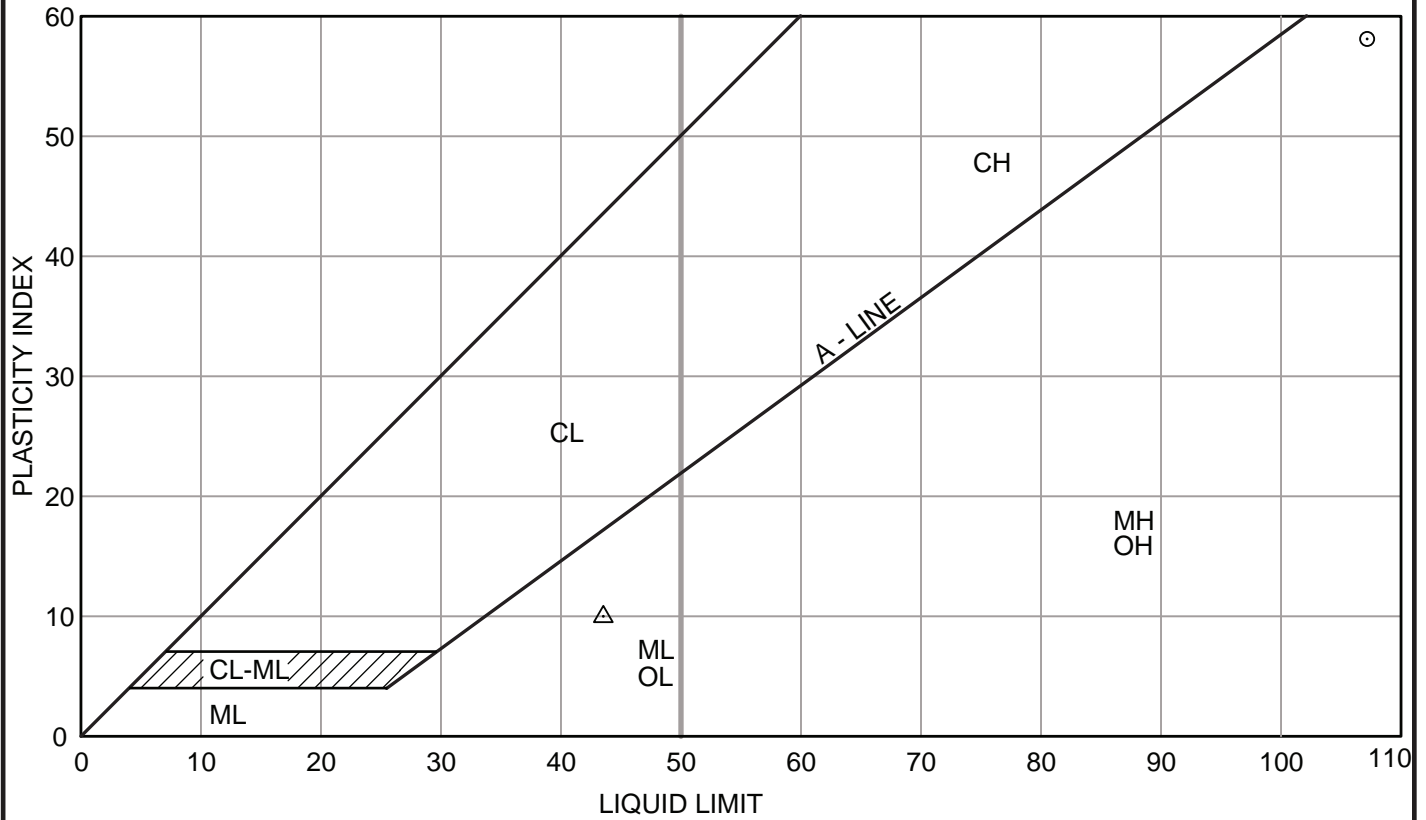
ELEVATION IN FEET	DEPTH IN FEET	MATERIAL DESCRIPTION	RUN NO.	SAMPLE		GROUND WATER/ INSTRUMENT INSTALLATION	PENETRATION TEST (BLOWS PER FOOT)				LEGEND
				NO. S-9	PEN. DATA 50/2		WATER CONTENT (%)				
		SURFACE ELEVATION: 670 FT.					10	20	30	40	
630.0	40.0	continued from previous page									
627.0	43	HARD (R4) gray, slightly weathered BASALT; highly jointed, 50-70 degrees relative to core axis, rough, irregular to undulating dominant, staining up to 1/16-inch along joints, slightly vesicular, porphyritic (ELEPHANT MOUNTAIN FLOW)	R-1			09/22/09 (DRY)					
620.5	49.5						45				
		Bottom of Boring: 49.5 FT					50				
							55				
							60				
							65				
							70				
							75				
							80				

HAMMER ASSEMBLY: AUTO TRIP	SPT SAMPLER: NOT APPLICABLE			
DRILL ROD USED: NWJ	BOREHOLE DIAM.: 5-INCH 0-45 FEET, 4-INCH 45-49.5 FEET	RECOVERY/RQD (%)		
DRILLER: BOART LONGYEAR	 <b>CORNFORTH</b> CONSULTANTS 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528	<b>SUMMARY BORING LOG</b> B-2 (2 of 2)	OCT 2009	
DATE START: 9/21/2009 FINISH: 9/21/2009			PROJ 2047	
DRILLING TECHNIQUE: MUD ROTARY/HQ3			CARTY GENERATING STATION BOARDMAN, OREGON	FIG. 4
CORING				



HAMMER ASSEMBLY: AUTO TRIP      SPT SAMPLER: NOT APPLICABLE  
 DRILL ROD USED: NWJ      BOREHOLE DIAM.: 5-INCH 0-20 FEET, 4-INCH 20-26.8 FEET

DRILLER: BOART LONGYEAR DATE START: 9/23/2009 FINISH: 9/23/2009 DRILLING TECHNIQUE: MUD ROTARY/HQ3 CORING	<b>CORNFORTH</b> CONSULTANTS 10250 S.W. Greenburg Road, Suite 111 Portland, Oregon 97223 Phone 503-452-1100 Fax 503-452-1528	<b>SUMMARY BORING LOG</b> <b>B-3</b> CARTY GENERATING STATION BOARDMAN, OREGON	OCT 2009 PROJ 2047 <b>FIG. 5</b>
--	--	---	--



**LEGEND**

**BORING SYMBOLS**

- B-1, S-8, 35-36.5 FEET
- △ B-2, S-5, 20-21.5 FEET



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**PLASTISITY**

CARTY GENERATING STATION  
 BOARDMAN, OREGON

OCT 2009

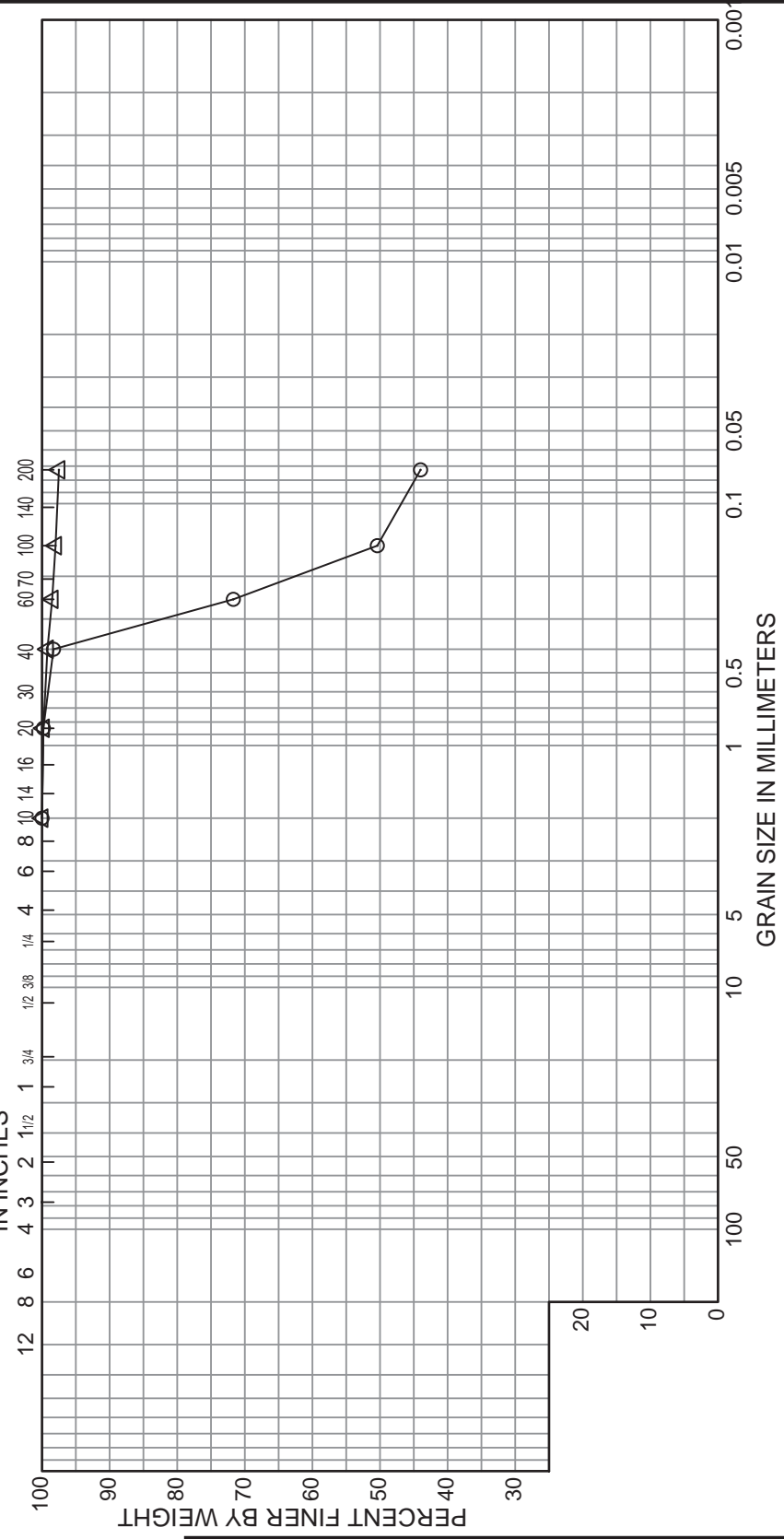
PROJ. 2047

FIG. 6

HYDROMETER

U.S. STANDARD SIEVE NUMBERS

U.S. STANDARD SIEVE OPENING IN INCHES



COBBLES	GRAVEL		SAND			FINES	
	Coarse	Fine	Coarse	Medium	Fine	Silt	Clay

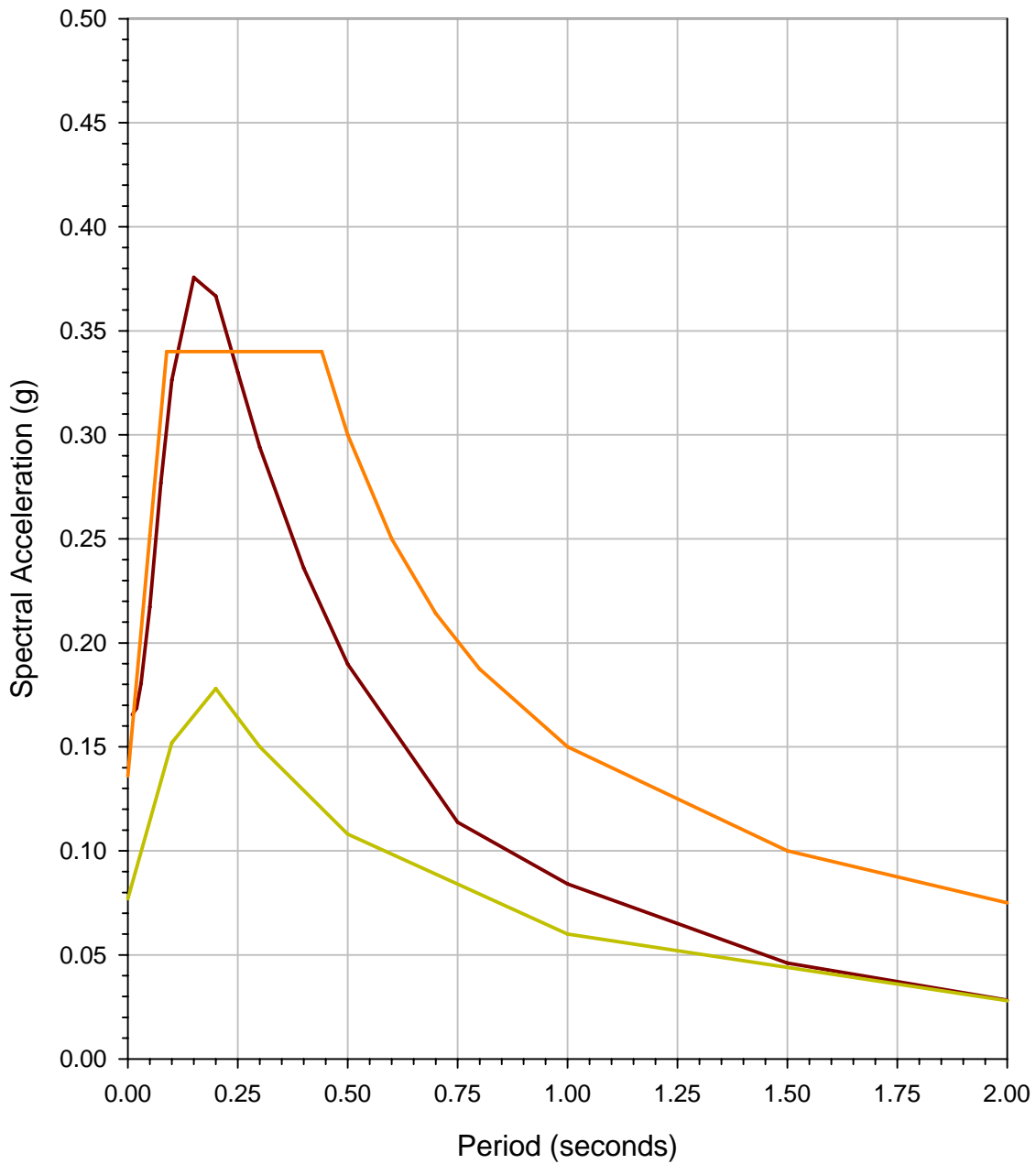
Boring No.	Sample No.	Depth, Ft.	Classification	Nat W%			P I
				LL	PL	PI	
○	B-1	25-26 1/2	Silty fine SAND (SM)	14	N/A	N/A	N/A
△	B-2	20-21 1/2	Slightly sandy SILT (ML)	25	44	34	10

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**GRADATION GRAPH**  
 CARTY GENERATING STATION  
 BOARDMAN, OREGON

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 FIG. 7

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- MCE Response Spectra (M:6 at 10 km Random Crustal Event)
- 2004 Oregon Structural Specialty Code Design Spectrum
- MPE Response Spectra (2008 USGS 975-yr Return Period)





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## TECHNICAL MEMO

**To:** Mr. Franco Albi, P.E.  
**From:** Darren Beckstrand, C.E.G.  
Mike Meyer, P.E.  
Cornforth Consultants, Inc.  
**Date:** Friday, April 23, 2010  
**Subject:** Response to Oregon Department of Energy Comments for Site Application, Exhibit H for the Carty Generating Station

Portland General Electric has received comments back from the Oregon Department of Energy regarding the Site Application for the proposed Carty Generating Station adjacent to PGE's Boardman Plant. Two requests for additional information were made regarding Exhibit H: Geology and Seismicity, Appendix H-1 Preliminary Geotechnical Investigation as shown below:

- **RAI No. 1-16:** The Preliminary Geotechnical Investigation (Appendix H-1 to Exhibit H) indicates that the Carty Generating Station is a low-risk site for geologic hazards. Please provide a basic geologic map showing the surficial geology and any geologic structural features in the vicinity of the proposed project for inclusion in Exhibit H.
- **RAI No. 1-17:** The 2003 IBC provides maps from which the spectral accelerations  $S_s$  and  $S_1$  can be obtained [Figures 1615(1) and 1615(2)]. These spectral acceleration values can also be derived from the US Geological Survey 2002 National Hazard maps provided for use with the 2003 IBC. The submittal indicates that values were read from 2003 IBC maps.  $S_{DS}$  and  $S_{D1}$  are provided for a Site Class D site.
  1. Please review Figure 8 and address the following comments. Revise figure as necessary. The MPE spectrum is described as 975-year return period when it should be a 475-year return period.
  2. The 2004 Oregon Specialty Code spectrum is presumably for Site Class D. If so, this should be shown on the figure.
  3. Is the MCE median response spectrum for Site Class D site or Site Class B?

In response to RAI 1-16, a geologic map has been prepared showing surficial units and an unnamed inferred fault and is attached as Figure 1 to this Technical Memo.

In response to RAI 1-17, design spectral response acceleration parameters  $S_{DS}$  and  $S_{D1}$  have been revised to 0.41 and 0.20 g, respectively. Figure 8 has been revised to show response spectra for Site Class D, and appropriate return period label (475-year) for the MPE spectrum.

Attachments: Figure 1: Site Geologic Map  
Figure 2: Response Spectra Comparison

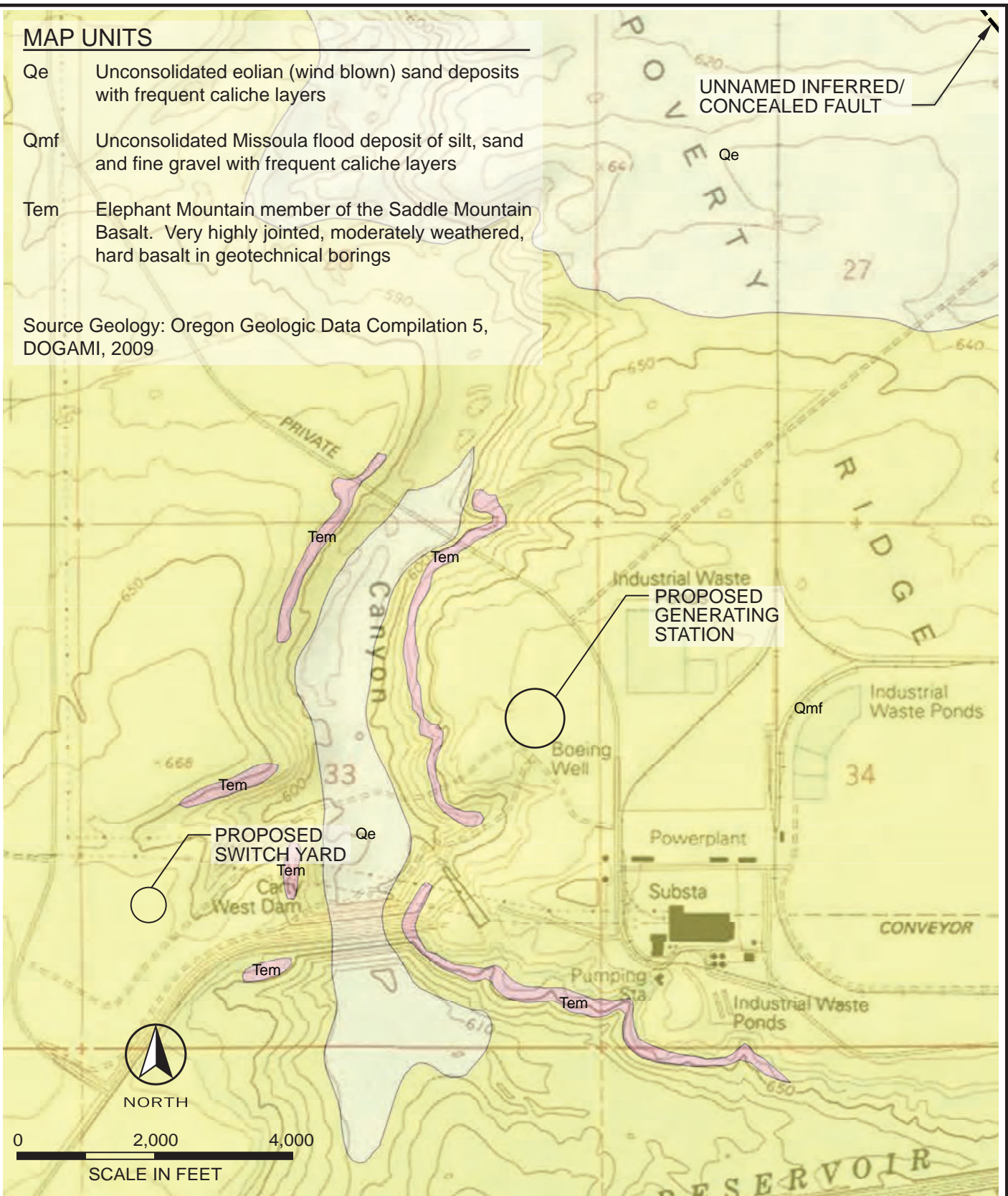


**MAP UNITS**

- Qe Unconsolidated eolian (wind blown) sand deposits with frequent caliche layers
- Qmf Unconsolidated Missoula flood deposit of silt, sand and fine gravel with frequent caliche layers
- Tem Elephant Mountain member of the Saddle Mountain Basalt. Very highly jointed, moderately weathered, hard basalt in geotechnical borings

Source Geology: Oregon Geologic Data Compilation 5, DOGAMI, 2009

UNNAMED INFERRED/  
CONCEALED FAULT



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**SITE GEOLOGIC MAP**

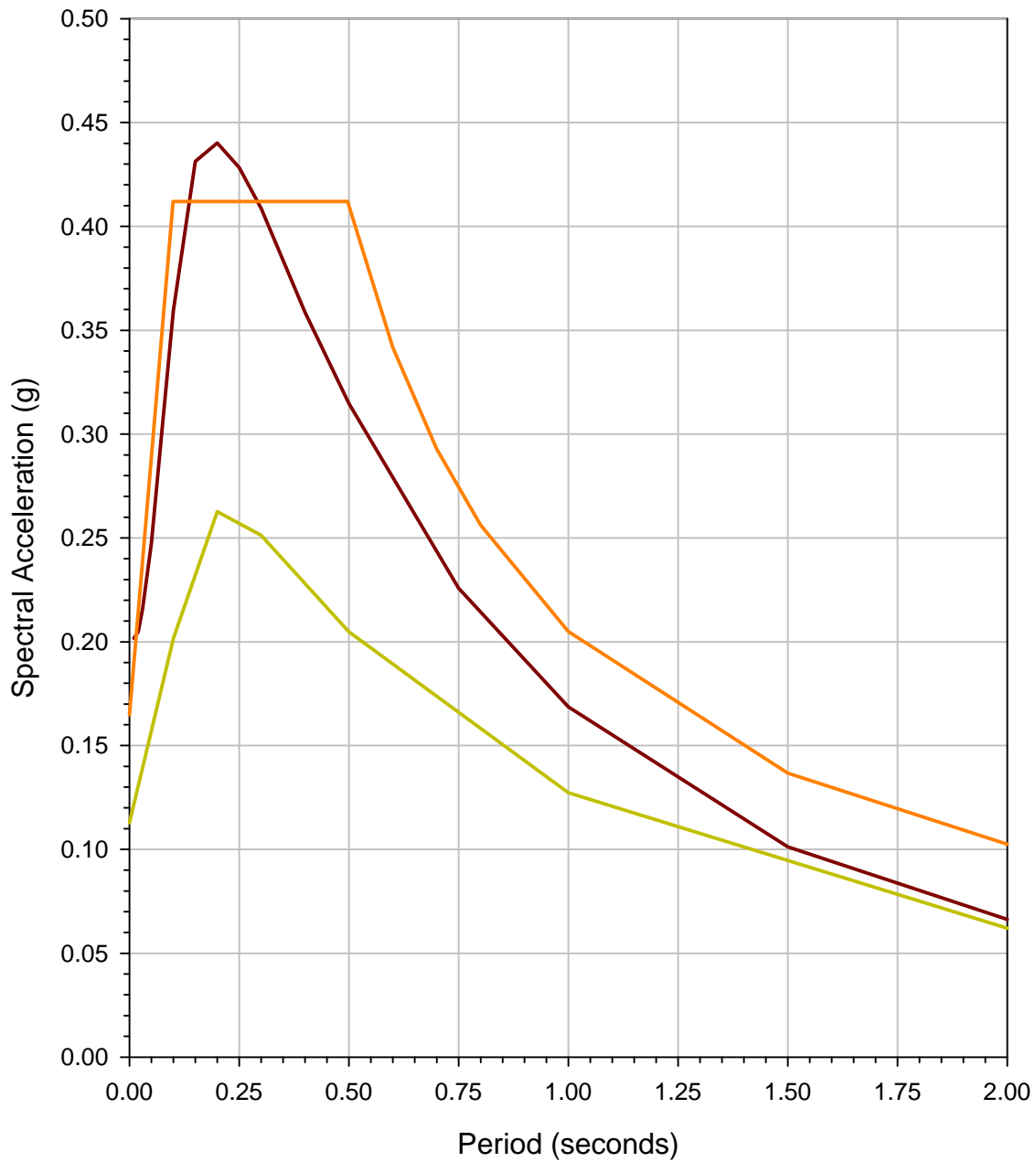
**CARTY GENERATING STATION  
BOARDMAN, OREGON**

APR 2010

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FIG. 1





- MCE Response Spectra (M:6 at 10 km Random Crustal Event, Site Class D)
- 2004 Oregon Structural Specialty Code Design Spectrum, Site Class D
- MPE Response Spectra (2008 USGS 475-yr Return Period, Site Class D)





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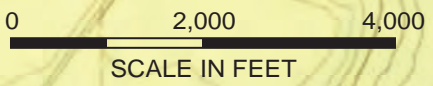
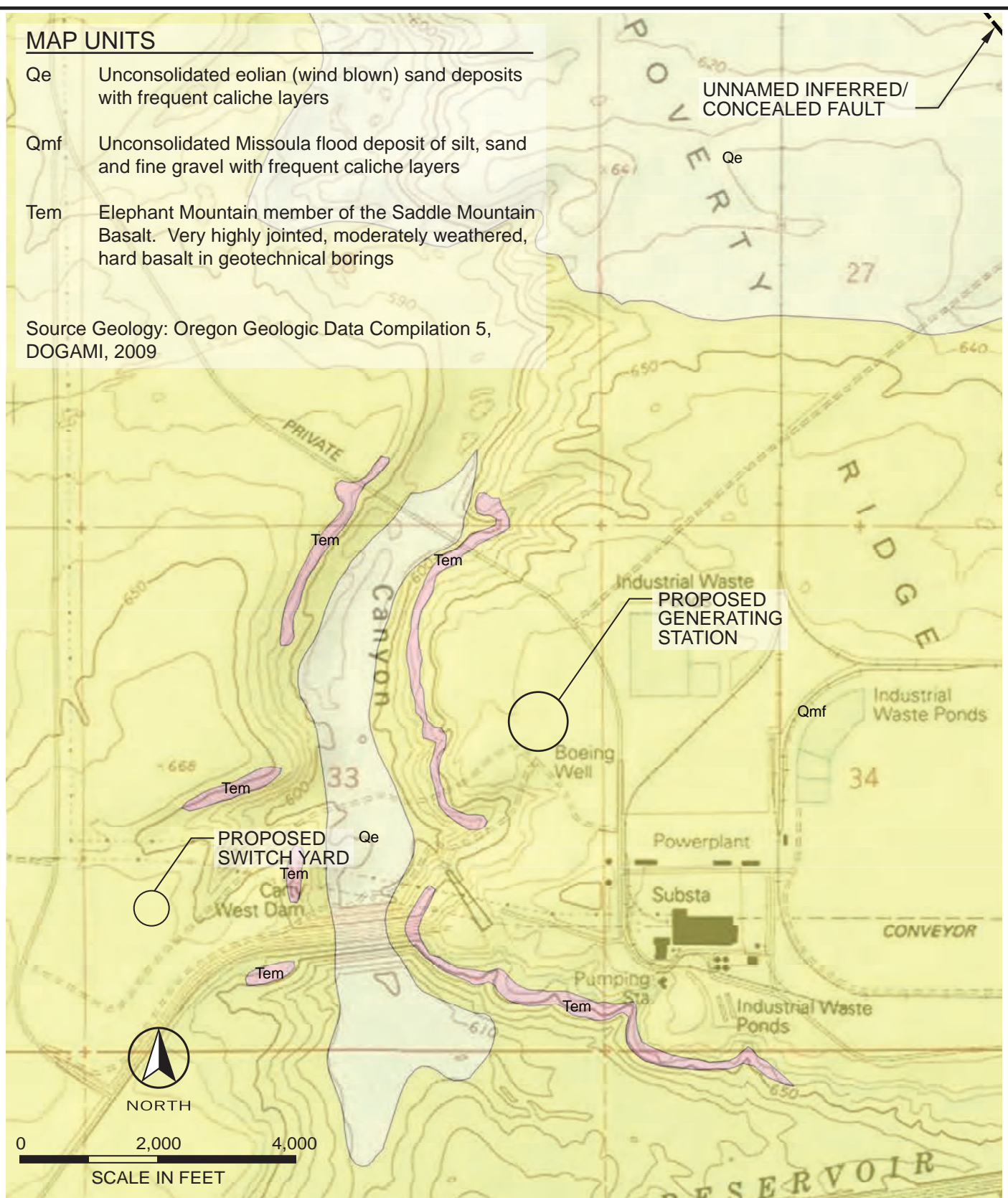


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CONCEALED FAULT



**CORNFORTH**  
CONSULTANTS

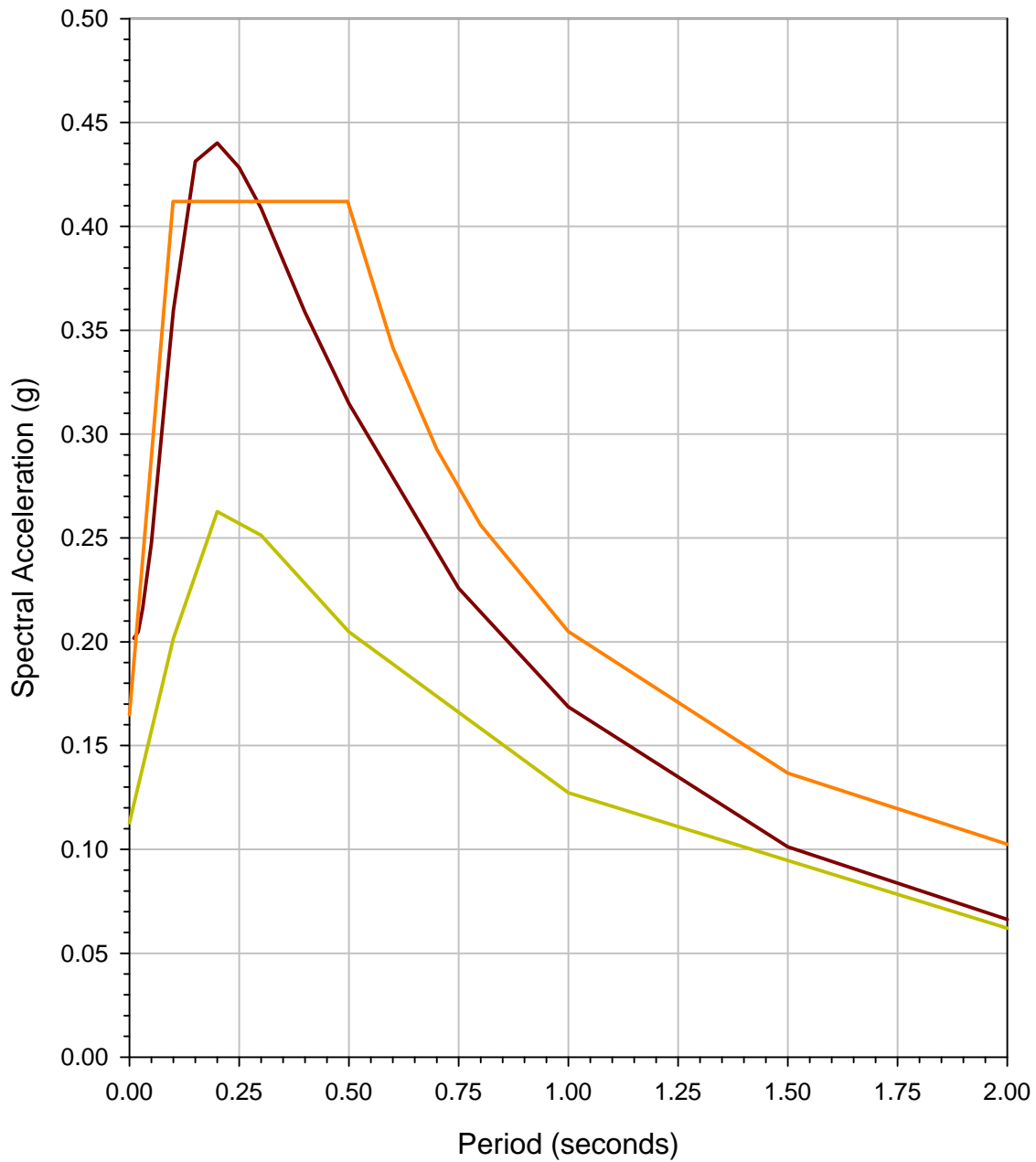
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**SITE GEOLOGIC MAP**

CARTY GENERATING STATION  
BOARDMAN, OREGON

APR 2010  
PROJ. 2047  
FIG. 1





- MCE Response Spectra (M:6 at 10 km Random Crustal Event, Site Class D)
- 2004 Oregon Structural Specialty Code Design Spectrum, Site Class D
- MPE Response Spectra (2008 USGS 475-yr Return Period, Site Class D)



# **APPENDIX H-2**

## **Recorded Earthquakes Within 50 Miles**



UNITED STATES GEOLOGICAL SURVEY

EARTHQUAKE DATA BASE

Circle Search Earthquakes= 60  
 Circle Center Point Latitude: 45.699N Longitude: 119.812W  
 Radius: 80.500 km  
 Catalog Used: PDE  
 Data Selection: Historical & Preliminary Data

Date	Latitude	Longitude	Depth (mi)	Magnitude	Radial Distance (mi)
28-Jun-75	46.238	-119.712	0.6	3.6	37
01-Jul-75	45.628	-120.002	3.1	3.5	10
14-Jun-81	45.954	-120.492	8.7	3.1	37
10-Feb-85	45.858	-119.644	3.1	3.7	13
08-Sep-87	45.184	-120.085	0.6	3.1	38
29-Sep-87	45.186	-120.111	0.6	2.7	38
11-Jul-88	45.249	-120.131	0.0	2.9	34
29-Sep-88	45.85	-120.26	8.1	3.5	24
27-Mar-89	45.816	-120.262	7.4	3.1	23
20-Apr-91	45.345	-120.138	8.1	2.8	29
07-Aug-92	45.86	-119.59	0.0	3.9	15
16-Dec-93	45.196	-120.09	3.7	3.0	37
18-Dec-93	45.25	-120.112	0.0	3.1	34
22-Sep-94	45.692	-120.163	0.0	2.9	17
17-Nov-94	45.701	-120.178	0.0	2.7	17
29-Aug-95	46.208	-119.906	9.3	3.1	35
02-Nov-95	46.15	-119.564	13.0	3.1	33
13-Feb-96	45.53	-119.607	1.2	2.9	15
22-Mar-97	45.202	-120.065	0.0	2.7	36
22-Mar-97	45.19	-120.067	0.6	3.9	37
23-Mar-97	45.2	-120.069	0.6	3.4	37
28-Mar-97	45.201	-120.056	1.2	2.6	36
17-Apr-97	45.189	-120.083	0.6	3.2	37
17-Aug-97	45.648	-120.186	0.0	2.8	18
10-Sep-97	45.654	-120.198	0.0	2.7	19
13-Oct-97	46.1	-120.36	10.5	3.3	38
11-Nov-97	45.851	-120.565	7.4	2.8	37
18-Nov-97	46.14	-120.469	9.9	3.8	43
18-Nov-97	46.13	-120.46	9.3	2.5	43
18-Nov-97	46.137	-120.461	9.3	3.3	43
21-Dec-97	45.674	-118.835	1.9	2.6	47
21-Jan-98	46.149	-120.458	11.8	2.7	43
03-Feb-98	45.812	-120.2	9.9	3.1	20
13-Apr-98	45.896	-119.319	0.0	2.6	27
14-Apr-98	45.48	-119.539	0.0	2.6	20
28-Apr-98	45.259	-120.281	5.0	2.7	38
12-Aug-98	45.169	-120.027	0.0	2.8	38
05-Sep-98	45.648	-119.491	0.0	2.9	16
31-Aug-99	45.187	-120.091	1.9	3.2	37
04-Sep-99	45.177	-120.077	0.6	2.9	38
19-Sep-99	46.392	-120.106	7.4	3.2	50
05-Jan-00	45.704	-120.049	3.1	2.8	11
30-Jan-00	45.197	-120.125	0.0	4.1	37
30-Jan-00	45.19	-120.096	5.0	3.4	37
30-Jan-00	45.182	-120.109	0.6	2.8	39
01-Feb-00	45.19	-120.113	0.0	3.6	38
01-Feb-00	45.187	-120.118	0.0	2.8	38
28-Jul-00	45.17	-120.135	2.5	2.6	40
03-Aug-00	45.209	-120.073	1.9	2.8	36
17-Aug-00	45.312	-120.041	9.3	3.2	29
29-Dec-00	45.887	-119.708	0.0	2.6	14
31-Jan-02	45.685	-120.166	1.9	2.7	17
25-Oct-02	45.193	-120.094	0.6	2.7	37
01-Jun-03	45.194	-120.113	0.0	2.8	37
12-Sep-03	45.435	-118.858	13.0	2.8	50
28-Feb-04	46.036	-119.021	0.6	3.3	44
18-May-08	46.168	-119.55	12.4	3.7	34
10-May-09	45.833	-120.11	6.2	2.5	17
11-Aug-09	45.933	-119.988	11.2	2.6	18
16-Aug-09	45.933	-120.104	2.5	2.8	21





**EXHIBIT I**

**SOILS**

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

**TABLE OF CONTENTS**

**I.1 INTRODUCTION..... I-1**

**I.2 SUMMARY ..... I-1**

**I.3 MAJOR SOIL TYPES ..... I-1**

**I.4 LAND USES ..... I-7**

**I.5 POTENTIAL ADVERSE IMPACTS ..... I-7**

**I.6 MITIGATION MEASURES ..... I-8**

**I.7 MONITORING PROGRAM..... I-10**

**APPENDICES**

- I-1 USDA – Natural Resources Conservation Service Land Capability Classification System
- I-2 NPDES 1200-C Permit Application and DEQ Acknowledgement Letter

**FIGURES**

Figure I-1 Soil Types



## 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.*

To issue a site certificate, the Energy Facility Siting Council must find that the design, construction, and operation of the facility, taking into account mitigation, are unlikely to result in a significant adverse impact to soils. Exhibit I describes the potential impacts and the measures that Portland General Electric Company (PGE) intends to utilize to minimize these impacts.

## I.2 SUMMARY

This exhibit discusses the major soil types found within the Site Boundary. The impacts expected from construction and operation of the Carty Generating Station are those typically associated with large construction projects, including the potential for erosion of exposed soils during excavation and grading operations. PGE intends to minimize these impacts through implementation of best management practices.

## I.3 MAJOR SOIL TYPES

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

Response: The analysis area for the soil protection standard is the area included within the Site Boundary and all laydown and staging areas, plus areas potentially affected by any salt deposition identified in Exhibit Z. Within the analysis area, PGE has identified 12 soil series, which contain a total of 24 soil phases. Soil classes were identified using the Natural Resources Conservation Service (NRCS) soil survey program. The NRCS soil survey describes soil conditions in the upper 5 feet and classifies land capability classes (LCC) and subclasses. Figure I-1 illustrates the locations of major soil types within the Site Boundary, excluding the transmission line corridor. Appendix I-1 provides definitions of the various LCCs and subclasses.

**Kimberly fine sandy loam (map number 13).** This very deep, well drained soil is found on alluvial bottoms. Within the Site Boundary, there are approximately 31 acres of this soil along the transmission line near Highway 74, in Gilliam County. The soil formed in mixed alluvium and has an average slope of 1 percent. The surface layer is a dark brown fine sandy loam about 8 inches thick, underlain by a 13-inch layer of dark brown fine sandy loam, followed by dark

brown and very dark grayish brown fine sandy loam and sandy loam to a depth of 60 inches or more. Permeability of the Kimberly soil is moderately rapid, runoff is slow, and the hazard of erosion is slight. The LCC is Class I when irrigated. The new transmission line would cross approximately 0.3 miles of the Kimberly soil. This soil is limited for community uses because it is on flood plains of streams and subject to rare flooding. Design modifications are needed if this soil is used for sanitary facilities, dwellings, and small buildings; however, none of these types of facilities are planned for the areas within the Site Boundary where this soil occurs. This soil is well suited to recreational uses, except for campgrounds where flooding may be a problem; all occurrences of this soil within the Site Boundary are on private property.

**Krebs silt loam, 2 to 5 percent slopes (map number 14B).** This deep, well drained soil is found on uplands. Within the Site Boundary, there are approximately 34 acres of this soil along the western end of the transmission line in Gilliam County. It formed in loess and old waterlaid sediment and has an average slope of 3 percent. The surface layer is very dark grayish brown silt loam and silty clay loam about 10 inches thick, underlain by a 26-inch subsoil layer of dark brown, brown, and pale brown silty clay loam and silty clay. The substratum is pale brown silty clay loam about 12 inches thick underlain by partially decomposed diatomite. Permeability of the Krebs soil is slow, runoff is slow, and the hazard of water erosion is slight. The LCC and subclass are Class VIe. The new transmission line would cross approximately 0.5 miles of the Krebs silt loam soil. This soil is limited for community uses because of slow permeability, depth to rock, low strength, and high shrink-swell potential. Design modifications are needed if this soil is used for sanitary facilities, dwellings, small buildings, and roads and streets. This soil is limited for recreational uses because of the dusty surface.

**Krebs silt loam, 5 to 12 percent slopes (map number 14D).** Krebs silt loam components, LCC and subclass, community uses, and design modifications are the same as the Krebs silt loam 2- to 5-percent (map number 14B). Areas of this soil with a 5 to 12 percent slope are used for range and wildlife habitat. Krebs silt loam with 5 to 12 percent slope is limited for recreational uses because of slope and the dusty surface. Within the Site Boundary (the new transmission line crosses two areas of this soil for a total of approximately 69 acres), the transmission line would cross approximately 0.7 miles of this soil.

**Lickskillet very stony loam, 7- to 40 percent slopes (map number 15E).** This shallow, well drained soil is found on south- and west-facing exposures. Within the Site Boundary, there are approximately 2 acres of this soil within the transmission line in Gilliam County. The new transmission line would cross approximately 0.02 miles of this soil. It formed in loess and colluvium from basalt and has an average slope of 20 percent. The surface layer is dark brown very stony loam about 3 inches thick. The subsoil is dark brown very gravelly loam and very gravelly clay loam about 12 inches thick. It is underlain by fractured basalt. Permeability of the Lickskillet soil is moderate. The LCC and subclass are Class VIIs. This soil is severely limited for community and recreational uses because of depth to bedrock, stoniness, and slope. The extensive design modifications which are necessary in most cases are not practical for the development of dwellings, small buildings, and sanitary facilities.

**Olex silt loam, 0 to 5 percent slopes (map number 23B).** This very deep, well drained soil is found on high terraces. Within the Site Boundary, there are approximately 28 acres of this soil at the western end of the transmission line in Gilliam County. The new transmission line would cross approximately 0.3 miles of this soil. The soil formed in loess and very gravelly alluvial deposits and has an average slope of about 3 percent. Typically, the surface layer is dark brown silt loam about 12 inches thick. The subsoil is dark brown gravelly silt loam about 12 inches thick. The upper part of the substratum is dark brown very gravelly silt loam about 8 inches thick, and the lower part of the substratum is calcareous, brown extremely gravelly silt loam to a depth of 60 inches or more. Permeability of the Olex soil is moderate. The LCC and subclass are Class VIe. This soil is limited for sanitary facilities because of seepage. Design modifications are needed for sewage lagoons, septic tank absorption systems, and sanitary landfills. This soil is suited to other community and recreational uses.

**Olex gravelly silt loam, 5 to 20 percent slopes (map number 24D).** Olex gravelly silt loam components, LCC and subclass, community uses, and design modifications are the same as the Olex silt loam, at 0 to 5 percent (map number 23B). Average slope is about 12 percent. Areas of this soil with a 5- to 20-percent slope are limited for sanitary facilities because of seepage and slope. It is limited for other community uses because of slope and for recreational facilities because of slope, small stones, and a dusty surface.

**Olex gravelly silt loam, 20 to 40 percent slopes (map number 24E).** Olex gravelly silt loam components, community uses, and design modifications are the same as the Olex silt loam, at 0 to 5 percent (map number 23B). Average slope is about 28 percent. The LCC and subclass are Class VIIe. This soil is severely limited for community uses and recreational facilities because of slope. The extensive design modifications that would be necessary for this purpose generally are not practical.

**Blalock loam, 2 to 12 percent slopes (map number 4C).** This is one of the predominant soil types within the transmission line in Gilliam County. The transmission line right-of-way (ROW) occupies approximately 248 acres of this soil, and the new transmission line would cross approximately 3 miles of this soil. Blalock loam is a shallow, well drained soil located on uplands. It formed in loess and has an average slope of 7 percent. Typically, the surface layer is very dark grayish brown and dark brown loam about 7 inches thick. The subsoil is brown loam and gravelly loam about 11 inches thick over a light brownish gray, very gravelly, indurated hardpan about 4 inches thick. The substratum is calcareous brown gravelly loam about 19 inches thick; it is underlain by partially decomposed shale. Permeability is moderate, runoff is slow, and hazard of erosion is slight. This soil has a LCC and subclass of VIe. Community uses are limited because of depth to the cemented pan and slope; recreational uses are limited because of depth to the pan.

**Sagehill fine sandy loam, 2- to 5-percent slopes (map number 40B).** This very deep, well drained soil is found on terraces. Within the Site Boundary, this soil occupies approximately 54 acres of the transmission line ROW near Highway 74. It formed in loess and calcareous, lacustrine sediment. The surface layer is dark brown fine sandy loam about 8 inches thick. The

subsoil is dark brown fine sandy loam and very fine sandy loam about 17 inches thick. The upper part of the substratum is dark grayish brown silt loam about 10 inches thick, and the lower part of the substratum is compact, grayish brown silt loam to a depth of 60 inches or more. Permeability of the Sagehill soil is moderate, runoff is slow, and the hazard of erosion is slight. The hazard of soil blowing is high. The LCC and subclass for this soil is VIe. This soil is generally well suited to community uses and most recreational uses.

**Sagehill fine sandy loam, 5 to 12 percent slopes (map number 40C).** Sagehill fine sandy loam components and LCC and subclass are the same as the Sagehill fine sand loam, at 2 to 5 percent (map number 40B). Within the transmission line ROW, this soil occupies a total of approximately 30 acres in Gilliam County near Highway 74. The new transmission line would cross approximately 0.5 miles of this soil. Community and recreational uses are limited because of slope. In places, modifications in the design of facilities for these uses are necessary.

**Sagehill fine sandy loam, 12 to 20 percent slopes (map number 40D).** Sagehill fine sandy loam components and LCC and subclass are the same as the Sagehill fine sand loam 2 to 5 percent (map number 40B). Within the transmission line ROW, this soil occupies a total of approximately 86 acres in Gilliam County near Highway 74. The new transmission line would cross approximately one mile of this soil. Community and recreational uses are limited because of slope. In places, modifications in the design of facilities for these uses are necessary.

**Royal silt loam (map number 53A).** This is a very deep, well drained soil formed in wind laid material. Within the Site Boundary, this soil occupies approximately 16 acres of the transmission line ROW. It occupies long, narrow areas of alluvial bottom lands adjacent to streams. In a representative profile the surface layer is very dark grayish brown silt loam about 6 inches thick. The subsoil is dark brown and dark grayish brown fine sandy loam about 27 inches thick. The substratum is dark grayish brown stratified fine sandy loam and fine sand that extends to a depth of 60 inches or more. Permeability is moderately rapid, runoff is slow, and the hazard of water erosion is slight. The LCC and subclass for this soil is VIe for dryland and IIs for irrigated land. The hazard of soil blowing is moderate. This soil is generally well suited to community and recreation uses. Sanitary facilities, such as sewage lagoons and sanitary landfills, may require some modification because of seepage.

**Sagehill fine sandy loam, 2 to 5 percent slopes (map number 54B).** This is a very deep, well drained soil formed in wind laid material and calcareous lacustrine sediment. It is one of the predominant soil types within the transmission line ROW and is the predominant soil in the Energy Facility Site. Approximately 280 acres of this soil are found within the transmission line ROW and approximately 100 acres are found within the Energy Facility Site. The new transmission line would cross approximately 3.0 miles of this soil. In a representative profile, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsoil is dark brown fine sandy loam about 16 inches thick. The upper 7 inches of the substratum is dark brown fine sandy loam. Below this is brown and dark grayish brown silt loam that extends to a depth of 60 inches or more. Permeability is moderately rapid as far down as the substratum and moderate in the substratum. Runoff is slow, and the erosion hazard is slight. The hazard of soil

blowing is moderate. The LLC and subclass for this soil are VIe for dryland and IIe for irrigated land. This soil is generally well suited to community and most recreation uses.

**Sagehill fine sandy loam, 5 to 12 percent slopes (map number 54C).** Sagehill fine sandy loam is described above. Approximately 31 acres of this soil with a 5 to 12 percent slope are found within the transmission line ROW. The new transmission line would cross approximately 0.6 miles of this soil. The LLC and subclass for this soil are VIe for dryland and IIIe for irrigated land. The slope is a limitation for most community and recreation development.

**Sagehill fine sandy loam, 12 to 20 percent slopes (map number 54D).** Sagehill fine sandy loam is described above. Approximately 65 acres of this soil with a 12 to 20 percent slope are found within the transmission line ROW and approximately 8 acres are found within the Energy Facility Site. The new transmission line would cross approximately 0.7 miles of this soil. The LLC and subclass for this soil are VIe for dryland and IVe for irrigated land. The slope is a limitation for most community and recreational development.

**Sagehill fine sandy loam, hummocky, 2 to 5 percent slopes (map number 55B, Morrow County; map number 41B, Gilliam county).** Sagehill fine sandy loam is described above. Approximately 161 acres of the 2- to 5-percent sloped sagehill fine sandy loam soil are found within the transmission line ROW in Morrow County, and approximately 17 acres of this soil are found within the transmission line ROW in Gilliam County. The new transmission line would cross approximately 2.1 miles of this soil in Morrow County and approximately 0.25 miles of this soil in Gilliam County. The LLC and subclass for this soil is VIe (IIIe if irrigated in Morrow County). This soil is limited for community uses by the hummocky relief, as well as rapid percolation. In places, modifications in the design of facilities for these uses are necessary. This soil is generally well suited to recreational uses.

**Sagehill fine sandy loam, hummocky, 5 to 12 percent slopes (map number 41C).** Sagehill fine sandy loam is described above. Approximately 7 acres of the 5- to 12-percent sloped sagehill fine sandy loam soil are found within the transmission line ROW. The new transmission line would cross approximately 0.1 miles of this soil. The LLC and subclass for this soil is VIe. This soil is limited for community uses and most recreational uses because of slope. In places, modifications in the design of facilities for these uses are necessary.

**Sagehill fine sandy loam, hummocky, 5 to 12 percent slopes (map number 55C).** Sagehill fine sandy loam is described above. Approximately 56 acres of the 5- to 12-percent sloped sagehill fine sandy loam soil are found within the transmission line ROW, and approximately 1 acre is found within the Energy Facility Site. The new transmission line would cross approximately 0.1 miles of this soil. The LLC and subclass for this soil is VIe for dryland and IIIe for irrigated land. The slope and rapid percolation are limitations for community and most recreation uses. In places, modifications in the design of facilities for these uses are necessary.

**Warden silt loam, 2 to 5 percent slopes (map number 55B, Gilliam County).** This very deep, well drained soil is on uplands. It formed in loess and the underlying calcareous, lacustrine silt.

Approximately 22 acres of this soil are found within the transmission line ROW. The new transmission line would cross approximately 0.32 miles of this soil. Typically, the surface layer is dark brown silt loam about 3 inches thick. The subsoil is dark brown and brown silt loam about 18 inches thick. The upper part of the substratum is brown silt loam about 9 inches thick, and the lower part of the substratum is calcareous, grayish brown and dark grayish brown silt loam to a depth of 60 inches or more. Runoff is slow, and the hazard of erosion is slight. The LLC and subclass for this soil is IVc for dryland. This soil is generally well suited to community uses. Because of the dusty surface, this soil has some limitations for recreational facilities.

**Warden silt loam, 12 to 20 percent slopes (map number 55D).** Warden silt loam is described above. Approximately 45 acres of the 12- to 20-percent sloped warden silt loam soil are found within the transmission line ROW. The new transmission line would cross approximately 0.7 miles of this soil. The LLC and subclass for this soil is IVe. Runoff is medium, and the hazard of erosion is moderate. This soil is limited for community and recreational uses because of slope.

**Willis silt loam, 2 to 5 percent slopes (map number 56B).** This deep, well drained soil is found on terraces. Approximately 14 acres of this soil are found within the transmission line ROW. The new transmission line would cross approximately 0.1 miles of this soil. Typically, the surface layer is dark brown silt loam about 2 inches thick. The subsoil is dark brown silt loam about 17 inches thick. The substratum is brown silt loam about 7 inches thick. It is underlain by a calcareous hardpan. Runoff is medium, and the hazard of erosion is moderate. The LLC and subclass for this soil is IVe. This soil is limited for community uses because of depth to the cemented pan. In places, modifications in the design of facilities for these uses are necessary. This soil is limited for recreational facilities because of the dusty surface.

**Taunton fine sandy loam, 2 to 5 percent slopes (map number 58B).** This is a moderately deep, well drained soil formed in old alluvium that has been reworked by wind. Approximately 175 acres of this soil are found within the transmission line ROW, and approximately 13 acres are found within the Energy Facility Site. The new transmission line would cross approximately 2.75 miles of this soil. In a representative profile, the surface layer is dark grayish brown fine sandy loam about 5 inches thick. The subsoil is dark brown fine sandy loam about 10 inches thick. The substratum is dark brown, calcareous very fine sandy loam about 17 inches thick. A cemented, calcareous hardpan is at a depth of about 32 inches. Permeability is moderately rapid. Runoff is medium, and the hazard of water erosion is moderate. The hazard of soil blowing is moderate. The LLC and subclass for this soil is VIe for dryland and IIIe for irrigated land. The cemented hardpan is a limitation for sanitary facilities. Other uses for community development, such as dwellings and commercial buildings, are limited because of the pan and the low strength of the soil. This soil is suitable for the construction of roads and streets. There are few limitations for most recreation facilities.

**Taunton fine sandy loam, 5 to 12 percent slopes (map number 58C).** Taunton fine sandy loam is described above. Approximately 30 acres of the 5- to 12-percent sloped taunton fine sandy loam soil are found within the transmission line ROW, and approximately 0.04 acres are



found within the Energy Facility Site. The new transmission line would cross approximately 0.25 miles of this soil. The LLC and subclass for this soil is VIe for dryland and IIIe for irrigated land. Commercial buildings may need variations in design because of the slope. Construction of dwellings is limited because of the slope and low strength of the soil. In places, modifications in the design of facilities for these uses are necessary. The slope is a limitation for roads, streets, and recreation facilities.

#### **I.4 LAND USES**

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

Response: The proposed Carty Generating Station would occupy approximately 90 acres of land, including evaporation ponds and the Grassland Switchyard. The proposed Grassland Switchyard would occupy approximately 15 acres west of the Carty Generating Station.

The predominant land types are classified as cultivated crops and shrub/scrub, and the terrain is essentially flat, with minimal slopes. Land uses include existing industrial uses (Boardman Plant), farm and agricultural uses (Threemile Canyon Farms), and limited natural resource areas, which include designated wetlands in the proximity of the project. Associated wetlands are identified in Exhibit J. Land uses and zoning are shown in Exhibit K Figures. Figure I-1 provides the location of soil types within the Site Boundary, excluding the transmission line. The land surrounding the existing and proposed transmission line corridor is predominantly land used for grazing. Additionally, a wind facility is located within 5 miles southwest of the corridor.

#### **I.5 POTENTIAL ADVERSE IMPACTS**

**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: During construction, potential adverse impacts to on-site soils and soils along the transmission line could result from wind or water erosion; potential oil or other spills from stationary or power-driven equipment; and, possibly, from construction debris and other construction pollutants. The erosion hazard for soils found within the Site Boundary range from slight to moderate. Following the requirements of the National Pollutant Discharge Elimination System (NPDES) for construction activities (NPDES 1200-C) will minimize impacts. The 1200-C permit requires development of a detailed Erosion and Sediment Control Plan. A copy of the 1200-C permit submitted to the Oregon Department of Environmental Quality (DEQ), including

revisions requested by DEQ, is contained in Appendix I-2. Appendix I-2 also contains a letter from DEQ to the Oregon Department of Energy in fulfillment of the requirements of OAR 345-021-0000(7).

Exhibit Z summarizes estimated plume impacts from the proposed cooling tower. The results of the analysis indicate that no potential adverse impacts warranting mitigation from cooling tower operation are expected; see Exhibit Z for information regarding salt deposition. Operation of the facility may involve land application of process water effluent; a Water Pollution Control Facility permit will be obtained to allow use of evaporation ponds, as necessary. Sanitary sewage would be piped to an existing permitted sanitary waste system at the Boardman Plant. Chemical or other hazardous materials will be handled, stored, and monitored as outlined in Exhibit G and to comply with applicable laws and regulations.

Retirement of the facility would consist primarily of the dismantling and the removal of equipment and structures. Potential adverse impacts to soils from the demolition work would be similar to those identified for plant construction. These include potential soil erosion, and potential oil or hazardous materials spills. Methods to minimize or mitigate these potential hazards are discussed in the next section.

Construction activities increase the risk of invasive weeds by allowing for the transport of invasive weeds on construction equipment and along the transmission line or by allowing invasive weeds to re-vegetate disturbed areas. Methods to minimize or mitigate these potential invasive weed hazards are discussed in the next section.

## **I.6 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: During construction of the Carty Generating Station and the transmission line, the contractor would be required to take all measures necessary to ensure soil protection, including, but not limited to, erosion control with silt fences or similar methods. These measures include preparation and implementation of an Erosion and Sediment Control Plan. The plan would be approved by DEQ prior to beginning of any construction activities. The plan would provide for containment protection for oil and other spills on all stationary or power driven equipment, and prevention of construction debris and other pollutants from spilling on the Site. Submittal of Material Safety Data Sheets for all hazardous chemicals to be used or stored by the contractor at or around the job site will be required. In general, construction of the power plant would involve standard construction practices and techniques that are not expected to have adverse impacts on the soil.

To avoid potential adverse impacts to soil, operation of the facility would employ methods as described in Exhibit G. A Spill Prevention Control and Countermeasure Plan would be submitted to DEQ.

During facility retirement, the demolition contractor would be required to practice and adhere to the same stringent requirements set forth in the original plant construction, including erosion control, handling of hazardous materials, and containment and clean-up of spills.

The Energy Facility Site is generally flat, with low potential to erode and transport soil particles to adjacent wetlands or waterways. Erosion and Sediment Control (ESC) measures would be geared toward containing soil and construction equipment within the Energy Facility Site footprint.

ESC measures anticipated for the NPDES 1200-C permit may include, but are not limited to, sediment fences, straw wattles, bio-filter bags, permanent and temporary mulching, permanent and temporary seeding, sediment traps and/or basins, rock check dams or gravel filter berms, gravel construction entrance(s), and revegetation with native species. Monitoring of the effectiveness of ESC measures may necessitate additional measures as determined by field observations.

Facility site construction activities would include clearing and grubbing, excavation and embankment, utility excavation and installation, building construction, and gravel parking area. Perimeter sediment control measures such as sediment fences, straw wattles, and bio-filter bags would be implemented. Gravel construction entrance(s) would be constructed prior to clearing and grubbing and earthwork operations. Application of water and/or mulch may be required for wind erosion control. Sediment basins or traps may be required for runoff and/or dewatering. Disturbed areas would be revegetated with temporary and permanent seed mixes and mulch. Wet weather construction may require the use of temporary gravel or hay mulches. Prolonged periods of wet weather may necessitate limiting the size or extent of disturbed areas or confining vehicles or operations to specified areas. Heavily compacted soils to be revegetated may require scarification prior to replanting by such methods as tilling, disking, and/or rotovating. Stockpiles may require mulch and/or plastic sheeting during the wet weather period. Temporary and permanent surface runoff may require the use of rock check dams and/or gravel filter berms.

The overall strategy is to minimize disturbance within the transmission line corridor. If necessary, tower construction along the transmission line route would likely involve access to the sites via existing roads where possible, along with small areas of clearing and grubbing for tower construction and material stockpiles. Perimeter sediment control measures such as sediment fences, straw wattles, and bio-filter bags would be the primary ESC methods. Straw wattles and bio-filter bags are biodegradable and can be left in place after final stabilization is achieved. Access roads may require the addition of graded aggregate to stabilize existing roads for construction vehicles and equipment. Disturbed areas would be revegetated. Heavily compacted soils to be revegetated along the transmission line may require scarification prior to replanting by such methods as tilling, disking, and/or rotovating.

A Revegetation and Noxious Weed Control Plan has been developed to minimize potential expansion of invasive weeds resulting from construction disturbances; a copy is included in Exhibit P as Appendix P-4. The Plan will be reviewed and approved by the Morrow County Weed Control Advisory District Board and the Gilliam County Weed Control Officer prior to the start of construction.

## **I.7 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.*

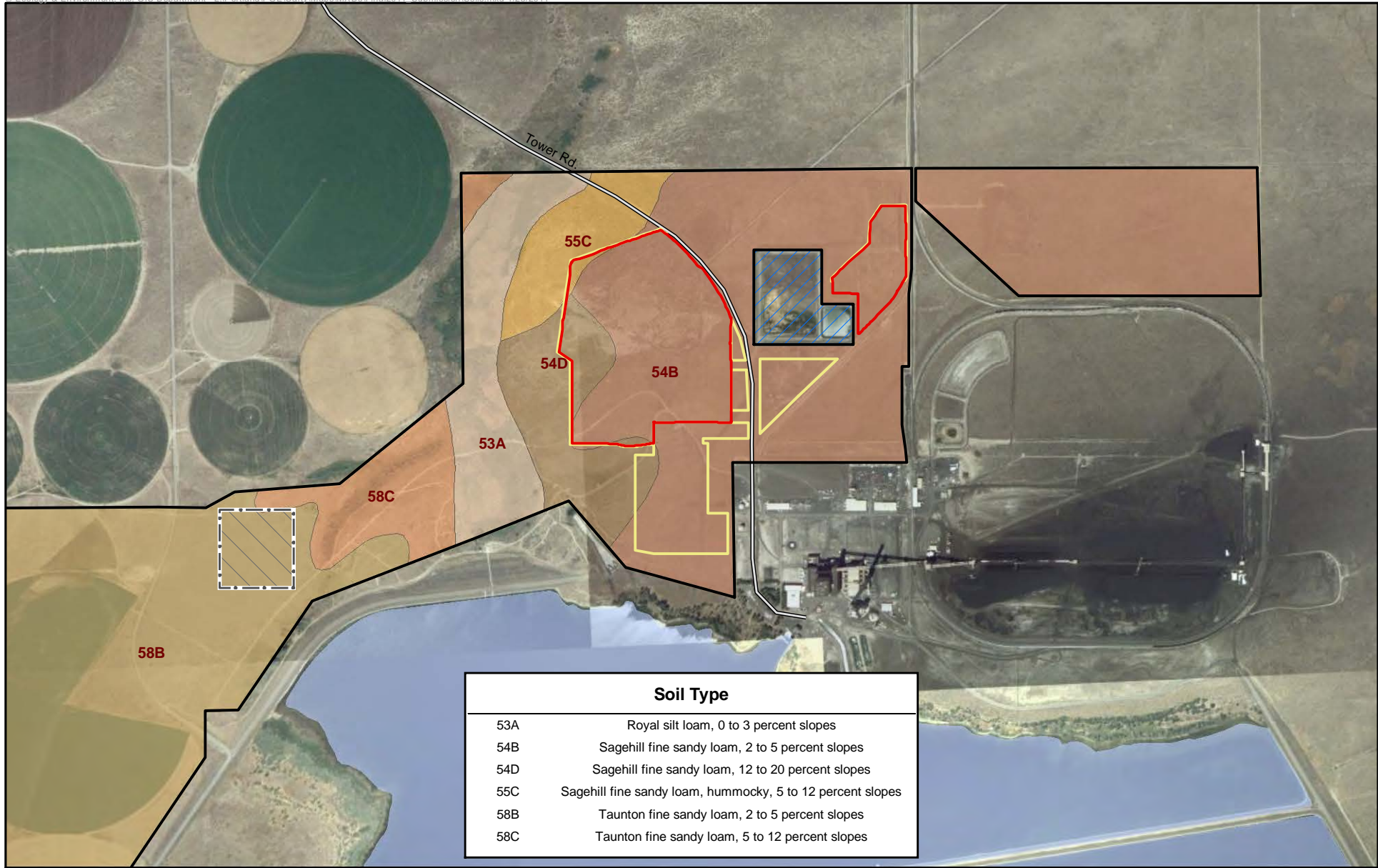
Response: Monitoring would be performed for the Carty Generating Station as required by applicable permits to ensure no significant potential adverse impacts to soils. ESC measures would minimize loss of soil. Scarification of compacted soils would occur as necessary for revegetation.

During construction, disturbed area erosion and sediment control measures would be inspected weekly at the active construction site, and every two weeks on inactive sites. Inspection of both active and inactive sites would occur at least daily during periods when 0.5 inches or more rain has fallen in a 24-hour period.

ESC measures would be maintained by removing trapped sediment when storage capacity has been reduced by 50 percent. Sediments would be placed in an upland area certified by a qualified wetland specialist. If any of the ESC measures are deemed ineffective, different strategies and/or measures would be implemented, maintained, and monitored.

PGE would observe and record color and turbidity within 35 feet upstream and downstream of locations where surface waters from the construction site(s) enter a receiving stream. Observations would note whether sheen and floating matter is present or absent. Any apparent color and turbidity of the discharge, as well as any observable difference in comparison with the receiving stream would be described.

After completing construction in an area, PGE would monitor the area until soils are stabilized, to evaluate whether construction-related impacts to soils are being adequately addressed by the mitigation procedures described in the Erosion and Sediment Control Plan and the Weed Control Plan. As necessary, PGE would implement follow-up restoration measures such as scarification and reseedling to address those remaining impacts.



- Site Boundary
- Proposed Energy Facility Area
- Temporary Construction Area
- Proposed Grassland Switchyard
- Existing Boardman Evaporation Pond
- Tower Road

**Figure I-1**  
**Soil Types**  
**PGE Carty Generating Station**  
**Application for Site Certificate**





# **APPENDIX I-1**

## **USDA – Natural Resources Conservation Service Land Capability Classification System**





## **Land Capability Classification**

### **(a) Definition**

Land capability classification is a system of grouping soils primarily on the basis of their capability to produce common cultivated crops and pasture plants without deteriorating over a long period of time.

### **(b) Classes**

Land capability classification is subdivided into capability class and capability subclass nationally. Some states also use a capability unit.

### **(c) Significance**

Land capability classification has value as a grouping of soils. National Resource Inventory information, Farmland Protection Policy Act, and many field office technical guides have been assembled according to these classes. The system has been adopted in many textbooks and has wide public acceptance. Some state legislation has used the system for various applications. Users should reference Agriculture Handbook No. 210 for a listing of assumptions and broad wording used to define the capability class and capability subclass.

### **(d) Application**

All map unit components, including miscellaneous areas, are assigned a capability class and subclass. Agriculture Handbook No. 210 provides general guidance, and individual state guides provide assignments of the class and subclass applicable to the state. Land capability units can be used to differentiate subclasses at the discretion of the state. Capability class and subclass are assigned to map unit components in the national soil information system.

### **(e) Categories**

#### **(1) Capability Class**

**(i) Definition.** Capability class is the broadest category in the land capability classification system. Class codes I (1), II (2), III (3), IV (4), V (5), VI (6), VII (7), and VIII (8) are used to represent both irrigated and nonirrigated land capability classes.

## **(ii) Classes and definitions.**

*Class I (1)* soils have slight limitations that restrict their use.

*Class II (2)* soils have moderate limitations that reduce the choice of plants or require moderate conservation practices.

*Class III (3)* soils have severe limitations that reduce the choice of plants or require special conservation practices, or both.

*Class IV (4)* soils have very severe limitations that restrict the choice of plants or require very careful management, or both.

*Class V (5)* soils have little or no hazard of erosion but have other limitations, impractical to remove, that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

*Class VI (6)* soils have severe limitations that make them generally unsuited to cultivation and that limit their use mainly to pasture, range, forestland, or wildlife food and cover.

*Class VII (7)* soils have very severe limitations that make them unsuited to cultivation and that restrict their use mainly to grazing, forestland, or wildlife.

*Class VIII (8)* soils and miscellaneous areas have limitations that preclude their use for commercial plant production and limit their use to recreation, wildlife, or water supply or for esthetic purposes.

## **(2) Capability Subclass**

**(i) Definition.** Capability subclass is the second category in the land capability classification system. Class codes e, w, s, and c are used for land capability subclasses.

### **(ii) Subclasses and definitions.**

*Subclass e* is made up of soils for which the susceptibility to erosion is the dominant problem or hazard affecting their use. Erosion susceptibility and past erosion damage are the major soil factors that affect soils in this subclass.

*Subclass w* is made up of soils for which excess water is the dominant hazard or limitation affecting their use. Poor soil drainage, wetness, a high water table, and overflow are the factors that affect soils in this subclass.

*Subclass s* is made up of soils that have soil limitations within the rooting zone, such as shallowness of the rooting zone, stones, low moisture-holding capacity, low fertility that is difficult to correct, and salinity or sodium content.

*Subclass c* is made up of soils for which the climate (the temperature or lack of moisture) is the major hazard or limitation affecting their use.

**(iii) Application.** The subclass represents the dominant limitation that determines the capability class. Within a capability class, where the kinds of limitations are essentially equal, the subclasses have the following priority: e, w, s, and c. Subclasses are not assigned to soils in capability class I (1) and subclass "e" is not used in class V (5).

### **(3) Capability unit**

**(i) Definition.** Capability unit is the first category listed in the land capability classification system. It is a grouping of one or more individual soil mapping units having similar potentials and continuing limitations or hazards.

**(ii) Application.** Use of this category and definition of codes are state options. Valid entries in NASIS are integers ranging from 1 to 99.



# **APPENDIX I-2**

## **NPDES 1200-C Permit Application and DEQ Acknowledgement Letter**





May 27, 2010

Ms. Jackie Ray  
Oregon Department of Environmental Quality – Eastern Region  
Permit Coordinator  
700 SE Emigrant, Suite 330  
Pendleton, OR 97801

**Re: Application for National Pollutant Discharge Elimination System 1200-C Permit  
Carty Generating Station**

Dear Ms. Ray:

Please find attached an application for a National Pollutant Discharge Elimination System (NPDES) 1200-C Permit. Portland General Electric Company (PGE) is applying for this permit as part of proposed work for the Carty Generating Station located in Morrow and Gilliam Counties, Oregon. The Carty Generating Station is a proposed natural gas fuel combined-cycle generating plant producing up to 900 megawatts of electrical power. As such, it is subject to Energy Facility Siting Council (EFSC) jurisdiction and must obtain a site certificate from EFSC. However, the federally delegated NPDES 1200-C Permit is outside EFSC jurisdiction. Major components of the Carty Generating Station include the energy facility, a switchyard, lined evaporations ponds, and an approximately 18 mile transmission line. This application is intended to cover the construction of the Carty Generating Station. The proposed construction start date for the Carty Generating Station is the second quarter of 2013; therefore detailed construction plans are not yet available.

The Erosion and Sediment Control Plan (ESCP) drawings associated with this permit application have been prepared based on the level of detail currently available. PGE recognizes that updated ESCP drawings may be required once detailed construction plans are available; and that a public notice and permit decision will not be made by DEQ until a construction start date is determined. The application is being submitted at this time to satisfy EFSC requirements to obtain a letter from DEQ stating that DEQ has received the preliminary application and, at the appropriate time, DEQ anticipates being able to issue permit coverage for the Carty Generating Station.

Enclosed you will find a completed application form, ESCP Drawings, and a Site Map. Given the delay that will occur between this preliminary application and the actual issuance of the permit and construction of the facility, please provide guidance on what the appropriate application fee is at this time.

I appreciate your consideration of this preliminary application. If you need additional information or have any questions please contact myself at (503) 248-5600 x 4615 or [jthornton@ene.com](mailto:jthornton@ene.com); or Lenna Cope (503) 248-5600 x 4603 or [lcope@ene.com](mailto:lcope@ene.com).

Sincerely,

A handwritten signature in cursive script that reads "James Thornton".

James Thornton  
Project Manager

Enclosures 3

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## 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 returned. If the information requested is not applicable or not yet available, please indicate as such.

### A. PROJECT INFORMATION

<p>1. <u>Portland General Electric Company (PGE)</u>          Applicant (Owner, Developer, or General Contractor)  <u>Ray Hendricks</u>          Contact Name  <u>121 SW Salmon Street, 3WTC-BR05</u>          Address  <u>Portland</u> <u>OR</u> <u>97204</u>          City State Zip  <u>(503) 464-8519</u> <u>Ray.Hendricks@pgn.com</u>          Telephone E-Mail Address</p>	<p>2. If fee invoicing is different than Applicant, provide contact info:  <u>Same</u>          Invoice Name          _____          Address          _____          City State Zip          _____          Telephone E-Mail Address</p>
<p>3. <u>Black &amp; Veatch</u>          Architect/Engineering Firm (Erosion &amp; Sediment Control Plan)  <u>Francis Busch</u>          Project Manager  <u>(913)458-7197</u> <u>buschft@bv.com</u>          Telephone E-Mail Address</p>	<p>4. <u>To be determined and provided in an Action Plan</u>          Applicant's Designated Erosion and Sediment Control Inspector          _____          Contact Name          _____          Telephone E-Mail Address</p>
<p>5. <u>Carty Generating Station</u>          Name of Project  <u>Tower Road, adjacent to Boardman Plant</u>          Address or Cross Street  <u>Boardman</u> <u>OR</u> <u>97818</u>          City State Zip  <u>Morrow and Gilliam</u>          County</p>	<p>6. Nature of the Construction Activity</p> <p><input type="checkbox"/> Single Family (SIC Code 1521)  <input type="checkbox"/> Multi-Family Residential (SIC Code 1522)  <input type="checkbox"/> Commercial (SIC Code 1542)  <input type="checkbox"/> Industrial (SIC Code 1541)  <input type="checkbox"/> Highway (SIC Code 1611)  <input checked="" type="checkbox"/> Utilities (SIC Code 1623): _____  <input type="checkbox"/> Other: _____</p>
<p>7. Site Location by Latitude and Longitude:</p> <p>Latitude: <u>45</u> / <u>42</u> / <u>1.4</u>          Degrees Minutes Seconds          Longitude: <u>119</u> / <u>48</u> / <u>52</u>          Degrees Minutes Seconds</p>	<p>8. Project Size:</p> <p>Total Site Acreage (acres): <u>112</u>          Total Construction Area (acres): <u>285</u>          Disturbed Area for this phase, if multiple phases: <u>N/A</u>          Total Number of Lots: <u>N/A</u></p>

**DEQ USE ONLY**

App. #: \_\_\_\_\_ File #: \_\_\_\_\_ LLID #: \_\_\_\_\_ River Mile: \_\_\_\_\_  
 Date Received: \_\_\_\_\_ Amount: \_\_\_\_\_ Check Name: \_\_\_\_\_  
 Check #: \_\_\_\_\_ Deposit #: \_\_\_\_\_ Receipt #: \_\_\_\_\_ Legal Name Confirmed:

**A. PROJECT INFORMATION Continued**

9. Runoff from proposed construction activities goes to:

- Creek/Stream: Willow Creek, Sixmile Canyon Drainage  Ditch: \_\_\_\_\_
- Municipal Storm Sewer or Drainage System  Other: \_\_\_\_\_
- Receiving stream: \_\_\_\_\_
- Infiltration device

10.  Proposed site runoff discharges directly to, or into a storm sewer or drainage system that discharges to, a Total Maximum Daily Load (TMDL) or 303(d) listed water body for turbidity or sedimentation (if applicable).

**B. LAND USE COMPATIBILITY STATEMENT**

Attach the *original* and complete Land Use Compatibility Statement (LUCS) signed by the local land use authority. The application will not be processed unless the local land use authority approves it and it meets statewide planning goals. (See Attachment C for the LUCS statement) A LUCS is not required for a project under EFSC jurisdiction, per ORS 469.378.

**C. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE**

The legally authorized representative *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

Please see 40 CFR 122.22 for more detail, if needed.

I hereby certify that the information contained in this application is true and correct to the best of my knowledge and belief. In addition, I agree to pay all permit fees required by Oregon Administrative Rules 340-045. This includes a renewal application fee to renew the permit and a compliance determination fee invoiced annually by DEQ to maintain the permit.

STEPHEN M. QUEANOR

VICE PRESIDENT

Name of Legally Authorized Representative (Type or Print)

Title

*Stephen M. Queanor*

05/25/10

Signature of Legally Authorized Representative

Date

In order to authorize permit registration, the following must be completed and submitted to DEQ office listed below or to a DEQ Agent (see Figure A-2 for list of Agents):

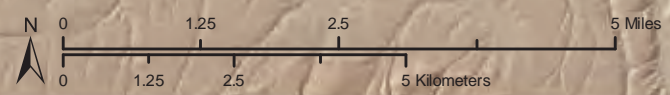
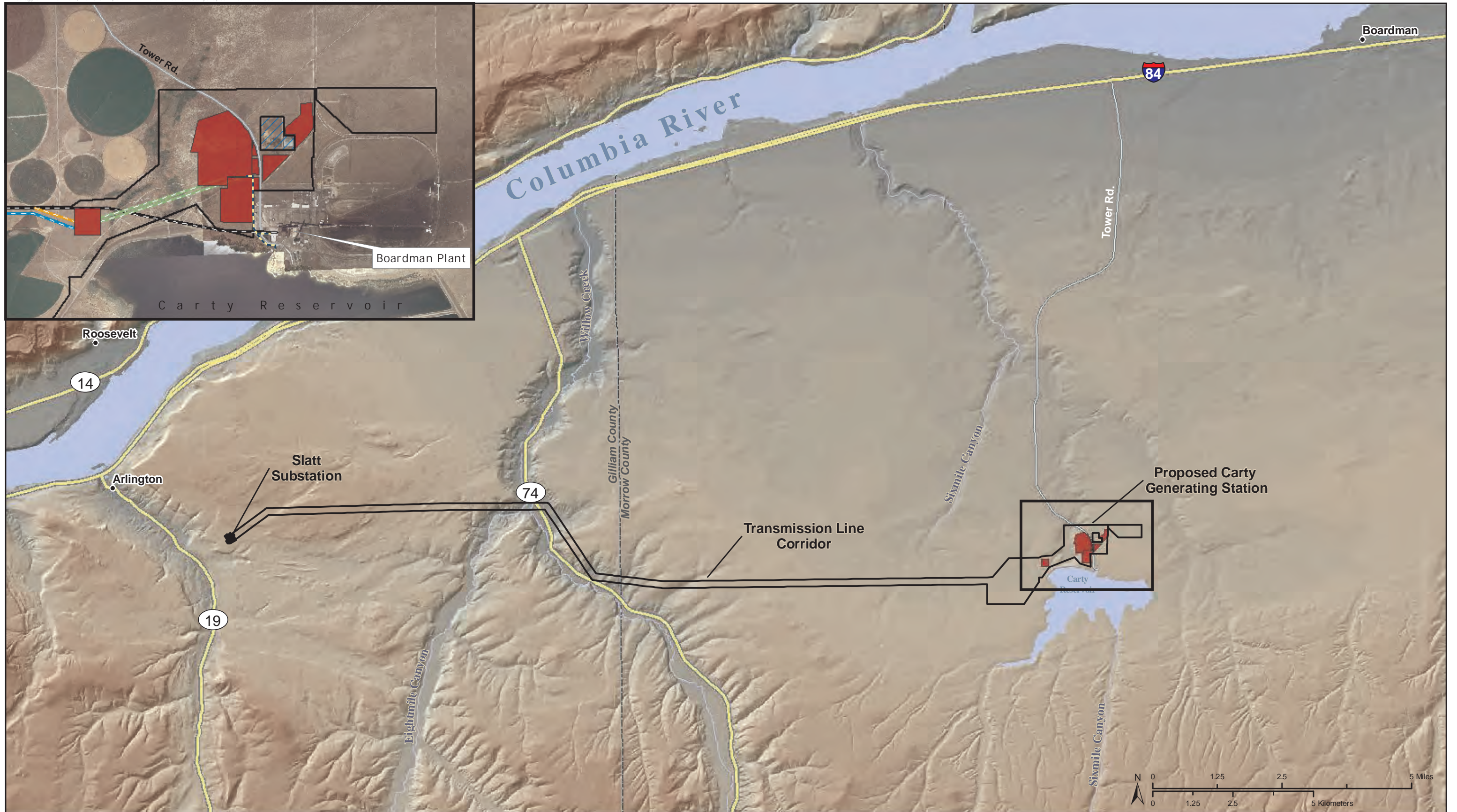
- Signed Application form.
- Land Use Compatibility Statement with signature of the local land use authority
- Stormwater Erosion and Sediment Control Plan Narrative
- Stormwater Erosion and Sediment Control Plan Drawings
- \$1,510 fee (includes \$745 for new permit application and \$765 for first year annual fee) to the appropriate DEQ regional office and make the check payable to Department of Environmental Quality. If you are sending your application to a DEQ Agent, check with the DEQ Agent for the appropriate fees and make check payable to the DEQ Agent.

**DEQ Northwest Region**  
2020 SW 4<sup>th</sup> Ave., Suite 400  
Portland, OR 97201-4987  
503-229-5263 or 1-800-452-4011

**DEQ Western Region**  
165 East 7<sup>th</sup> Avenue, Suite 100  
Eugene, OR 97401  
541-687-7326 or 1-800-844-8467

**DEQ Eastern Region**  
700 SE Emigrant, Suite 330  
Pendleton, OR 97801  
541-276-4063 or 1-800-452-4011





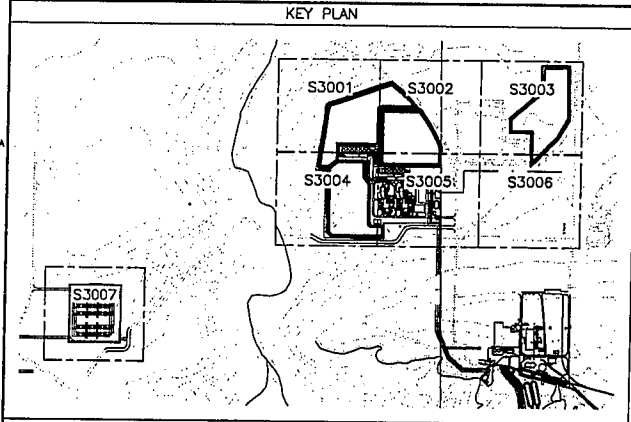
- |                   |                                      |  |  |
|-------------------|--------------------------------------|--|--|
| • City            | □ Site Boundary                      | --- Utility Interconnect Corridor                        | — Proposed Line(s) to Switchyard             |
| — Major Road      | ■ Proposed Construction Areas        | — Existing Boardman to Slatt Substation 500kV Centerline | — Proposed Switchyard to Existing Slatt Line |
| □ County Boundary | ▨ Existing Boardman Evaporation Pond | — Proposed Line to Slatt Substation                      |  |

**Site Location Map**  
**PGE Carty Generating Station**  
 Morrow and Gilliam County, Oregon  
 Erosion and Sediment Control Plan





# EROSION AND SEDIMENT CONTROL PLANS



NOTE: SITE LOCATION MAP IS PROVIDED SEPARATELY

## APPLICANT

PORTLAND GENERAL ELECTRIC COMPANY  
 CONTACT: RAY HENDRICKS  
 121 SW SALMON STREET, 3WTC-BROS  
 PORTLAND, OR 97204  
 PHONE: (503)464-8519  
 EMAIL: Ray.Hendricks@pgn.com

## NARRATIVE DESCRIPTION

**EXISTING SITE CONDITIONS**  
 - UNDEVELOPED ARID TERRAIN OR FARMLAND

**DEVELOPED SITE CONDITIONS**  
 - NATURAL GAS FUEL COMBINED-CYCLE GENERATING FACILITY WITH ASSOCIATED SWITCHYARD AND 18-MILE TRANSMISSION LINE

**NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE**  
 - SITE CLEARING (TBD)  
 - MASS GRADING (TBD)  
 - UTILITY INSTALLATION (TBD)  
 - GENERATING FACILITY CONSTRUCTION (TBD)  
 - TRANSMISSION LINE CONSTRUCTION (TBD)  
 - FINAL STABILIZATION (TBD)

AN ESTIMATED TIME TABLE WILL BE SUBMITTED TO DEQ, IN AN ACTION PLAN, AT A LATER DATE.

**GENERATING FACILITY**  
 TOTAL TEMPORARY DISTURBED AREA = 8,494,200 SF = 195 ACRES  
 TOTAL PERMANENT DISTURBED AREA = 4,356,000 SF = 100 ACRES

**TRANSMISSION LINE**  
 TOTAL TEMPORARY DISTURBED AREA = 3,920,400 SF = 90 ACRES  
 TOTAL PERMANENT DISTURBED AREA = 522,720 SF = 12 ACRES

## SITE SOIL CLASSIFICATIONS

SOIL PHASE NUMBER	SOIL PHASES	EROSION POTENTIAL
13	KIMBERLY FINE SANDY LOAM	SLIGHT
14B	KREBS SILT LOAM, 2 TO 5 PERCENT SLOPES	SLIGHT
14D	KREBS SILT LOAM, 5 TO 20 PERCENT SLOPES	SLIGHT
15E	LICKSKILLET VERY STONY LOAM, 7 TO 40 PERCENT SLOPES	HIGH
24D	OLEY SILT LOAM, 0 TO 5 PERCENT SLOPES	SLIGHT
24E	OLEY GRAVELLY SILT LOAM, 5 TO 20 PERCENT SLOPES	MODERATE
40B	SAGEHILL FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	SLIGHT
40C	SAGEHILL FINE SANDY LOAM, 5 TO 12 PERCENT SLOPES	SLIGHT
40D	SAGEHILL FINE SANDY LOAM, 12 TO 20 PERCENT SLOPES	SLIGHT
41B	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 2 TO 5 PERCENT SLOPES	SLIGHT
41C	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 5 TO 12 PERCENT SLOPES	MODERATE
4C	BLALOCK LOAM, 2 TO 12 PERCENT SLOPES	SLIGHT
53A	ROYAL SILT LOAM, 0 TO 3 PERCENT SLOPES	SLIGHT
54B	SAGEHILL FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	SLIGHT
54C	SAGEHILL FINE SANDY LOAM, 5 TO 12 PERCENT SLOPES	SLIGHT
54D	SAGEHILL FINE SANDY LOAM, 12 TO 20 PERCENT SLOPES	SLIGHT
55B GILLIAM	WARDEN SILT LOAM, 2 TO 5 PERCENT SLOPES	SLIGHT
55B MORROW	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 2 TO 5 PERCENT SLOPES	SLIGHT
55D	SAGEHILL FINE SANDY LOAM, HUMMOCKY, 5 TO 12 PERCENT SLOPES	MODERATE
55E	WARDEN SILT LOAM, 2 TO 5 PERCENT SLOPES	SLIGHT
55B	WILLIS SILT LOAM, 2 TO 5 PERCENT SLOPES	MODERATE
55B	TALUNTON FINE SANDY LOAM, 2 TO 5 PERCENT SLOPES	MODERATE
55C	TALUNTON FINE SANDY LOAM, 5 TO 12 PERCENT SLOPES	MODERATE

ALL FILL MATERIAL WILL BE GENERATED ON-SITE FROM GRADING ACTIVITIES.

**RECEIVING WATER BODIES**  
 WILLOW CREEK (WHICH IS SPANNED BY TRANSMISSION LINE).

**100-YEAR FLOOD PLAIN**  
 BASED ON REVIEW OF FEMA FLOOD INSURANCE RATE MAPS (FIRMS) 41049C0225D, 41049C0250D, 410070075B, AND 410070050B; FACILITIES AND CONSTRUCTION AREAS WILL NOT BE LOCATED WITHIN THE 100-YEAR FLOOD ZONE.

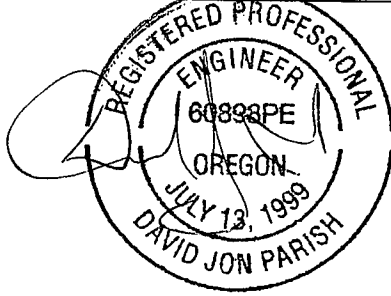
## APPLICANT'S SITE INSPECTOR

NAME: (TBD)  
 ADDRESS: (TBD)  
 TELEPHONE: (TBD)  
 EMAIL: (TBD)  
 TRAINING: (TBD)  
 EXPERIENCE: (TBD)

SITE INSPECTOR HAS NOT YET BEEN ASSIGNED. WHEN SITE INSPECTOR HAS BEEN SELECTED, INSPECTOR CONTACT INFORMATION, TRAINING, AND EXPERIENCE WILL BE SUBMITTED TO DEQ, IN AN ACTION PLAN, AT A LATER DATE.

## INSPECTION FREQUENCY

SITE CONDITION	MINIMUM FREQUENCY
1. ACTIVE PERIOD.	DAILY WHEN STORMWATER RUNOFF, INCLUDING RUNOFF FROM SNOWMELT IS OCCURRING.
2. PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY.	ONCE TO ENSURE THAT EROSION AND SEDIMENT CONTROL MEASURES ARE IN WORKING ORDER. ANY NECESSARY MAINTENANCE AND REPAIR MUST BE MADE PRIOR TO LEAVING THE SITE.
3. INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE DAYS.	ONCE EVERY TWO (2) WEEKS.
4. PERIODS DURING WHICH THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER.	IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION.



EXPIRATION DATE: 12/31/2010

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE HARD COPY OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNAUTHORIZED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

THE CONTRACTOR IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERSEDE REQUIREMENTS OF THIS PLAN.

## GENERAL EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES

- CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE APPROVED INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.5.b.i.(3))
- THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) MUST BE KEPT ON-SITE AND ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED IN SUCH A MANNER TO ENSURE THAT SEDIMENT OR SEDIMENT LADEN WATER THAT ENTERS OR IS LIKELY TO ENTER SURFACE WATERS OR CONVEYANCE SYSTEMS LEADING TO SURFACE WATER, ROADWAY, OR OTHER PROPERTIES DOES NOT OCCUR. (SCHEDULE A.3.a.) AND (SCHEDULE B.3.b.)
- THE IMPLEMENTATION OF THE ESCP AND CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPGRADING OF THE EROSION AND SEDIMENT CONTROL MEASURES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE OWNER SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THE CONSTRUCTION IS APPROVED AND THE 1200-C PERMIT IS TERMINATED. (SCHEDULE A.4.a.) AND (SCHEDULE D.3.)
- THE CONTRACTOR MUST BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH LOCAL, STATE, OR FEDERAL REGULATIONS UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER. (SCHEDULE A.5.a.) AND (SCHEDULE A.6.a.)
- EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERIMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.5.b.i.(2)), (SCHEDULE A.5.b.i.(7)), (SCHEDULE A.7.d.i.(2)) & (SCHEDULE A.7.f.)
- DO NOT BEGIN LAND CLEARING, EXCAVATION, TRENCHING, CUTTING OR GRADING AND EARTHWORK-SURFACE ROUGHING UNTIL AFTER INSTALLING APPLICABLE SEDIMENT, EROSION PREVENTION AND RUNOFF CONTROL MEASURES THAT ARE NOT IN THE DIRECT PATH OF WORK. (SCHEDULE A.5.b.i.(5)(A)), (SCHEDULE A.7.e.i.(1)) AND (SCHEDULE A.7.e.ii.(1))
- APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY ON ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.5.b.i.(5)(B)), (SCHEDULE A.5.b.i.(5)(C)) & (SCHEDULE A.5.b.i.(6).)
- CONSTRUCTION ACTIVITIES MUST MINIMIZE EXCAVATION AND CREATION OF BARE GROUND ON SLOPES GREATER THAN FIVE (5) PERCENT FROM OCTOBER 1 THROUGH MAY 31 EACH YEAR. (SCHEDULE A.7.d.i.)
- TEMPORARY STABILIZATION OF THE SITE MUST BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAINFALL IS FORECAST IN THE NEXT 24 HOURS AND EACH WEEKEND AND HOLIDAY. (SCHEDULE A.7.d.ii.)
- IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERIMETER AREAS. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER GRADING OR CONSTRUCTION. (SCHEDULE A.5.b.i.(1) & (2)) AND (SCHEDULE A.7.e.iii.(1))
- PROVIDE PERMANENT EROSION PREVENTION MEASURES ON ALL EXPOSED AREAS AND REMOVE ALL TEMPORARY CONTROL MEASURES, UNLESS LOCAL ORDINANCES REQUIRE OTHERWISE, AS AREAS ARE STABILIZED. (SCHEDULE A.5.b.i.(8)) AND (SCHEDULE A.7.e.ii.(2))
- ALL TEMPORARY SEDIMENT CONTROLS MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERING OF EXPOSED SOIL IS ESTABLISHED. (SCHEDULE A.7.e.iii.(3)) & (SCHEDULE A.7.e.iii.(4))
- SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION. (SCHEDULE A.7.d.i.(1) - (2))
- PRIOR TO ANY LAND DISTURBING ACTIVITIES EACH SITE MUST HAVE GRAVELED, PAVED, OR CONSTRUCTED ENTRANCES, EXITS AND PARKING AREAS WITH EXIT TIRE WASH TO REDUCE THE TRACKING OF SEDIMENT ONTO PUBLIC OR PRIVATE ROADS. (SCHEDULE A.7.d.iii.(1))
- WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER WATERTIGHT TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ON-SITE UNTIL DRIPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE ONTO PUBLIC OR PRIVATE ROADS. (SCHEDULE A.7.d.iii.(3))
- TEMPORARY STABILIZATION OR COVERING OF SOIL STOCKPILES AND PROTECTION OF STOCKPILES LOCATED AWAY FROM CONSTRUCTION ACTIVITY MUST OCCUR AT THE END OF EACH WORKDAY OR OTHER BEST MANAGEMENT PRACTICES (BMPs), SUCH AS DIVERSION OF UNCONTAMINATED FLOWS AND INSTALLATION OF SEDIMENT FENCES AROUND STOCKPILES, MUST BE IMPLEMENTED TO PREVENT TURBID DISCHARGES TO SURFACE WATERS. (SCHEDULE A.7.e.i.(1)) & (SCHEDULE A.7.e.i.(1) - (3))
- BMPs SHALL BE USED TO PREVENT OR MINIMIZE STORMWATER FROM BEING EXPOSED TO POLLUTANTS FROM SPILLS, DISCHARGE OF CONCRETE TRUCK WASH WATER, VEHICLE AND EQUIPMENT CLEANING, VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE, OTHER CLEANING AND MAINTENANCE ACTIVITIES, AND WASTE HANDLING ACTIVITIES. THESE POLLUTANTS INCLUDE FUEL, HYDRAULIC FLUID, AND OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS DEBRIS, LEFTOVER PAINTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.e.i.(2))
- ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL. (SCHEDULE A.7.e.iii.(2))
- CONTRACTOR SHALL IMPLEMENT A SOLID WASTE AND HAZARDOUS MATERIALS MANAGEMENT PROCEDURES INCLUDING A WRITTEN PROCEDURE MANUAL KEPT ON-SITE, EMPLOYEE TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES, USE REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY, AND USE MATERIAL DELIVERY AND STORAGE CONTROLS, SUCH AS TRAINING AND SIGNAGE, MATERIAL USE, COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A.7.e.iii.(3))
- THE CONTRACTOR MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION AND MEET ALL STATE AND FEDERAL REGULATIONS AND APPROVALS. (SCHEDULE A.7.e.iii.(4))
- THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES MUST BE UPGRADED AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. CHANGES TO THE ESCP MUST ALSO BE SUBMITTED IN THE FORM OF AN ACTION PLAN TO DEQ OR ITS AGENT FOR APPROVAL. (SCHEDULE A.7.f.)
- SIGNIFICANT AMOUNTS OF SEDIMENT, WHICH LEAVES THE SITE, MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A RECURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REGULATED TIME FRAME. (SCHEDULE A.7.f.i.(1))
- VACUUMING OR DRY SWEEPING MUST BE USED TO CLEAN-UP RELEASED SEDIMENT AND MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGE WAYS, OR WATER BODIES. (SCHEDULE A.7.f.i.(2))
- THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. TIME-RELEASE FERTILIZERS SHOULD BE USED WITH CARE WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.7.f.i.(3))
- SEDIMENT MUST BE REMOVED FROM BEHIND A SEDIMENT FENCE WHEN IT HAS REACHED A HEIGHT OF 1/3 THE HEIGHT OF THE FENCE ABOVEGROUND AND BEFORE FENCE REMOVAL. (SCHEDULE A.7.f.ii.(1))
- SEDIMENT MUST BE REMOVED FROM BEHIND BIO BAGS AND OTHER BARRIERS IT HAS REACHED A HEIGHT OF TWO (2) INCHES AND BEFORE BIO BAG OR OTHER BARRIER REMOVAL. (SCHEDULE A.7.f.ii.(2))
- REMOVAL OF TRAPPED SEDIMENT IN A SEDIMENT BASIN OR SEDIMENT TRAP OR CATCH BASINS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY (50)% AND AT COMPLETION OF PROJECT. (SCHEDULE A.7.f.ii.(3) & (4))
- DEQ MUST APPROVE OF ANY TREATMENT SYSTEM AND OPERATIONAL PLAN THAT MAY BE NECESSARY TO TREAT CONTAMINATED CONSTRUCTION DEWATERING OR SEDIMENT AND TURBIDITY IN STORMWATER RUNOFF. (SCHEDULE A.7.f.iii.)
- SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR THIRTY (30) DAYS OR MORE, THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD. (SCHEDULE A.8.a.)
- SHOULD CONSTRUCTION ACTIVITIES CEASE FOR FIFTEEN (15) DAYS OR MORE ON ANY SIGNIFICANT PORTION OF A CONSTRUCTION SITE TEMPORARY STABILIZATION IS REQUIRED FOR THAT PORTION OF THE SITE WITH STRAW, COMPOST, OR OTHER TACKIFIED COVERING THAT PREVENT SOIL OR WIND EROSION UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.8.b.)
- DAILY INSPECTIONS WHEN RAINFALL AND RUNOFF OCCURS OF THE BMPs AND DISCHARGE OUTFALLS MUST BE MADE BY THE PROJECT ESCP INSPECTOR. THESE INSPECTIONS AND OBSERVATIONS MUST BE RECORDED IN A LOG THAT IS AVAILABLE ON-SITE. (SCHEDULE A.8.b.i.) & (SCHEDULE B.1.b.(1))
- BMPs MUST BE INSPECTED BEFORE, DURING, AND AFTER SIGNIFICANT STORM EVENTS. (SCHEDULE A.7.i.)
- ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPs ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS. (SCHEDULE B.1.b.(2)-(3))
- IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS WHEN THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER. (SCHEDULE B.1.b.(4))
- ALL PERMANENT STORM WATER FACILITIES INCLUDING BUT NOT LIMITED TO PONDS, DITCHES, CULVERTS, ETC ASSOCIATED WITH THIS PROJECT TO BE COMPLETED DURING THE DETAILED DESIGN PORTION OF THE PROJECT.
- SEE DRAWING S3100 FOR OVERALL PLANT SITE PLAN THAT SHOWS CONSTRUCTION TRAILER, PARKING, LAYDOWN, AND SOIL STORAGE/SPOIL AREAS, THE EROSION CONTROL MEASURES IMPLEMENTED AROUND THESE AREAS, AND ADDITIONAL EROSION CONTROL GENERAL NOTES.
- DETAILS AND SECTIONS PROVIDED ON DRAWINGS S3901, S3902, AND S3920 ARE EXAMPLES OF EROSION AND SEDIMENT CONTROL THAT COULD BE USED DURING DETAILED DESIGN OF THE PROJECT.
- ALL DISTURBED AREAS NOT RECEIVING AGGREGATE, ASPHALT, OR CONCRETE SURFACING SHALL BE SEEDDED.
- FOR TRANSMISSION TOWER CONSTRUCTION, SEE DRAWING S3921 FOR EXAMPLE OF EROSION AND SEDIMENT CONTROL.

## DRAWING INDEX

### EROSION AND SEDIMENT CONTROL PLANS

- S3000 - GRADING AND DRAINAGE - SITE - GENERAL NOTES
- S3001 - GRADING AND DRAINAGE - SITE - PLAN - AREA 1
- S3002 - GRADING AND DRAINAGE - SITE - PLAN - AREA 2
- S3003 - GRADING AND DRAINAGE - SITE - PLAN - AREA 3
- S3004 - GRADING AND DRAINAGE - SITE - PLAN - AREA 4
- S3005 - GRADING AND DRAINAGE - SITE - PLAN - AREA 5
- S3006 - GRADING AND DRAINAGE - SITE - PLAN - AREA 6
- S3007 - GRADING AND DRAINAGE - SITE - PLAN - AREA 7
- S3040 - GRADING AND DRAINAGE - SITE - PRE-CONSTRUCTION DRAINAGE
- S3041 - GRADING AND DRAINAGE - SITE - CUT/FILL AREAS - PLAN
- S3042 - GRADING AND DRAINAGE - SITE - POST CONSTRUCTION DRAINAGE
- S3100 - GRADING AND DRAINAGE - SITE - OVERALL PLANT SITE - PLAN
- S3901 - GRADING AND DRAINAGE - SITE - CULVERT AND RIPRAP DETAILS
- S3902 - GRADING AND DRAINAGE - SITE - TYPICAL POND LINER DETAILS
- S3920 - EROSION CONTROL - SITE - SIGN AND DETAILS
- S3921 - EROSION CONTROL - SITE - DETAILS

## PROJECT LOCATION

THE GENERATING FACILITY IS LOCATED IN MORROW COUNTY, APPROXIMATELY 13 MILES SOUTHWEST OF BOARDMAN, OREGON. THE ASSOCIATED TRANSMISSION LINE IS LOCATED IN MORROW AND GILLIAM COUNTIES AND EXTENDS APPROXIMATELY 18 MILES WEST FROM THE GENERATING FACILITY.

**GENERATING FACILITY**  
 LATITUDE: 45° 42' NORTH LONGITUDE: 119° 49' WEST

**TRANSMISSION LINE**  
 BEGINNING LATITUDE: 45° 42' NORTH LONGITUDE: 119° 50' WEST  
 ENDING LATITUDE: 45° 42' NORTH LONGITUDE: 120° 9' WEST

## PROPERTY DESCRIPTION

THE GENERATING FACILITY IS LOCATED NORTH OF CARTY RESERVOIR; SECTIONS 33 AND 34, TOWNSHIP 3 NORTH, RANGE 24 EAST, WILLAMETTE MERIDIAN.

THE ASSOCIATED TRANSMISSION LINE IS LOCATED AS LISTED BELOW:

TOWNSHIP	RANGE	SECTION
2N	22E	1
2N	22E	1, 2, 3, 4, 5, AND 6
2N	24E	5 AND 6
3N	21E	25, 28, AND 35
3N	22E	26, 27, 28, 29, 30, 35, AND 36
3N	23E	31
3N	24E	32, 33, AND 34

## BMP MATRIX AND RATIONALE STATEMENT

BMP	CLEARING AND GRADING	BUILDING AND EQUIPMENT CONSTRUCTION	CLEAN-UP AND RESTORATION	WET WEATHER
<b>EROSION PREVENTION</b>				
EP-1 SCHEDULING	X	X	X	X
EP-4 TOPSOILING	X	X	X	X
EP-2 PRESERVE NATURAL VEGETATION	X	X	X	X
EP-8 PERMANENT SEEDING			X	X
EP-8 MULCHES			X	X
EP-10 EROSION CONTROL BLANKETS	X	X	X	X
EP-13 DUST CONTROL	X	X	X	X
<b>SEDIMENT CONTROL</b>				
SC-1 SEDIMENT FENCE	X	X	X	X
SC-6 COMPOST SOCK	X	X	X	X
SC-10 ENTRANCE/EXIT TRACKING CONTROLS	X	X	X	X
RUN-OFF CONTROL			X	X
RC-2 ENERGY DISSIPATORS	X	X	X	X
<b>POLLUTION PREVENTION</b>				
NS-2 PAVING OPERATIONS CONTROLS	X	X	X	
NS-4 ILLEGAL CONNECTION/ ILLEGAL DISCHARGE	X	X	X	
NS-5 VEHICLE AND EQUIPMENT CLEANING	X	X	X	
NS-6 VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE	X	X	X	
NS-7 MATERIAL DELIVERY AND STORAGE CONTROLS	X	X	X	
NS-8 MATERIAL USE	X	X	X	
NS-9 STOCKPILE MANAGEMENT	X	X	X	
NS-10 SPILL PREVENTION AND CONTROL PROCEDURES	X	X	X	
NS-11 SOLID WASTE MANAGEMENT	X	X	X	
NS-12 HAZARDOUS MATERIALS AND WASTE MANAGEMENT	X	X	X	
NS-13 CONTAMINATED SOIL MANAGEMENT	X	X	X	
NS-14 CONCRETE MANAGEMENT	X	X	X	
NS-15 SANITARY WASTE MANAGEMENT	X	X	X	
NS-17 TRAINING AND SIGNAGE	X	X	X	

A COMPREHENSIVE LIST OF AVAILABLE BMP OPTIONS, BASED ON DEQ'S 1200-C PERMIT APPLICATION AND ESCP GUIDANCE DOCUMENT, HAS BEEN REVIEWED TO COMPLETE THIS EROSION AND SEDIMENT CONTROL PLAN (ESCP). SOME OF THE ABOVE MENTIONED BMPs WERE NOT CHOSEN BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS, AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED. INITIAL DATE: 5/10/10

NO.	DATE	ISSUED FOR PERMITTING	REVISIONS AND RECORD OF ISSUE	DRW/DESIGN/APP
A	04/MAY/10			

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

DATE: 10/22/10 REV NO: 000000

**BLACK & VEATCH CORPORATION**

PROJECT: PORTLAND GENERAL ELECTRIC CARTY GENERATING STATION

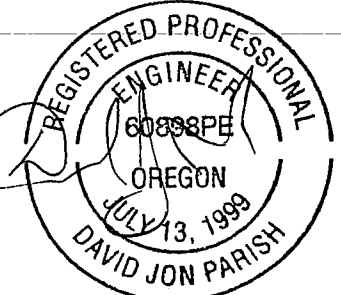
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DESIGNER: FIB DRAWN: JPH CHECKED: DATE: DATE: DATE:

EROSION CONTROL-SITE KEY PLAN & NOTES



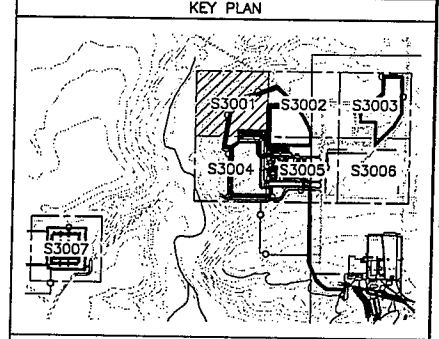
MATCHLINE - FOR CONTINUATION SEE DRAWING S3002



EXPIRATION DATE: 12/31/2010

**LEGEND**

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	WELL		ASPHALT
	TRANSMISSION TOWER		GRASS
	EXISTING TRANSMISSION TOWER		SEDIMENT FENCE

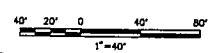


- NOTES**
- SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.
  - POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DEQ, IN AN ACTION PLAN, AT A LATER DATE.

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

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NO.	DATE	ISSUED FOR PERMITTING	REVISIONS AND RECORD OF ISSUE	BY	CHKD	APP
A	04/MAY/10	ISSUED FOR PERMITTING		JRH/FTB		



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SIGNED: DAVID JON PARISH  
 DATE: 13/APR/10 REG. NO.: 60898PE

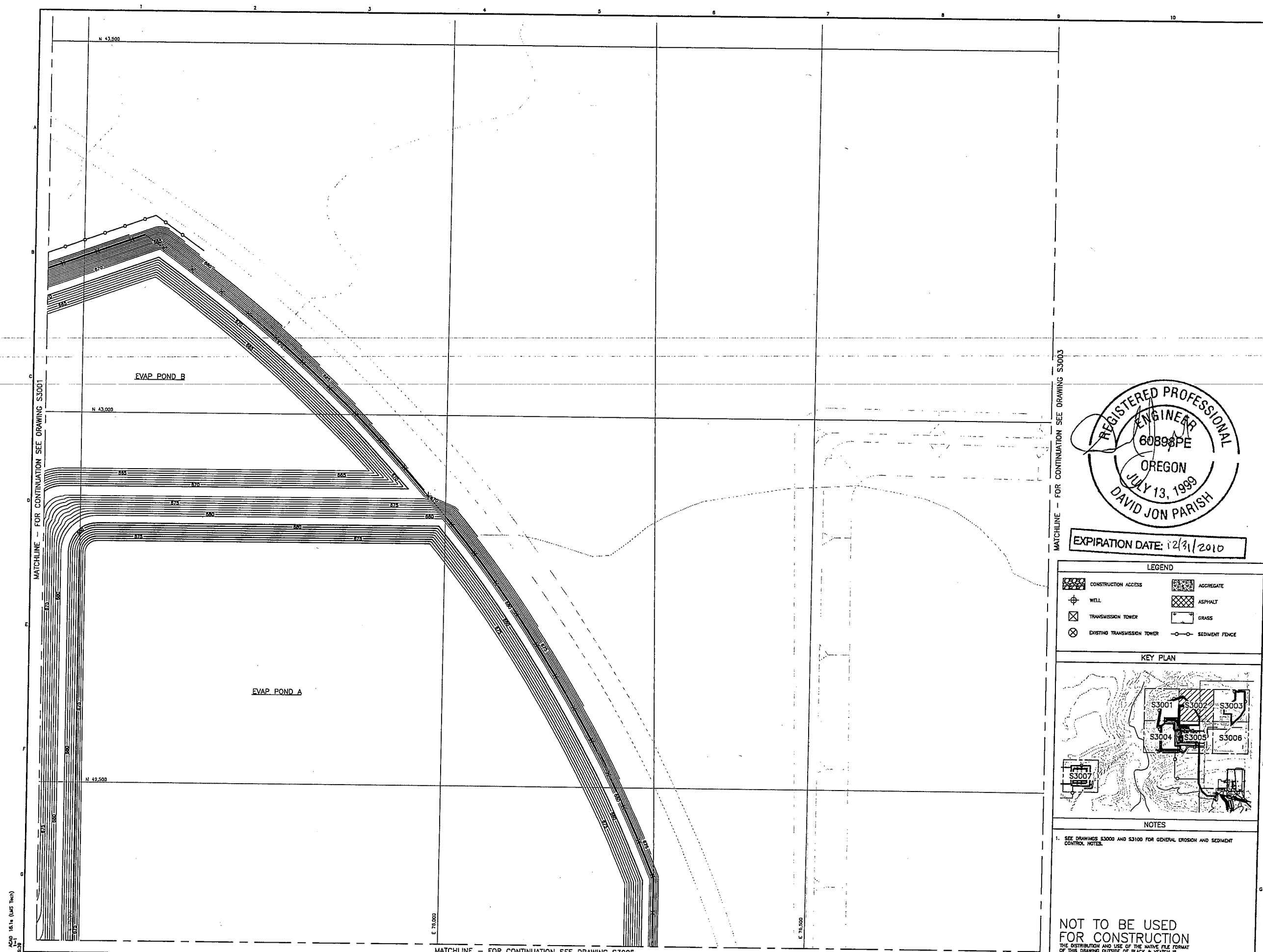
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DRAWN: JPH  
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**PORTLAND GENERAL ELECTRIC  
 CARTY GENERATING STATION**

GRADING AND DRAINAGE-SITE PLAN-AREA 1

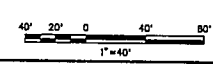
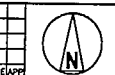
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NO	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	JRH/FTB	

MATCHLINE - FOR CONTINUATION SEE DRAWING S3005



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SIGNED: DAVID JON PARISH  
 DATE: 13/APR/10 REG NO. 50898PE

**BLACK & VEATCH**  
 CORPORATION

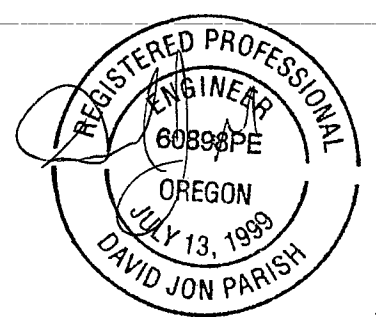
CHECKER: FTB  
 DRAWN: JPH  
 CHECKED: DATE

**PORTLAND GENERAL ELECTRIC**  
 CARTY GENERATING STATION

GRADING AND DRAINAGE-SITE  
 PLAN-AREA 2

PROJECT: 162110-DS-S3002  
 DRAWING NUMBER: A

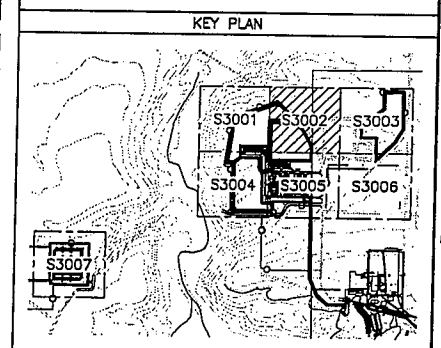
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EXPIRATION DATE: 12/31/2010

**LEGEND**

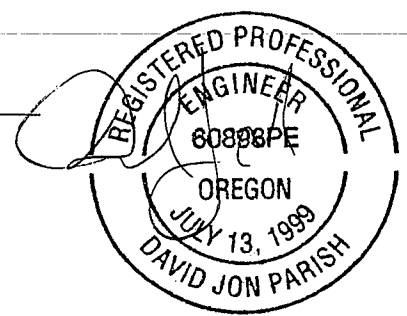
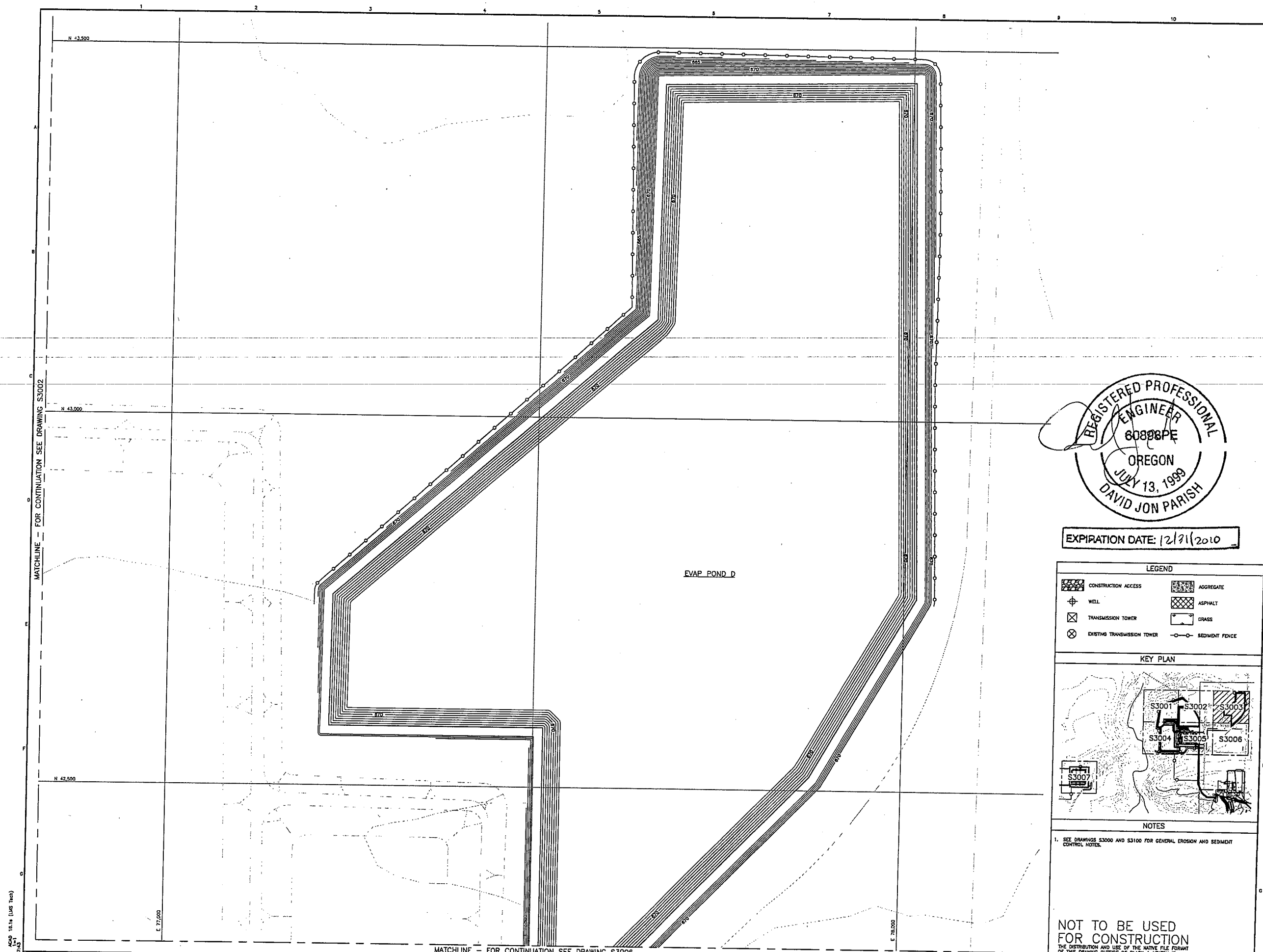
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WELL	ASPHALT
TRANSMISSION TOWER	GRASS
EXISTING TRANSMISSION TOWER	SEDIMENT FENCE



**NOTES**

1. SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.

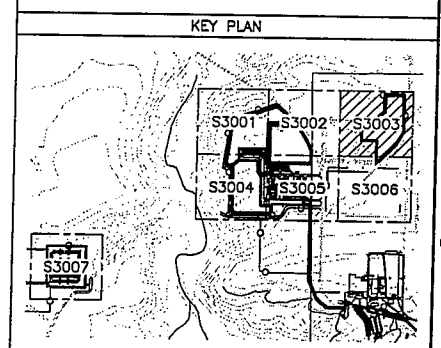
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EXPIRATION DATE: 12/31/2010

LEGEND

	CONSTRUCTION ACCESS		AGGREGATE
	WELL		ASPHALT
	TRANSMISSION TOWER		GRASS
	EXISTING TRANSMISSION TOWER		SEDIMENT FENCE



NOTES

- SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

QUALITY CONTROL  
 DATE: 05/04/10  
 BY: JPH

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	JPH	JPH

MATCHLINE - FOR CONTINUATION SEE DRAWING S3006

1"=40'

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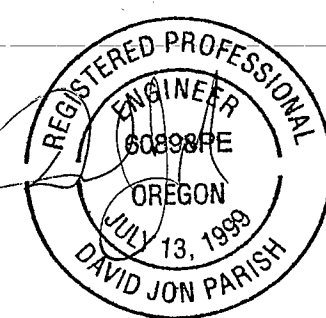
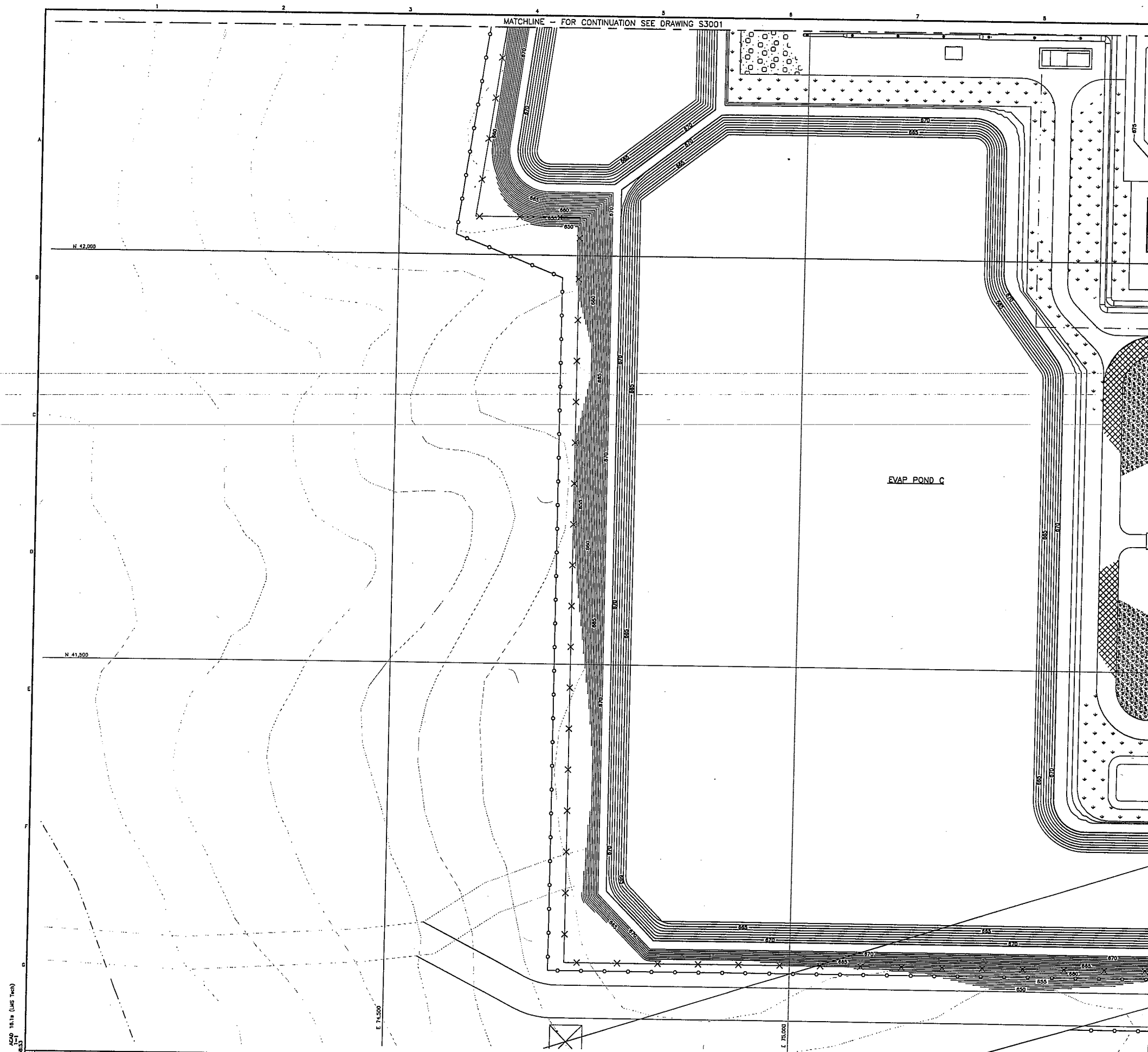
SIGNED: DAVID JON PARISH  
 DATE: 13/APR/10 REG. NO. 60898PE

BLACK & VEATCH CORPORATION  
 ENGINEER: JPH  
 CHECKED: JPH

PORTLAND GENERAL ELECTRIC  
 CARTY GENERATING STATION

PROJECT: 162110-DS-S3003  
 DRAWING NUMBER: S3007  
 DATE: 05/04/10  
 AREA: 3



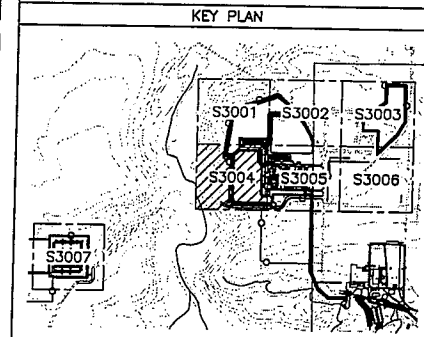


MATCHLINE -- FOR CONTINUATION SEE DRAWING S3005  
MATCHLINE -- FOR CONTINUATION SEE DRAWING S3001

EXPIRATION DATE: 12/31/2010

LEGEND

CONSTRUCTION ACCESS	AGGREGATE
WELL	ASPHALT
TRANSMISSION TOWER	GRASS
EXISTING TRANSMISSION TOWER	SEDIMENT FENCE

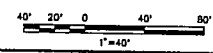


- NOTES
- SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.
  - POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DED, IN AN ACTION PLAN, AT A LATER DATE.

**NOT TO BE USED FOR CONSTRUCTION**  
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162110-DS-S3004  
162110-DS-S3004  
162110-DS-S3004

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
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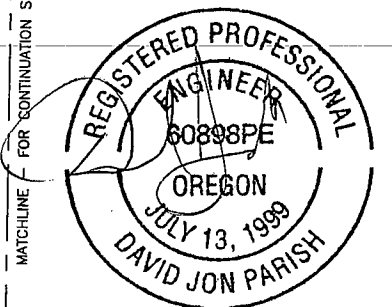
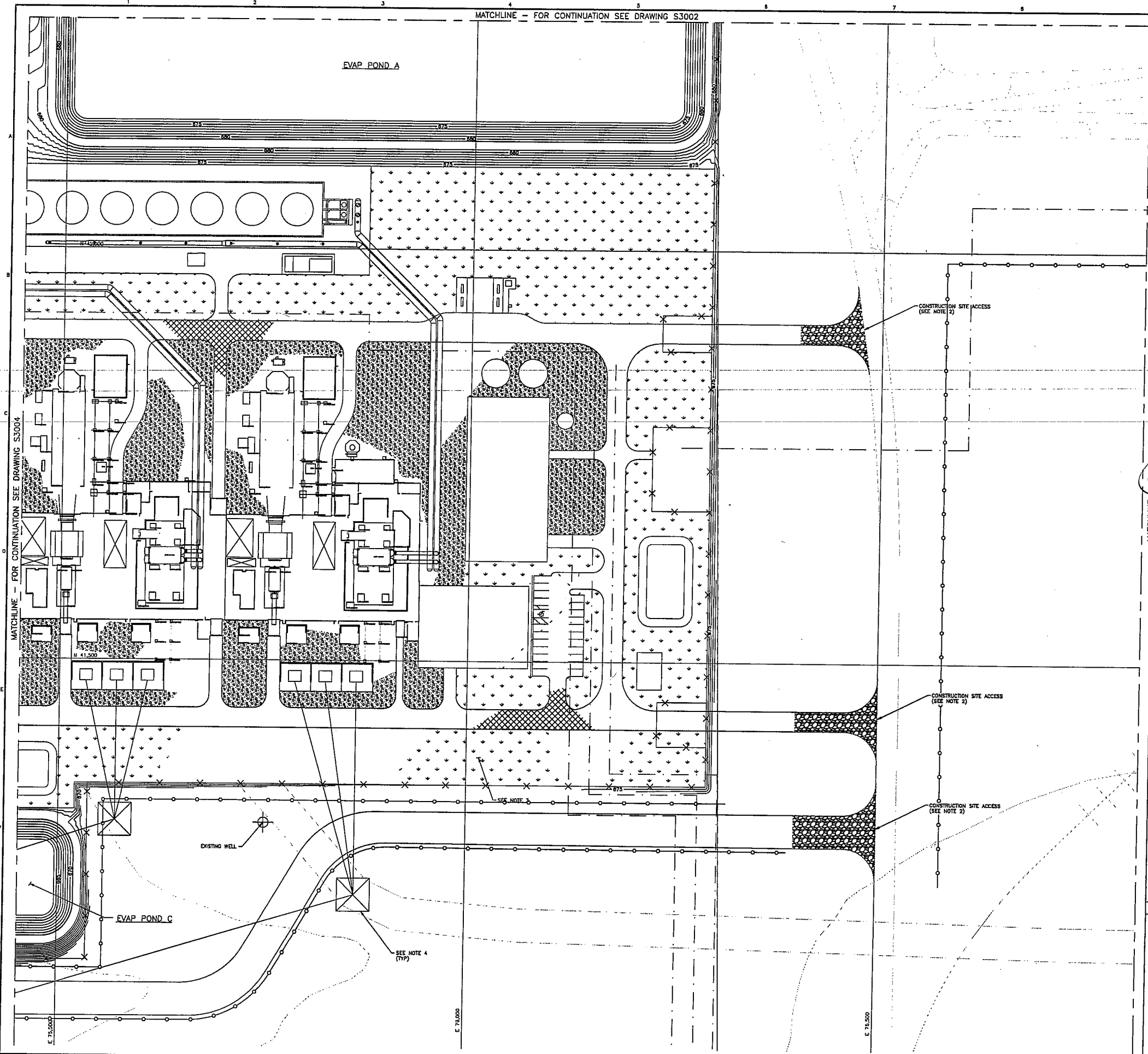


I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly registered PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

**BLACK & VEATCH**  
CORPORATION  
ENGINEER: FTB  
CHECKED: JRP  
DATE: 13/APR/10  
REG. NO.: 50898PE

**PORTLAND GENERAL ELECTRIC**  
CARTY GENERATING STATION  
GRADING AND DRAINAGE-SITE  
PLAN-AREA 4

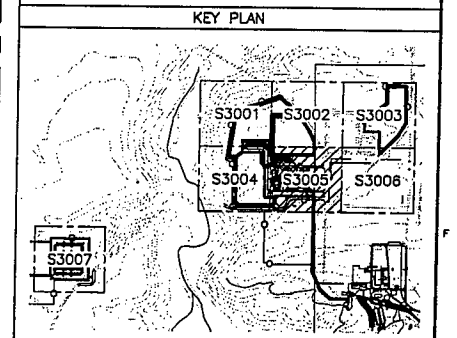
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EXPIRATION DATE: 12/31/2010

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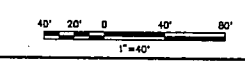


- NOTES
- SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.
  - SEE DRAWING S3920 FOR TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL.
  - POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DSD, IN AN ACTION PLAN, AT A LATER DATE.
  - SEE DRAWING S3921 FOR TRANSMISSION TOWER EROSION AND SEDIMENT CONTROL EXAMPLE.

**NOT TO BE USED FOR CONSTRUCTION**  
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PLANT 16.1s (LWS 16s)  
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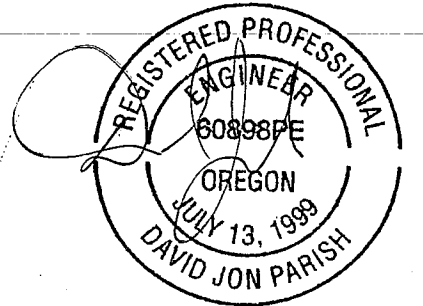
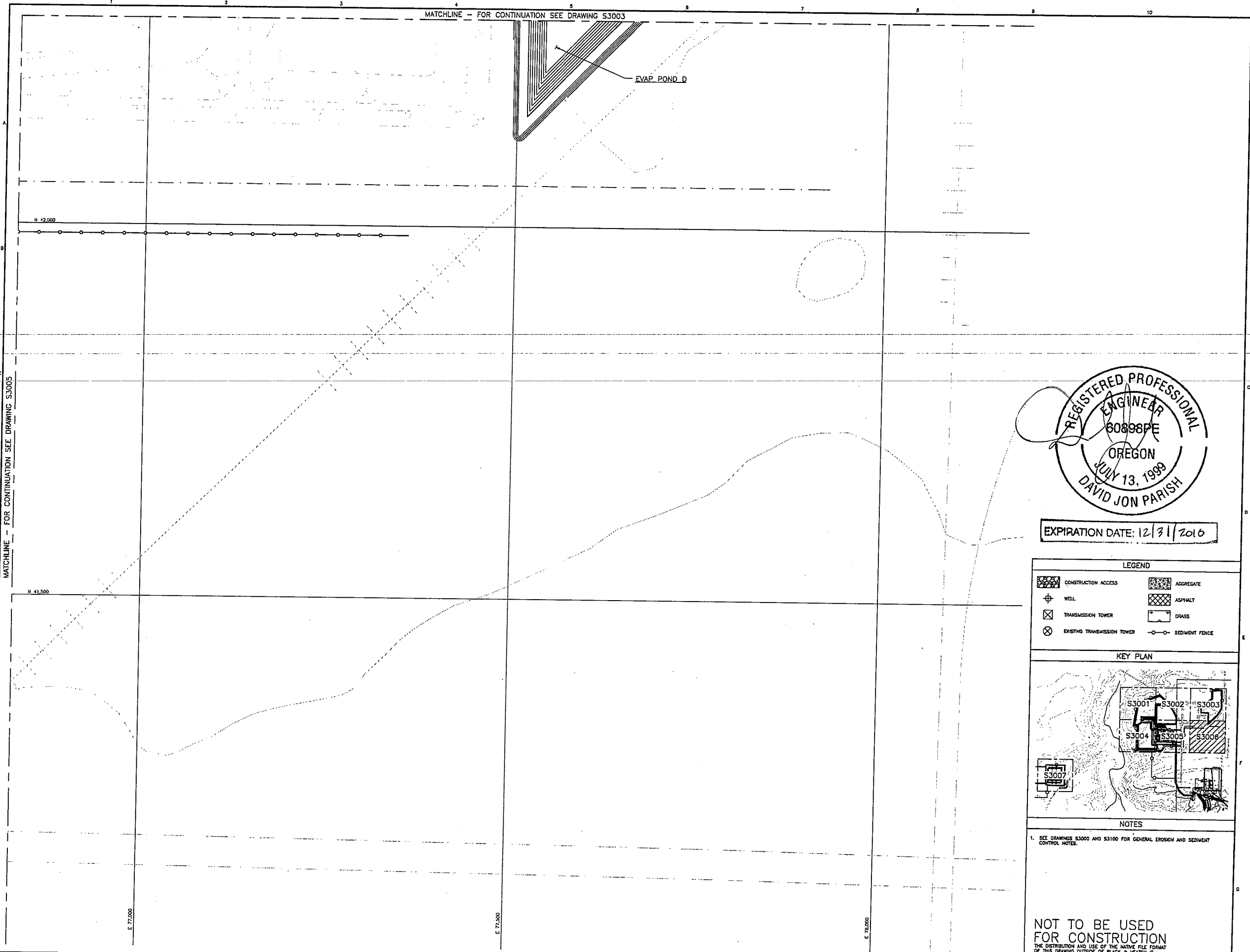


I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY CLOSE PERSONAL SUPERVISION AND THAT I AM A duly Licensed Professional Engineer under the laws of the State of Oregon.  
 DRAWN: DAVID JON PARISH  
 DATE: 11/APR/10 REG. NO.: 60898PE

**BLACK & VEATCH**  
A CORPORATION  
 ENGINEER: FTB  
 CHECKED: JRH

**PORTLAND GENERAL ELECTRIC**  
CARTY GENERATING STATION  
 GRADING AND DRAINAGE-SITE PLAN-AREA 5

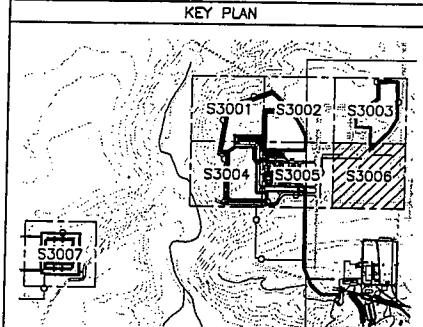
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EXPIRATION DATE: 12/31/2016

**LEGEND**

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	EXISTING TRANSMISSION TOWER		SEDIMENT FENCE



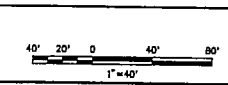
**NOTES**

1. SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

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 2/20/2010 07:48:31

NO.	DATE	REVISIONS AND RECORD OF ISSUE	DESIGNED	CHECKED	IN CHARGE
A	04/MAY/10	ISSUED FOR PERMITTING	JRM/FTB		



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SIGNED: DAVID JON PARISH  
 DATE: 12/29/15 REG. NO.: 60898PE

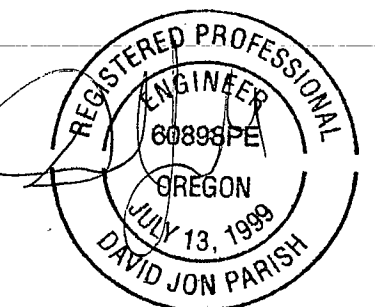
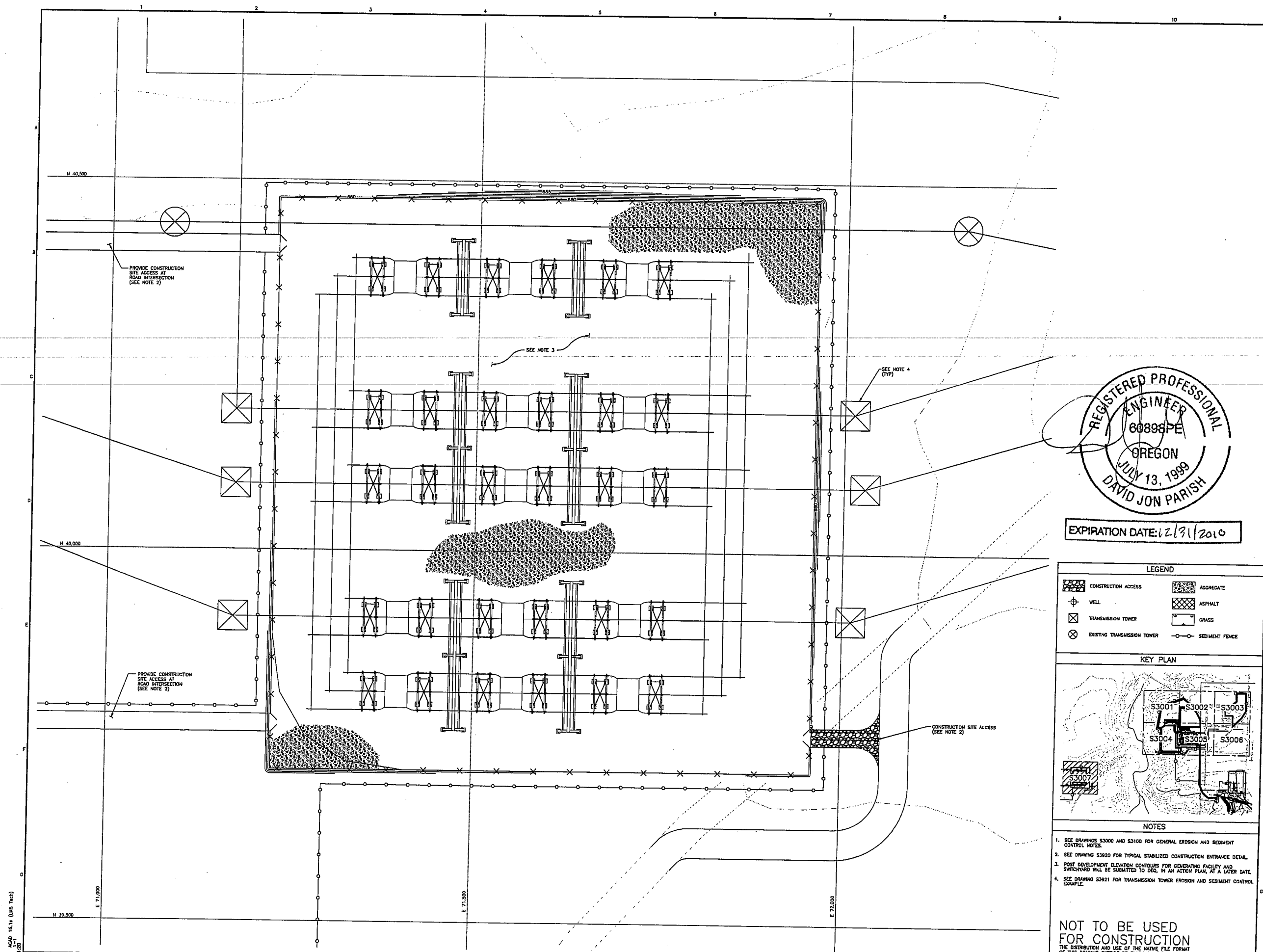
**BLACK & VEATCH CORPORATION**

ENGINEER: FTB  
 DRAWN: JRM  
 CHECKED: [ ]

**PORTLAND GENERAL ELECTRIC  
 CARTY GENERATING STATION**

GRADING AND DRAINAGE-SITE  
 PLAN-AREA 6

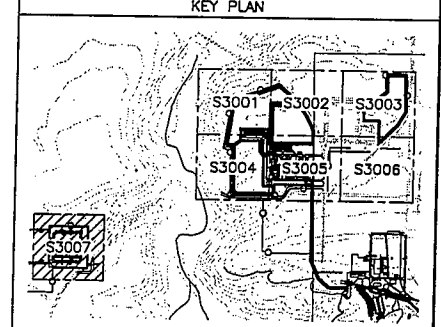
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EXPIRATION DATE: 12/31/2010

**LEGEND**

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	EXISTING TRANSMISSION TOWER		SEDIMENT FENCE

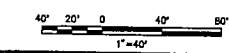


- NOTES**
- SEE DRAWINGS S3000 AND S3100 FOR GENERAL EROSION AND SEDIMENT CONTROL NOTES.
  - SEE DRAWING S3920 FOR TYPICAL STABILIZED CONSTRUCTION ENTRANCE DETAIL.
  - POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DED, IN AN ACTION PLAN, AT A LATER DATE.
  - SEE DRAWING S3921 FOR TRANSMISSION TOWER EROSION AND SEDIMENT CONTROL EXAMPLE.

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

60417779  
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 16.14 (LWS Tech)

NO	DATE	REVISIONS AND RECORD OF ISSUE	UNITS	DRWING	APP
A	04/MAY/10	ISSUED FOR PERMITTING			
NO					



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SIGNED: DAVID JON PARISH  
 DATE: 12/29/10 REG. NO. 60898PE

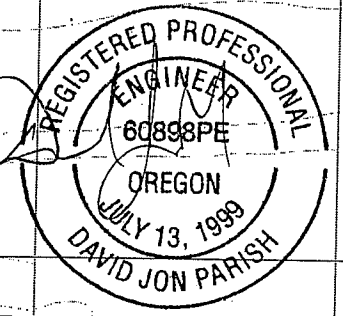
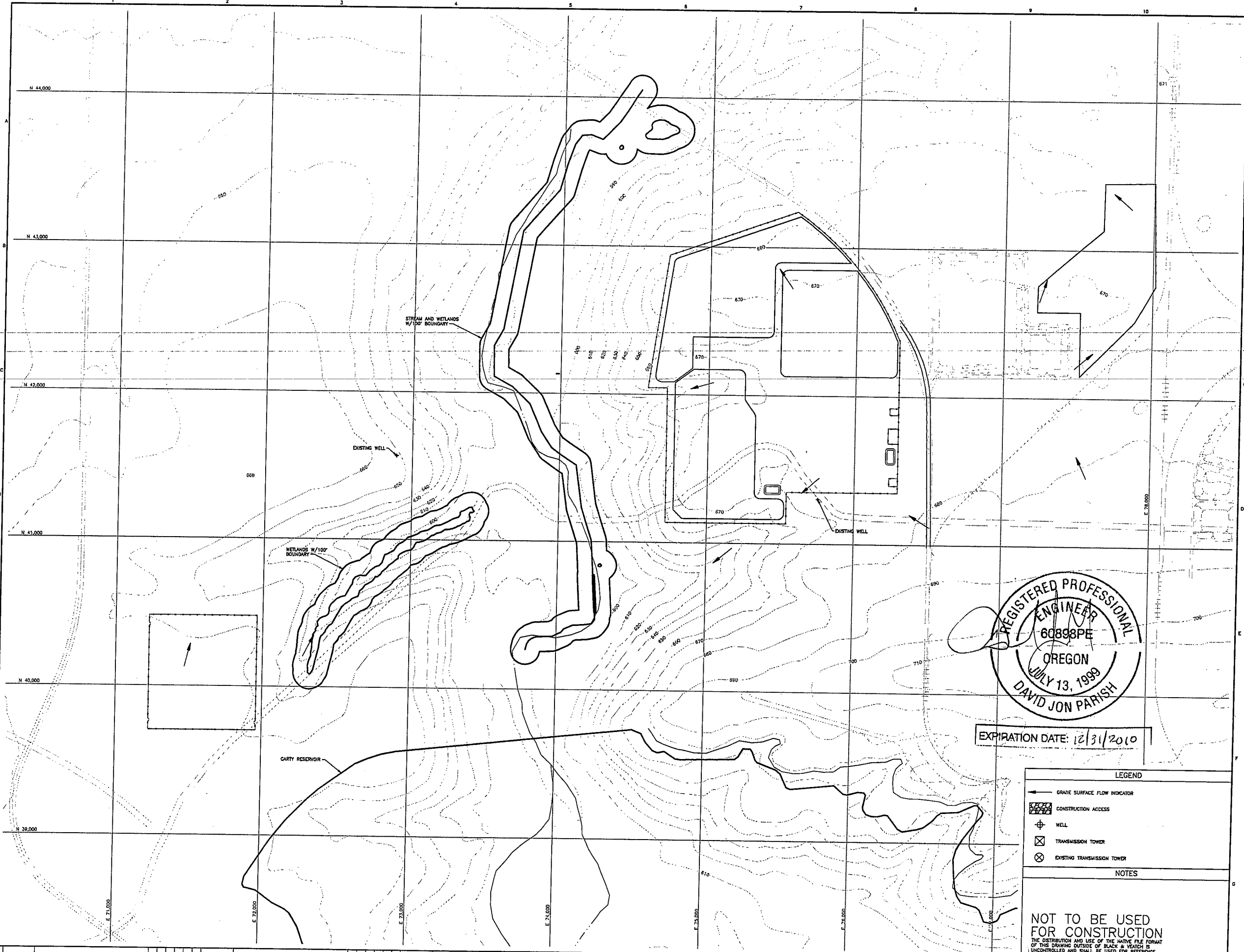
**BLACK & VEATCH CORPORATION**

DESIGNED: FTR  
 CHECKED: JRM  
 DATE:

**PORTLAND GENERAL ELECTRIC  
 CARTWRIGHT GENERATING STATION**

GRADING AND DRAINAGE-SITE  
 PLAN-AREA 7

PROJECT: 162110-DS-S3007  
 SHEET: A



EXPIRATION DATE: 12/31/2010

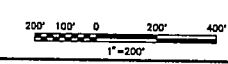
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	GRADE SURFACE FLOW INDICATOR
	CONSTRUCTION ACCESS
	WELL
	TRANSMISSION TOWER
	EXISTING TRANSMISSION TOWER

NOTES

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

10/17/79 4040 16.1x (16x trim)  
 AUGUST 17 11:41  
 13/2009/118

NO.	DATE	REVISIONS AND RECORD OF ISSUE	DESIGNED BY	CHECKED BY
A	04/MAY/10	ISSUED FOR PERMITTING	JRH/FTB	
			DAVID JON PARISH	

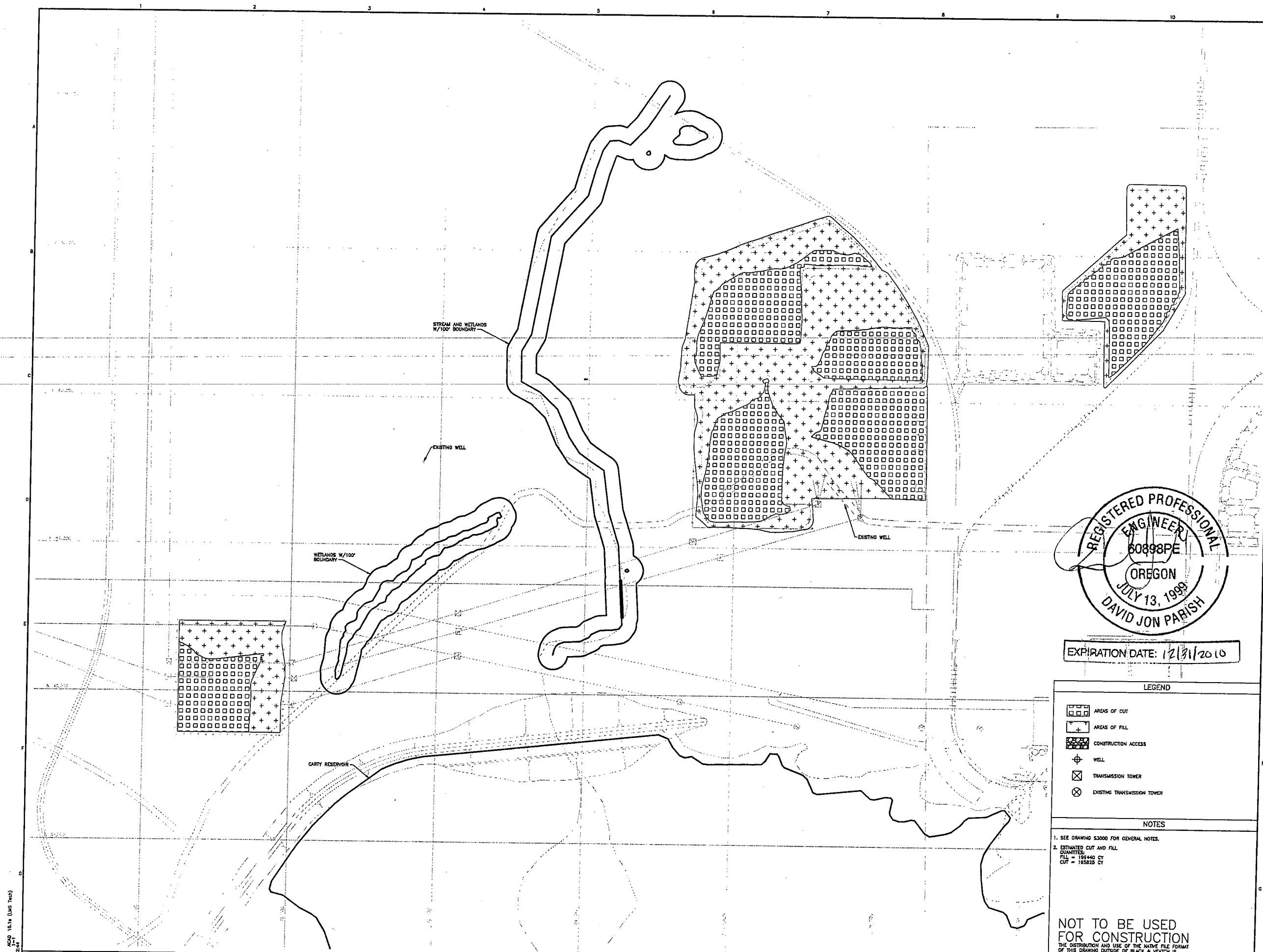


I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

**BLACK & VEATCH CORPORATION**  
 ENGINEER FTB DRAWN JRH  
 CHECKED DATE

**PORTLAND GENERAL ELECTRIC**  
 CARTY GENERATING STATION  
 GRADING AND DRAINAGE—SITE PRE-CONSTRUCTION DRAINAGE

PROJECT	162110-DS-S3040	DRAWING NUMBER	A
CODE		AREA	



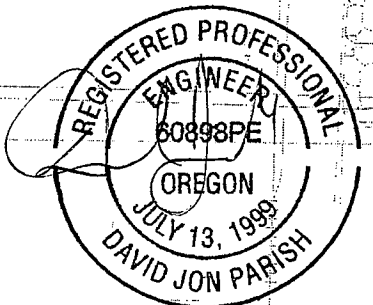
STREAM AND WETLANDS W/100' BOUNDARY

EXISTING WELL

WETLANDS W/100' BOUNDARY

EXISTING WELL

CARTY RESERVOIR



EXPIRATION DATE: 12/31/2010

LEGEND

	AREAS OF CUT
	AREAS OF FILL
	CONSTRUCTION ACCESS
	WELL
	TRANSMISSION TOWER
	EXISTING TRANSMISSION TOWER

NOTES

- SEE DRAWING S3000 FOR GENERAL NOTES.
- ESTIMATED CUT AND FILL QUANTITIES:  
 FILL = 198440 CY  
 CUT = 185828 CY

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

1621110-DS-S3041  
 04/24/10 07:42:41  
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NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	JRH/FTB	



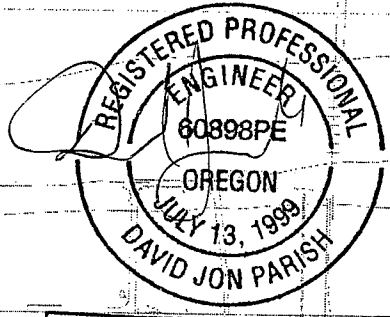
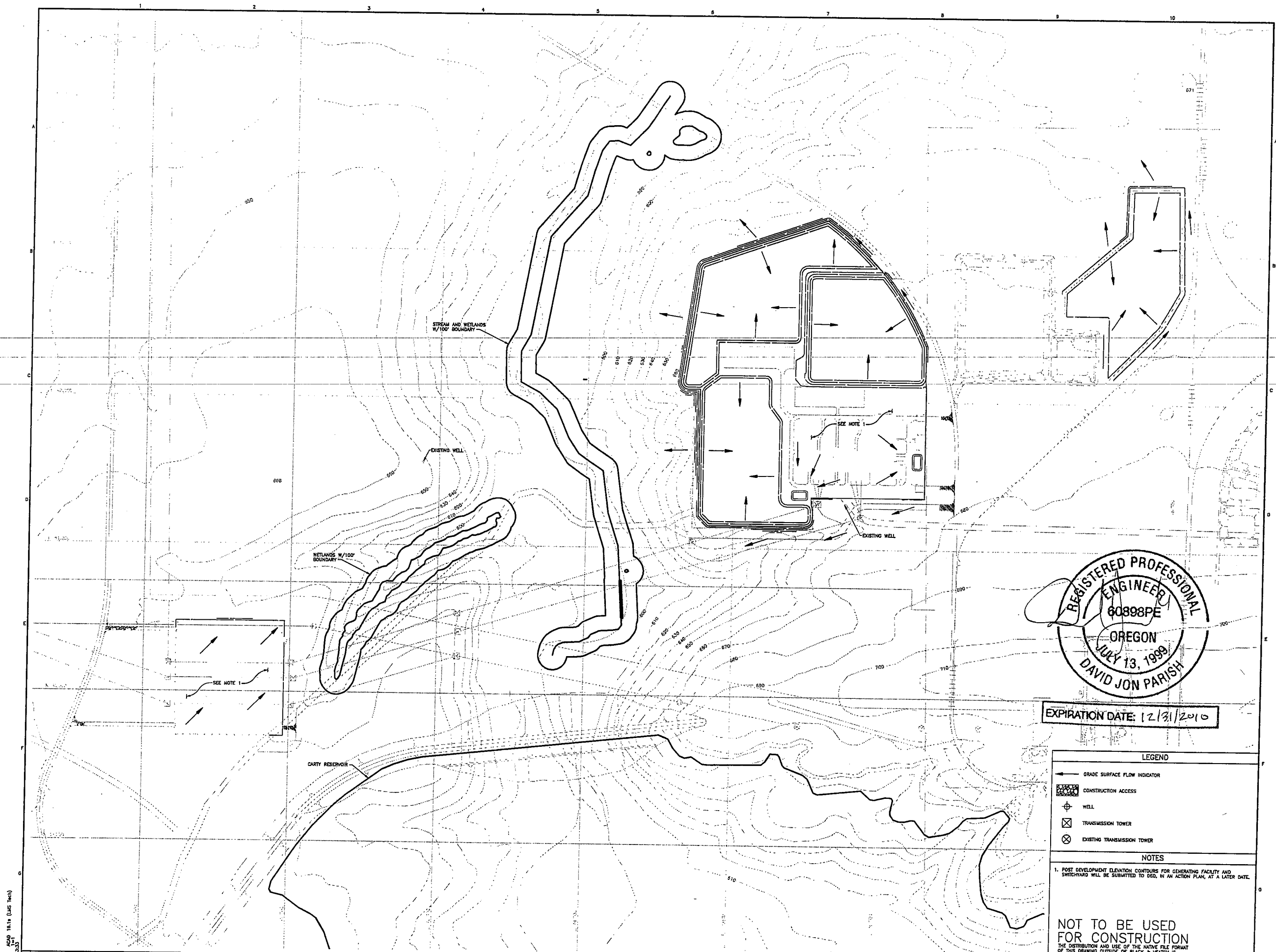
200' 100' 0 200' 400'  
 1"=200'

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.  
 SIGNED: DAVID JON PARISH  
 DATE: 12/29/10 REG. NO.: 60898PE

**BLACK & VEATCH**  
 CORPORATION  
 CHECKED: FTB DRAWN: JRH  
 DATE:

**PORTLAND GENERAL ELECTRIC**  
 CARTY GENERATING STATION  
 GRADING AND DRAINAGE-SITE  
 CUT/FILL AREAS-PLAN

PROJECT: 1621110-DS-S3041  
 DRAWING NUMBER: A  
 SHEET: AREA



EXPIRATION DATE: 12/31/2010

LEGEND	
	GRADE SURFACE FLOW INDICATOR
	CONSTRUCTION ACCESS
	WELL
	TRANSMISSION TOWER
	EXISTING TRANSMISSION TOWER

**NOTES**

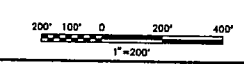
1. POST DEVELOPMENT ELEVATION CONTOURS FOR GENERATING FACILITY AND SWITCHYARD WILL BE SUBMITTED TO DEQ, IN AN ACTION PLAN, AT A LATER DATE.

**NOT TO BE USED FOR CONSTRUCTION**

THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

15/000077 E1  
 15/000077 D1  
 15/000077 C1  
 15/000077 B1  
 15/000077 A1

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	JRM/FTB	



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SIGNED: DAVID JON PARISH  
 DATE: 12/29/12 REG. NO.: 60898PE

**BLACK & VEATCH CORPORATION**

DESIGNED: FTB  
 DRAWN: JRM  
 CHECKED: DATE

**PORTLAND GENERAL ELECTRIC**  
 CARTY GENERATING STATION

GRADING AND DRAINAGE—SITE  
 POST—CONSTRUCTION DRAINAGE

PROJECT: 162110-DS-S3042  
 DRAWING NUMBER: A  
 CODE: JRM/A



**GENERAL NOTES**

1. PERMANENT VEGETATIVE COVER SHALL BE IN ACCORDANCE WITH THE OWNER APPROVED SEEDING MIX.

**SITE PREPARATION:**

1. INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
2. REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
3. TILLAGE SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDBED. WORK ON CONTOUR IF SITE IS SLOPING.

**ESTABLISHMENT:**

1. SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES AS SPECIFIED BY SEEDING SUPPLIER.
2. APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
3. UNLESS HYDROSEEDING, COVER SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
4. MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. APPLY STRAW OR HAY MULCH AND ANCHOR TO SLOPES GREATER THAN 3X OR WHERE CONCENTRATED FLOW WILL OCCUR.

**EROSION CHECKS**

**GENERAL:**

1. TEMPORARY PERVIOUS BARRIERS USING COMPOST SOCKS OR SEDIMENT FILTER FABRIC FASTENED TO A FENCE POST AND BURIED INTO THE GROUND, SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

**CONSTRUCTION:**

1. FILTER FABRIC SHALL BE SECURELY STITCHED AROUND A THREE FOOT (3') HIGH FENCE POST AND BURIED A MINIMUM OF SIX INCHES (6") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF SIX INCHES (6").

**INSTALLATION AND MAINTENANCE:**

1. COMPOST SOCKS SHALL BE INSTALLED AT ALL CULVERT INLETS.
2. ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
3. INSPECTION SHALL BE FREQUENT (AT MINIMUM WEEKLY AND AFTER ANY RAINFALL THAT EXCEEDS 1/2") AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
4. EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPEDE STORMWATER FLOW OR DRAINAGE.
5. SEDIMENT FENCE SHALL BE INSTALLED IN AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.

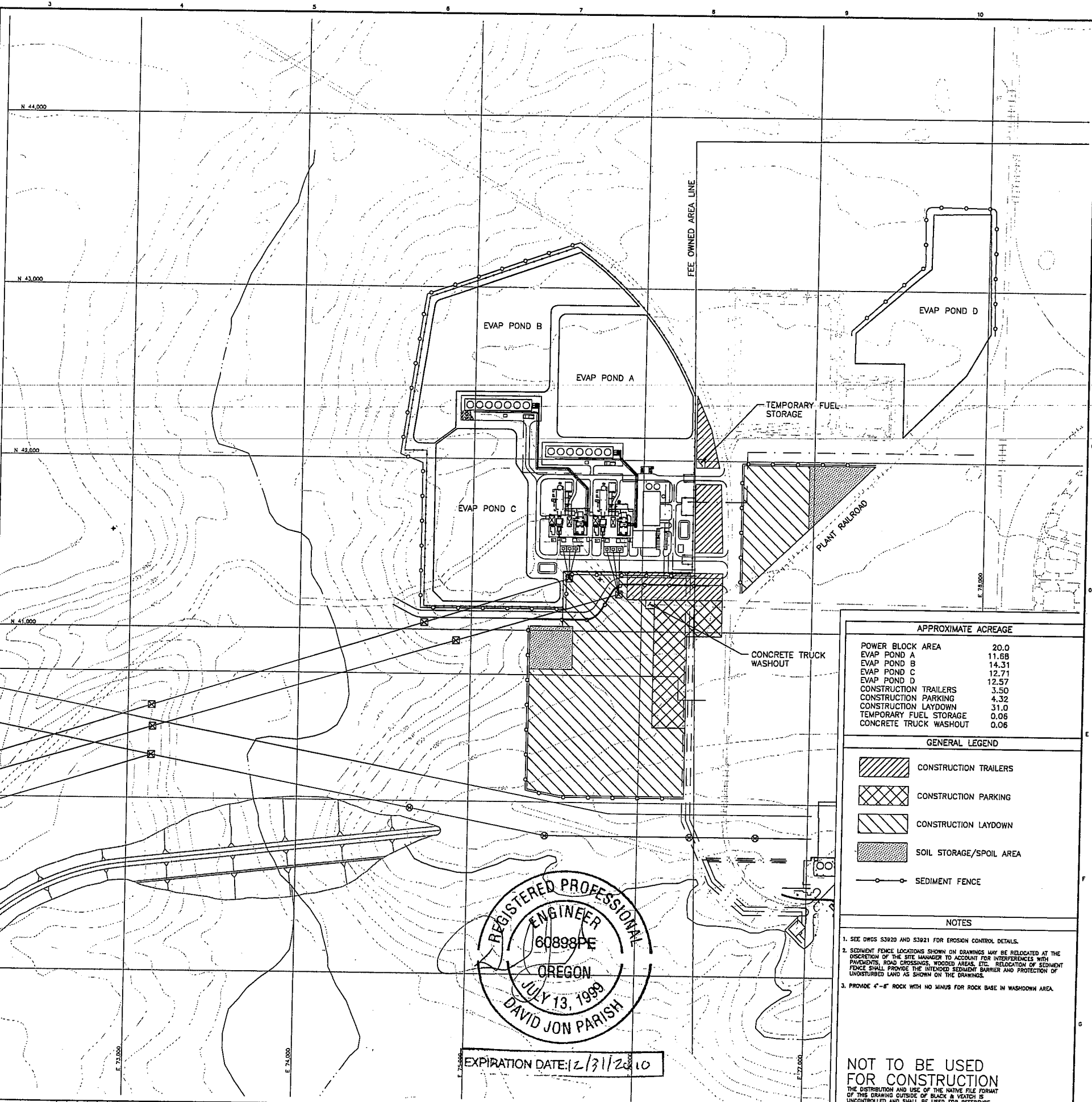
**SEDIMENT & EROSION CONTROL PLAN NOTES**

**GENERAL:**

1. THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.
2. IN GENERAL, ALL CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER SO AS NOT TO POLLUTE ANY WETLANDS, WATERCOURSE, WATERBODY, AND CONDUIT CARRYING WATER, ETC. THE CONTRACTOR SHALL LIMIT, INsofar AS POSSIBLE, THE SURFACE AREA OF EARTH MATERIALS EXPOSED BY CONSTRUCTION METHODS AND IMMEDIATELY PROVIDE PERMANENT AND TEMPORARY POLLUTION CONTROL MEASURES TO PREVENT CONTAMINATION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, INsofar AS POSSIBLE, EROSION ON THE SITE.
3. REFERENCE THE DOCUMENT "EROSION AND SEDIMENT PLAN WORKSHEET" FOR ADDITIONAL REQUIREMENTS.

**SITE GRADING**

1. THE RESHAPING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRADES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
  - a. THE PERMANENT CUT FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), UNM.
  - b. THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), UNM.
  - c. TEMPORARY CONSTRUCTION FACES OF FILLS AND EXCAVATION CUTS SHALL NOT BE STEEPER THAN ONE AND A HALF HORIZONTAL TO VERTICAL (1.5:1).
  - d. PROVISION SHOULD BE MADE TO CONDUIT SURFACE WATER SAFELY TO DRAINAGE AREAS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
  - e. NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON ADJACENT WETLANDS, WATERCOURSES, OR WATERBODIES.
  - f. PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE ENTRANCE TO THE WORK AREA IN ORDER TO REDUCE MUD AND OTHER SEDIMENTS FROM LEAVING THE SITE.



**APPROXIMATE ACREAGE**

POWER BLOCK AREA	20.0
EVAP POND A	11.68
EVAP POND B	14.31
EVAP POND C	12.71
EVAP POND D	12.57
CONSTRUCTION TRAILERS	3.50
CONSTRUCTION PARKING	4.32
CONSTRUCTION LAYDOWN	31.0
TEMPORARY FUEL STORAGE	0.06
CONCRETE TRUCK WASHOUT	0.06

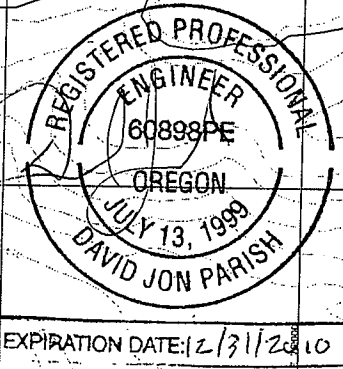
**GENERAL LEGEND**

	CONSTRUCTION TRAILERS
	CONSTRUCTION PARKING
	CONSTRUCTION LAYDOWN
	SOIL STORAGE/SPOIL AREA
	SEDIMENT FENCE

- NOTES**
1. SEE DWGS S3920 AND S3921 FOR EROSION CONTROL DETAILS.
  2. SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS MAY BE RELOCATED AT THE DISCRETION OF THE SITE MANAGER TO ACCOMMODATE INTERFERENCES WITH PAVEMENTS, ROAD CROSSINGS, WOODED AREAS, ETC. RELOCATION OF SEDIMENT FENCE SHALL PROVIDE THE INTERLOCKED SEDIMENT BARRIER AND PROTECTION OF UNDISTURBED LAND AS SHOWN ON THE DRAWINGS.
  3. PROVIDE 4"-6" ROCK WITH NO MINUS FOR ROCK BASE IN WASHDOWN AREA.

**NOT TO BE USED FOR CONSTRUCTION**

THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.



16.1x (LWS TRN)  
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 05/05/10 07:44:28

NO.	DATE	REVISIONS AND RECORD OF ISSUE	DESIGNED	CHECKED	DATE
A	04/MAY/10	ISSUED FOR PERMITTING	JRH/FTB		
			JRH/FTB		

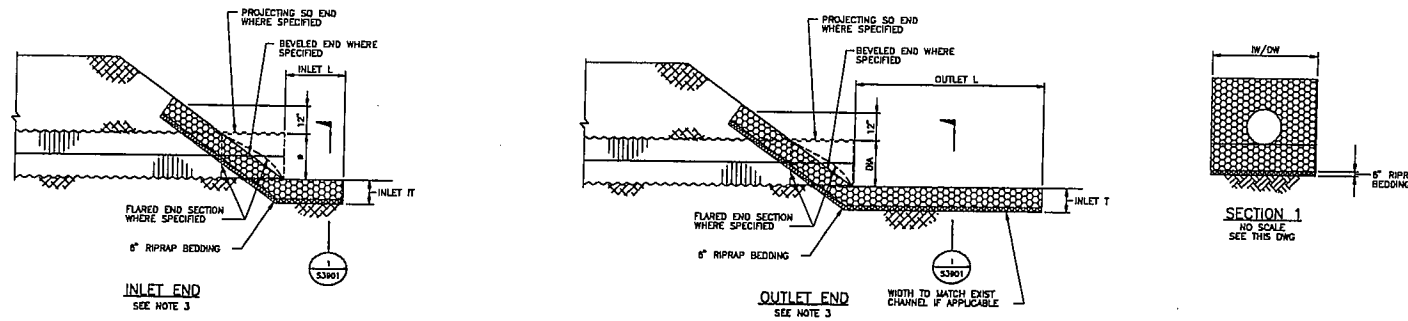
BLACK & VEATCH CORPORATION

PORTLAND GENERAL ELECTRIC  
CARTY GENERATING STATION

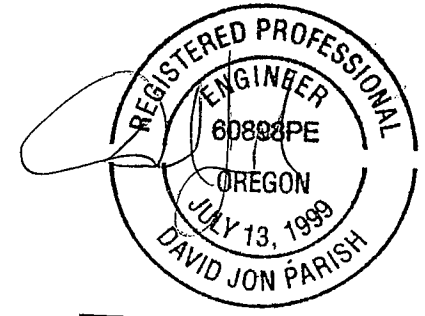
EROSION CONTROL-SITE  
OVERALL PLANT SITE-PLAN

PROJECT	162110-DS-S3100	DRAWING NUMBER	A
AREA			





TYPICAL CULVERT RIPRAP  
NO SCALE



EXPIRATION DATE: 2/31/2010

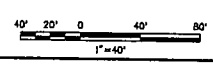
NOTES

1. GRADATION OF RIPRAP BEDDING SHALL BE ACCORDING TO ODOT STANDARD SPECIFICATIONS FOR HIGHWAY CONSTRUCTION, SECTION 00390, CLASS 50.
2. A MINIMUM 12" OF COVER SHALL BE MAINTAINED OVER CULVERTS AT ALL TIMES IN AREAS WHERE TRAFFIC CROSSES OVER THE CULVERT. COVER SHALL BE BUILT UP TO PROVIDE THIS MINIMUM UNTIL PAVING IS DONE.
3. PLACE AN EROSION CONTROL BLANKET INSTEAD OF RIPRAP IN AREAS TO BE SEDED.

NOT TO BE USED FOR CONSTRUCTION  
THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

16.1x (14.5 inch)  
 1"=40'  
 05/24/10 07:45:13

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	URHFTB	



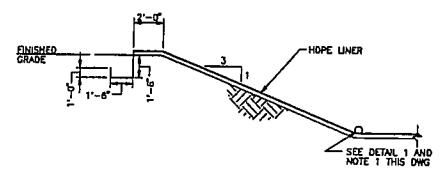
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A duly registered PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

SIGNED: DAVID JON PARISH  
 DATE: 12/09/10 REG. NO. 60888PE

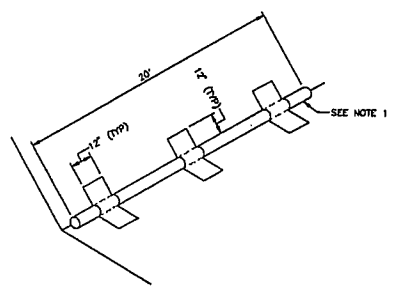
**BLACK & VEATCH**  
CORPORATION

CHECKED: FTB  
 DRAWN: JRI

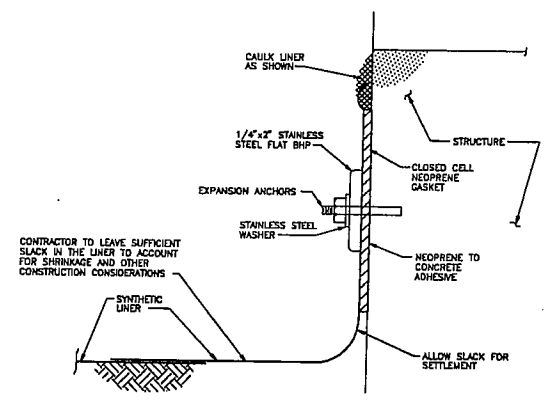
PORTLAND GENERAL ELECTRIC CARTY GENERATING STATION	PROJECT 162110-DS-S3901	DRAWING NUMBER A
GRADING AND DRAINAGE-SITE CULVERT AND RIPRAP DETAILS	CODE	REV



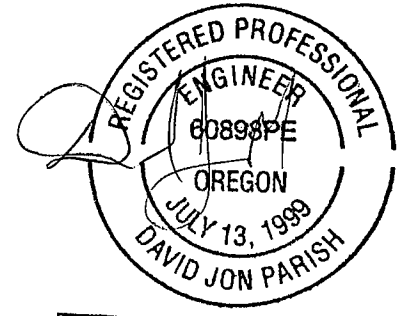
POND LINER DETAIL  
NO SCALE



DETAIL 1  
NO SCALE  
SEE THIS DWG



TYPICAL STRUCTURE/LINER CONNECTION  
NO SCALE



EXPIRATION DATE: 12/31/2010

NOTES

1. PLACE 8" HOPE SDR11 PIPE FILLED WITH CONCRETE AT TOE OF SLOPE TO HOLD DOWN THE LINER. PIPES SHALL BE 20 FEET LONG AND SHALL BE PLACED AROUND ENTIRE TOE WITH APPROXIMATELY 5 FEET LONGITUDINAL GAPS BETWEEN PIPES.

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

PROJECT	PORTLAND GENERAL ELECTRIC CARTY GENERATING STATION	DRAWING NUMBER	182110-DS-S39D2	REV	A
AREA	GRADING AND DRAINAGE-SITE TYPICAL POND LINER DETAILS	CODE			

BENTLEY B1 ACAD 16.1.16 (LMS Tech)  
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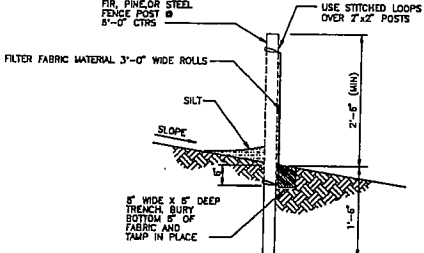
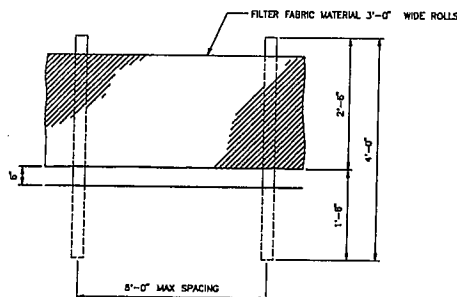
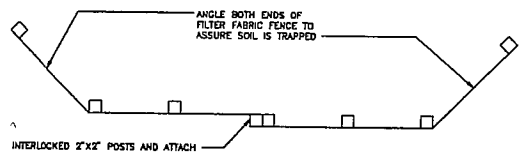


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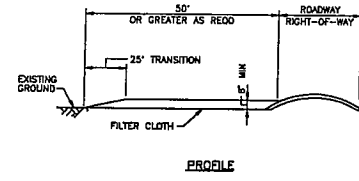
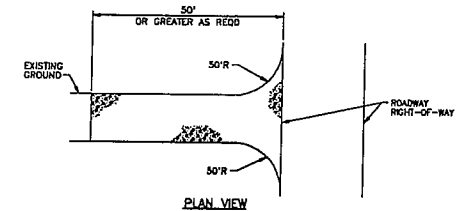
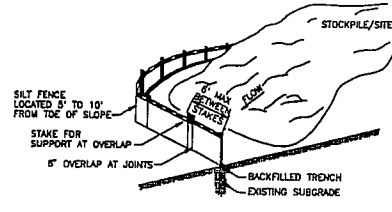
SIGNED: DAVID JON PARISH  
DATE: 13/02/10, REG. NO. 60898PE

BLACK & VEATCH CORPORATION  
ENGINEER: JTB, DRAWN: JSH, CHECKED: DATE

PORTLAND GENERAL ELECTRIC  
CARTY GENERATING STATION



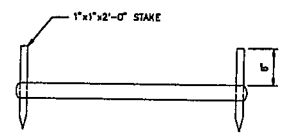
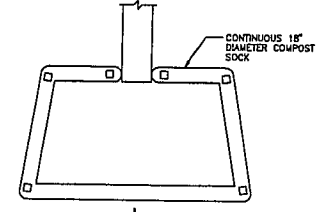
- NOTES:
1. BURY BOTTOM OF FILTER FABRIC 6" VERTICALLY BELOW FINISHED GRADE.
  2. 2"x2" FIR, PINE OR STEEL FENCE POSTS.
  3. STITCHED LOOPS TO BE INSTALLED ON UP HILL SIDE OF SLOPE.
  4. COMPACT ALL AREAS OF FILTER FABRIC TRENCH.



TYPICAL STABILIZED CONSTRUCTION ENTRANCE

NO SCALE

SEE NOTE 2 AND 3

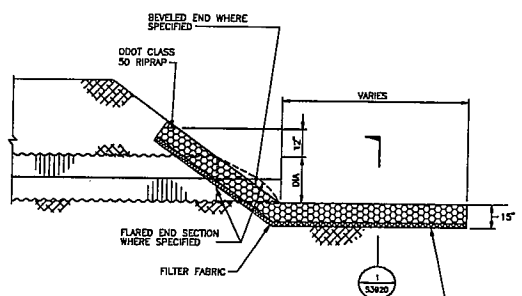
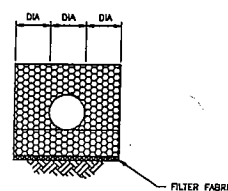
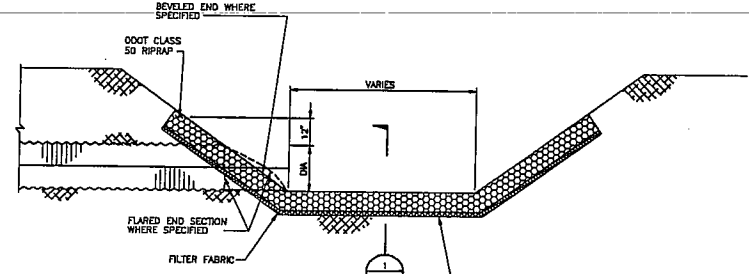


COMPOST SOCK SEDIMENT BARRIER

NO SCALE

SEDIMENT FENCE-DETAIL

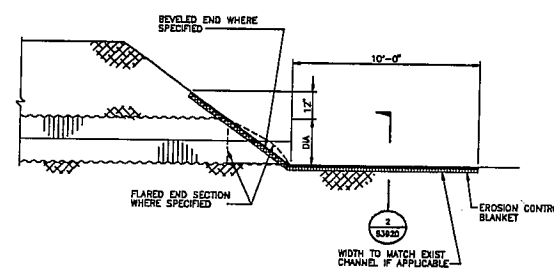
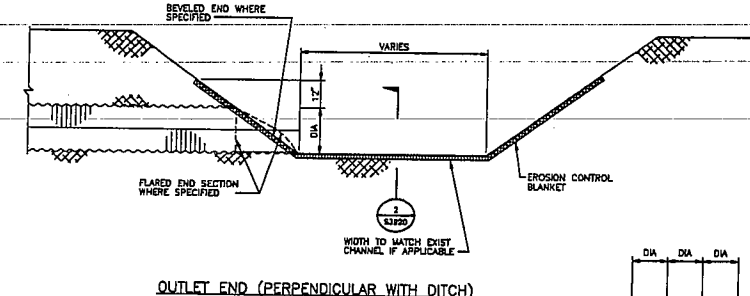
NO SCALE



TYPICAL CULVERT TRENCH DRAIN OUTLET PROTECTION (TYPE 1)

NO SCALE

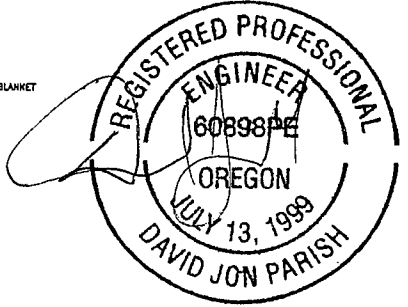
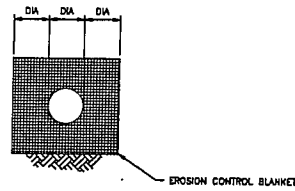
SEE NOTE 4



TYPICAL CULVERT TRENCH DRAIN OUTLET PROTECTION (TYPE 2)

NO SCALE

SEE NOTE 5



EXPIRATION DATE: 12/31/2010

- NOTES
1. THIS METHOD OF INLET PROTECTION IS APPLICABLE WHERE HEAVY CONCENTRATED FLOWS ARE EXPECTED BUT NOT WHERE PONDING AROUND THE STRUCTURE MIGHT CAUSE EXCESSIVE INCONVENIENCE OR DAMAGE TO ADJACENT STRUCTURES AND UNPROTECTED AREAS.
  2. PROVIDE APPROPRIATE TRANSITION BETWEEN STABILIZED CONSTRUCTION ENTRANCE AND PUBLIC R.O.W.
  3. DESIGN CRITERIA FOR STABILIZED CONSTRUCTION ENTRANCE.
    - A. STONE SIZE - USE 6-8 QUARRY SPALLS WITH NO MINUS.
    - B. THICKNESS - NOT LESS THAN 8 INCHES.
    - C. WIDTH - NOT LESS THAN FULL WIDTH OF POINTS OF INGRESS OR EGRESS.
    - D. LENGTH - 50 FEET MINIMUM WHERE THE SOILS ARE SANDS OR GRAVEL OR 100 FEET MINIMUM WHERE SOILS ARE CLAYS OR SILTS, EXCEPT WHERE THE TRAVELED LENGTH IS LESS THAN 50 OR 100 FEET RESPECTIVELY. THESE LENGTHS MAY BE INCREASED WHERE FIELD CONDITIONS DICTATE.
    - E. FILTER CLOTH - WILL BE PLACED OVER ENTIRE AREA PRIOR TO PLACING OF STONE.
    - F. MAINTENANCE - THE ENTRANCE SHALL BE MAINTAINED IN A CONDITION WHICH WILL PREVENT TRACKING OR FLOWING OF SEDIMENT ON TO PUBLIC RIGHT-OF-WAY THIS MAY REQUIRE PERIODIC TOP DRESSING WITH ADDITIONAL STONE OR ADDITIONAL LENGTH AS CONDITIONS DEMAND AND REPAIR AND/OR CLEANOUT OF ANY MEASURES USED TO TRAP SEDIMENT, ALL SEDIMENT SPILLED, DROPPED, WASHED OR TRACKED ONTO PUBLIC RIGHT-OF-WAY MUST BE REMOVED IMMEDIATELY.
  4. USE TYPE 1 OUTLET PROTECTION IN AREAS TO BE SURFACED WITH AGGREGATE AND LEAVE THE RIPRAP IN PLACE AFTER CONSTRUCTION.
  5. USE TYPE 2 OUTLET PROTECTION IN AREAS TO BE SEEDED.

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE NATIVE FILE FORMAT OF THIS DRAWING OUTSIDE OF BLACK & VEATCH IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

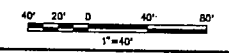
18.14 (LWS TRENCH)

ACAD

20/04/10

01:48:37

NO.	DATE	REVISIONS AND RECORD OF ISSUE	DESIGNED	CHECKED	IN CHARGE
1	04/MAY/10	ISSUED FOR PERMITTING	JRH/FTB		
2					



I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY SUPERVISION AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

DAVID JON PARISH

DATE 12/22/10 REG NO. 60898PE

BLACK & VEATCH CORPORATION

ENGINEER FTB DRAWN JRH

CHECKED DATE

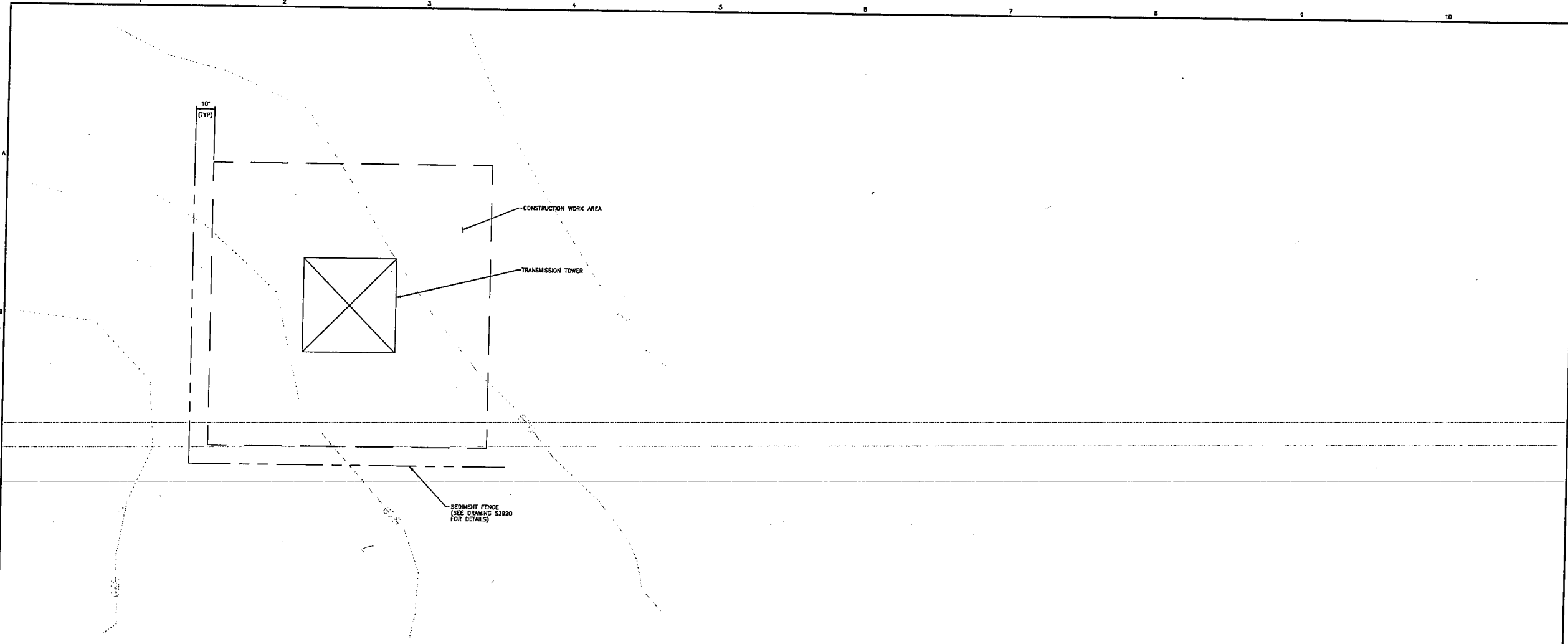
PORTLAND GENERAL ELECTRIC CARTY GENERATING STATION

PROJECT DRAWING NUMBER

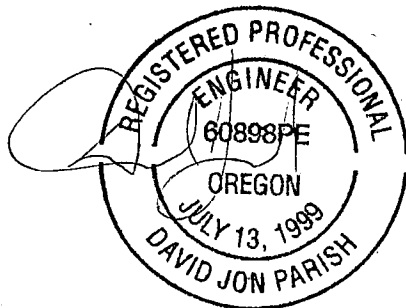
162110-DS-S3920

AREA

EROSION CONTROL-SITE SECTIONS AND DETAILS



TRANSMISSION TOWER  
EROSION CONTROL AND SEDIMENT PLAN  
(FOR EXAMPLE ONLY)  
N.T.S.



EXPIRATION DATE: 12/31/2010

NOTES

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FOR CONSTRUCTION

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PURPOSES ONLY.

15.1s (48s Tech)  
 05/04/10  
 05/04/10

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHKD
A	04/MAY/10	ISSUED FOR PERMITTING	URH/TB	

I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A QUALIFIED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF OREGON.

DESIGNED BY: DAVID JON PARISH  
DATE: 13/APR/10

BLACK & VEATCH CORPORATION  
PORTLAND, OREGON

PORTLAND GENERAL ELECTRIC  
CARTY GENERATING STATION

EROSION CONTROL-SITE  
DETAILS

PROJECT: 162110-DS-S3921  
DRAWING NUMBER: S3921  
REV: A



September 20, 2010

Ms. Jackie Ray  
Oregon Department of Environmental Quality – Eastern Region  
Permit Coordinator  
700 SE Emigrant, Suite 330  
Pendleton, OR 97801

**Re: Application for National Pollutant Discharge Elimination System 1200-C Permit  
Carty Generating Station – Revised Drawings and Contact Information**

Dear Ms. Ray:

Please find attached four revised erosion and sediment control plan (ESCP) drawings for the Carty Generating Station Application for National Pollutant Discharge Elimination System (NPDES) 1200-C Permit. Revisions were made to the four attached drawings to address comments received from Todd Hesse of the Department of Environmental Quality on August 10, and August 25, 2010. Please also note that the contact information for the ESCP has changed from Mr. Francis Busch to Mr. James Gettinger, whose contact information is provided below.

James Gettinger  
Black & Veatch Project Manager  
11401 Lamar Ave.  
Overland Park, KS 66211  
(913) 458-2543  
[GettingerJE@bv.com](mailto:GettingerJE@bv.com)

If you have any questions regarding the revised drawings please contact Mr. Gettinger. If you have any questions or comments related to the Application for Site Certificate for the facility you can contact me at (503) 248-5600 x 4618 or [ewhite@ene.com](mailto:ewhite@ene.com); or Lenna Cope at (503) 248-5600 x 4603 or [lcope@ene.com](mailto:lcope@ene.com).

Sincerely,

Eric White  
Project Manager

Enclosures: 4 drawings

cc: Jaisen Mody, PGE  
Ray Hendricks, PGE  
James Gettinger, Black & Veatch





# EROSION AND SEDIMENT CONTROL PLANS

## APPLICANT

PORTLAND GENERAL ELECTRIC COMPANY  
CONTACT: RAY HENRICKS  
121 SW SALMON STREET, JWC-8905  
PORTLAND, OR 97204  
PHONE: 503.248.1100  
EMAIL: Ray.Henricks@pg&e.com

## NARRATIVE DESCRIPTION

- EXISTING SITE CONDITIONS
- UNDEVELOPED AND TERRESTRIAL FARMLAND
- DEVELOPED SITE CONDITIONS
- NATURAL GAS FUEL COMBINED-CYCLE GENERATING FACILITY WITH ASSOCIATED SWITCHYARD AND 18-MILE TRANSMISSION LINE
  - NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE
  - WATER DIVERSION (TBO)
  - WASTE GRADING (TBO)
  - UTILITY INSTALLATION (TBO)
  - CONSTRUCTION OF TRANSMISSION LINE CONSTRUCTION (TBO)
  - FINAL STABILIZATION (TBO)
- AN ESTIMATED TIME TABLE WILL BE SUBMITTED TO AND ACCEPTED BY DED, IN AN ACTION PLAN, PRIOR TO COMMENCING WORK.

GENERATING FACILITY  
TOTAL PERMANENT DISTURBED AREA = 8,494,200 SF = 195 ACRES  
TOTAL TEMPORARY DISTURBED AREA = 4,356,000 SF = 100 ACRES

TRANSMISSION LINE  
TOTAL PERMANENT DISTURBED AREA = 522,720 SF = 12 ACRES

SITE SOIL CLASSIFICATIONS



NOTE: SITE LOCATION MAP IS PROVIDED SEPARATELY

## DRAWING INDEX

### EROSION AND SEDIMENT CONTROL PLANS

- S3000 - EROSION CONTROL
  - S3001 - GRADING AND DRAINAGE
  - S3002 - GRADING AND DRAINAGE
  - S3003 - GRADING AND DRAINAGE
  - S3004 - GRADING AND DRAINAGE
  - S3005 - GRADING AND DRAINAGE
  - S3006 - GRADING AND DRAINAGE
  - S3007 - GRADING AND DRAINAGE
  - S3040 - GRADING AND DRAINAGE
  - S3041 - GRADING AND DRAINAGE
  - S3100 - EROSION CONTROL
  - S3901 - GRADING AND DRAINAGE
  - S3902 - GRADING AND DRAINAGE
  - S3921 - EROSION CONTROL
- SITE - KEY PLAN & NOTES  
— SITE - BMP MATRIX AND RATIONAL STATEMENT  
— PLAN - AREA 1  
— PLAN - AREA 2  
— PLAN - AREA 3  
— PLAN - AREA 4  
— PLAN - AREA 5  
— PLAN - AREA 6  
— PLAN - AREA 7  
— PRE-CONSTRUCTION DRAINAGE  
— DETAILED PRE-CONSTRUCTION DRAINAGE  
— OVERALL PLANT SITE - PLAN  
— CULVERT AND RIPRAP DETAILS  
— PHYSICAL POND LINER DETAILS  
— SECTION AND DETAILS  
— DETAILS

## PROJECT LOCATION

THE GENERATING FACILITY IS LOCATED IN MORROW COUNTY, APPROXIMATELY 13 MILES SOUTHWEST OF BOARDMAN, OREGON. THE ASSOCIATED TRANSMISSION LINE IS LOCATED IN MORROW AND GILLIAM COUNTIES AND EXTENDS APPROXIMATELY 18 MILES WEST FROM THE GENERATING FACILITY.

GENERATING FACILITY  
LATITUDE: 45° 42' NORTH  
LONGITUDE: 119° 49' WEST

TRANSMISSION LINE  
BEGINNING LATITUDE: 45° 42' NORTH  
ENDING LATITUDE: 45° 42' NORTH  
LONGITUDE: 120° 9' WEST

## PROPERTY DESCRIPTION

THE GENERATING FACILITY IS LOCATED NORTH OF CARRY RESERVOIR, SECTIONS 33 AND 34, TOWNSHIP 3 NORTH, RANGE 24 EAST, WILAMETTE MERIDIAN.

THE ASSOCIATED TRANSMISSION LINE IS LOCATED AS LISTED BELOW:

RANGE	SECTION
22E	1, 2, 3, 4, 5, AND 8
23E	1, 2, 3, 4, 5, AND 8
21E	25, 26, AND 35
22E	26, 27, 28, 29, 30, 35, AND 36
23E	31
24E	32, 33, AND 34

THE CONTRACTOR IS REQUIRED TO MEET ALL THE CONDITIONS OF THE 1200C PERMIT. THIS EROSION AND SEDIMENT CONTROL PLAN (ESCP) AND GENERAL CONDITIONS HAVE BEEN DEVELOPED TO FACILITATE COMPLIANCE WITH THE 1200C PERMIT REQUIREMENTS. IN CASES OF DISCREPANCIES OR OMISSIONS, THE 1200C PERMIT REQUIREMENTS SUPERSEDE REQUIREMENTS OF THIS PLAN.

## GENERAL EROSION AND SEDIMENT CONTROL PLAN DRAWING NOTES

- CONTRACTOR SHALL HOLD A PRE-CONSTRUCTION MEETING OF PROJECT CONSTRUCTION PERSONNEL THAT INCLUDES THE APPROVED INSPECTOR TO DISCUSS EROSION AND SEDIMENT CONTROL MEASURES AND CONSTRUCTION LIMITS. (SCHEDULE A.5.b.i.(3))
- THE EROSION AND SEDIMENT CONTROL PLAN (ESCP) MUST BE KEPT ON-SITE AND ALL EROSION AND SEDIMENT CONTROL MEASURES SHOWN ON THE PLAN MUST BE INSTALLED AND MAINTAINED THROUGHOUT CONSTRUCTION. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING ALL EROSION AND SEDIMENT CONTROL MEASURES THROUGHOUT CONSTRUCTION. (SCHEDULE A.5.b.i.(3))
- THE IMPLEMENTATION OF THE ESCP AND CONSTRUCTION, MAINTENANCE, REPLACEMENT, AND UPDATING OF THE EROSION AND SEDIMENT CONTROL MEASURES IS THE RESPONSIBILITY OF THE CONTRACTOR UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER AND VEGETATION/LANDSCAPING IS ESTABLISHED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTENANCE AFTER THE CONSTRUCTION IS APPROVED AND THE 1200-C PERMIT IS TERMINATED. (SCHEDULE A.5.b.i.(3))
- THE CONTRACTOR MUST BE RESPONSIBLE FOR PROPER INSTALLATION AND MAINTENANCE OF ALL EROSION AND SEDIMENT CONTROL MEASURES, IN ACCORDANCE WITH LOCAL, STATE, OR FEDERAL REGULATIONS UNTIL ALL CONSTRUCTION IS COMPLETED AND APPROVED BY THE OWNER. (SCHEDULE A.5.a) AND (SCHEDULE A.6.a)
- EROSION AND SEDIMENT CONTROL MEASURES INCLUDING PERMETER SEDIMENT CONTROL MUST BE IN PLACE BEFORE VEGETATION IS DISTURBED AND MUST REMAIN IN PLACE AND BE MAINTAINED, REPAIRED, AND PROMPTLY IMPLEMENTED FOLLOWING PROCEDURES ESTABLISHED FOR THE DURATION OF CONSTRUCTION, INCLUDING PROTECTION FOR ACTIVE STORM DRAIN INLETS AND CATCH BASINS AND APPROPRIATE NON-STORMWATER POLLUTION CONTROLS. (SCHEDULE A.3.b.i.(2)), (SCHEDULE A.3.b.i.(7)), (SCHEDULE A.7.a.i.(2)) & (SCHEDULE A.7.1)
- DO NOT BEGIN LAND CLEARING, EXCAVATION, TRENCHING, CUTTING OR GRADING AND EARTHWORK-SURFACE ROUGHING UNTIL AFTER INSTALLING APPLICABLE SEDIMENT, EROSION PREVENTION, AND RUNOFF CONTROL MEASURES THAT ARE NOT IN THE DIRECT PATH OF WORK. (SCHEDULE A.5.b.i.(5)(A)), (SCHEDULE A.7.a.i.(1)) AND (SCHEDULE A.7.a.i.(1))
- APPLY TEMPORARY AND/OR PERMANENT SOIL STABILIZATION MEASURES IMMEDIATELY TO ALL DISTURBED AREAS AS GRADING PROGRESSES AND FOR ALL ROADWAYS INCLUDING GRAVEL ROADWAYS. (SCHEDULE A.5.b.i.(5)(B)), (SCHEDULE A.5.b.i.(5)(C) & SCHEDULE A.5.b.i.(6))
- CONSTRUCTION ACTIVITIES MUST MINIMIZE EXCAVATION AND CREATION OF BARE GROUND ON SLOPES GREATER THAN FIVE (5) PERCENT FROM OCTOBER 1 THROUGH MAY 31 EACH YEAR. (SCHEDULE A.7.a.i.)
- TEMPORARY STABILIZATION OF THE SITE MUST BE INSTALLED AT THE END OF THE SHIFT BEFORE A HOLIDAY OR WEEKEND OR AT THE END OF EACH WORKDAY IF RAINFALL IS FORECAST IN THE NEXT 24 HOURS AND EACH WEEKEND AND HOLIDAY. (SCHEDULE A.7.a.i.(1) - (2))
- IDENTIFY, MARK, AND PROTECT (BY FENCING OFF OR OTHER MEANS) CRITICAL RIPARIAN AREAS AND VEGETATION INCLUDING IMPORTANT TREES AND ASSOCIATED ROOTING ZONES AND VEGETATION AREAS TO BE PRESERVED. IDENTIFY VEGETATIVE BUFFER ZONES BETWEEN THE SITE AND SENSITIVE AREAS (E.G., WETLANDS), AND OTHER AREAS TO BE PRESERVED, ESPECIALLY IN PERMETER AREAS. PRESERVE EXISTING VEGETATION AND RE-VEGETATE OPEN AREAS WHEN PRACTICABLE BEFORE AND AFTER DRAINAGE CONSTRUCTION. (SCHEDULE A.5.b.i.(1) & (2)) AND (SCHEDULE A.7.a.i.(1))
- PROVIDE PERMANENT EROSION PREVENTION MEASURES ON ALL EXPOSED AREAS AND REMOVE ALL TEMPORARY CONTROL MEASURES, UNLESS LOCAL ORDINANCES REQUIRE OTHERWISE, AS AREAS ARE STABILIZED. (SCHEDULE A.5.b.i.(8)) AND (SCHEDULE A.7.a.i.(2))
- ALL TEMPORARY SEDIMENT CONTROLS MUST REMAIN IN PLACE UNTIL PERMANENT VEGETATION OR OTHER PERMANENT COVERINGS OF EXPOSED SOIL IS ESTABLISHED. (SCHEDULE A.7.a.i.(3)) & (SCHEDULE A.7.a.i.(4))
- SEDIMENT CONTROLS MUST BE INSTALLED AND MAINTAINED ALONG THE SITE PERIMETER ON ALL DOWN GRADIENT SIDES OF THE CONSTRUCTION SITE AND AT ALL ACTIVE AND OPERATIONAL INTERNAL STORM DRAIN INLETS AT ALL TIMES DURING CONSTRUCTION. (SCHEDULE A.7.a.i.(1) - (2))
- PUROR TO THE LANDING OF SEDIMENT ON PUBLIC OR PRIVATE ROADS. (SCHEDULE A.7.a.i.(1))
- WHEN TRUCKING SATURATED SOILS FROM THE SITE, EITHER WATERPROOF TRUCKS MUST BE USED OR LOADS MUST BE DRAINED ON-SITE UNTIL DROPPING HAS BEEN REDUCED TO MINIMIZE SPILLAGE ONTO PUBLIC OR PRIVATE ROADS. (SCHEDULE A.7.a.i.(3))
- PERMANENT STABILIZATION OR COVERING OF SOIL STOCKPILES AND PROTECTION OF STOCKPILE LOCATED AWAY FROM CONSTRUCTION ACTIVITY MUST OCCUR AT THE END OF EACH WORKDAY OR OTHER BEST MANAGEMENT PRACTICES (BMPs), SUCH AS DIVERSION OF UNCONTAMINATED FLOWS AND INSTALLATION OF SEDIMENT FENCES AROUND STOCKPILES, MUST BE IMPLEMENTED TO PREVENT TURBID DISCHARGES TO SURFACE WATERS. (SCHEDULE A.7.a.i.(1)) & (SCHEDULE A.7.a.i.(1) - (3))
- VEHICLES SHALL BE USED TO PREVENT DR MINIMIZE STORMWATER FROM BEING EXPOSED TO POLLUTANTS FROM SPILLS, DISCHARGE OF CONCRETE TRUCK WASH WATER, AND EQUIPMENT CLEANING. VEHICLE AND EQUIPMENT WASHING, MAINTENANCE, AND STORAGE OTHER CLEANING AND MAINTENANCE ACTIVITIES, AND WASTE STORAGE SHALL BE CONFINED TO A DESIGNATED AREA WITHIN THE CONSTRUCTION SITE. OTHER OILS FROM VEHICLES AND MACHINERY, AS WELL AS OILS, LUBRICANTS, SOLVENTS, AND GLUES FROM CONSTRUCTION OPERATIONS. (SCHEDULE A.7.a.i.(2))
- ANY USE OF TOXIC OR OTHER HAZARDOUS MATERIALS MUST INCLUDE PROPER STORAGE, APPLICATION, AND DISPOSAL. (SCHEDULE A.7.a.i.(2))
- CONTRACTOR SHALL IMPLEMENT A SOLID WASTE AND HAZARDOUS MATERIALS MANAGEMENT INCLUDING A WRITTEN PROCEDURE MANUAL, KEPT ON-SITE. MATERIALS TRAINING ON SPILL PREVENTION AND PROPER DISPOSAL PROCEDURES; USE REGULAR MAINTENANCE SCHEDULE FOR VEHICLES AND MACHINERY; AND USE THE DELIVERY AND STORAGE CONTROLS, SUCH AS TRAINING AND STORAGE, MATERIAL USE, COVERED STORAGE AREAS FOR WASTE AND SUPPLIES. (SCHEDULE A.7.a.i.(3))
- THE CONTRACTOR MUST PROPERLY MANAGE HAZARDOUS WASTES, USED OILS, CONTAMINATED SOILS, CONCRETE WASTE, SANITARY WASTE, LIQUID WASTE, OR OTHER TOXIC SUBSTANCES DISCOVERED OR GENERATED DURING CONSTRUCTION AND MEET ALL STATE AND FEDERAL REGULATIONS AND APPROVALS. (SCHEDULE A.7.a.i.(4))
- THE ESCP MEASURES SHOWN ON THIS PLAN ARE MINIMUM REQUIREMENTS FOR ANTICIPATED SITE CONDITIONS. DURING THE CONSTRUCTION PERIOD, THESE MEASURES MUST BE UPGRADED AS NEEDED TO COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL EROSION AND SEDIMENT CONTROL REGULATIONS. CHANGES TO THE ESCP MUST ALSO BE SUBMITTED IN THE FORM OF AN ACTION PLAN TO DED OR ITS AGENT FOR APPROVAL. (SCHEDULE A.7.1)
- SIGNIFICANT AMOUNTS OF SEDIMENT WHICH LEAVES THE SITE MUST BE CLEANED UP WITHIN 24 HOURS AND PLACED BACK ON THE SITE AND STABILIZED OR PROPERLY DISPOSED. THE CAUSE OF THE SEDIMENT RELEASE MUST BE FOUND AND PREVENTED FROM CAUSING A REOCCURRENCE OF THE DISCHARGE WITHIN THE SAME 24 HOURS. ANY IN-STREAM CLEAN UP OF SEDIMENT SHALL BE PERFORMED ACCORDING TO THE OREGON DIVISION OF STATE LANDS REQUIRED TIME FRAME. (SCHEDULE A.7.1.1.1))
- WALLOWING OR DRY SHEEPING MUST BE USED TO CLEAN-UP RELEASED SEDIMENT AND MUST NOT BE INTENTIONALLY WASHED INTO STORM SEWERS, DRAINAGEWAYS, OR WATER BODIES. (SCHEDULE A.7.1.1.2))
- THE APPLICATION RATE OF FERTILIZERS USED TO REESTABLISH VEGETATION MUST FOLLOW MANUFACTURER'S RECOMMENDATIONS TO MINIMIZE NUTRIENT RELEASES TO SURFACE WATERS. TIME-RELEASE FERTILIZERS SHOULD BE USED WITH CARE WITHIN ANY WATERWAY RIPARIAN ZONE. (SCHEDULE A.7.1.1.3))
- SEDIMENT MUST BE REMOVED FROM BEHIND A SEDIMENT FENCE WHEN IT HAS REACHED A HEIGHT OF 1/4 THE HEIGHT OF THE FENCE BACKGROUND AND BEFORE FENCE REMOVAL. (SCHEDULE A.7.1.1.1))
- SEDIMENT MUST BE REMOVED FROM BEHIND BIG BAGS AND OTHER BARRIERS IT HAS REACHED A HEIGHT OF TWO (2) INCHES AND BEFORE BIG BAG OR OTHER BARRIER REMOVAL. (SCHEDULE A.7.1.1.2))
- REMOVAL OF TRAPPED SEDIMENT IN A SEDIMENT BASIN OR SEDIMENT TRAP OR CATCH BASINS MUST OCCUR WHEN THE SEDIMENT RETENTION CAPACITY HAS BEEN REDUCED BY FIFTY (50%) AND AT COMPLETION OF PROJECT. (SCHEDULE A.7.1.1.3) & (4))
- DED MUST APPROVE OF ANY TREATMENT SYSTEM AND OPERATIONAL PLAN THAT MAY BE NECESSARY TO TREAT CONTAMINATED CONSTRUCTION DRAINAGE OR SEDIMENT AND TURBIDITY IN STORMWATER RUNOFF. (SCHEDULE A.7.1.1.4)
- SHOULD ALL CONSTRUCTION ACTIVITIES CEASE FOR THIRTY (30) DAYS OR MORE, THE ENTIRE SITE MUST BE TEMPORARILY STABILIZED USING VEGETATION OR A HEAVY MULCH LAYER, TEMPORARY SEEDING, OR OTHER METHOD. (SCHEDULE A.8.a)
- SHOULD CONSTRUCTION ACTIVITIES CEASE FOR FIFTEEN (15) DAYS OR MORE ON ANY SIGNIFICANT PORTION OF A CONSTRUCTION SITE TEMPORARY STABILIZATION IS REQUIRED FOR THAT PORTION OF THE SITE WITH STRAW, COMPOST, OR OTHER TACKIFIED COVERING THAT PREVENTS SOIL OR WIND EROSION UNTIL WORK RESUMES ON THAT PORTION OF THE SITE. (SCHEDULE A.8.b)
- DAILY INSPECTIONS WHEN RAINFALL AND RUNOFF OCCURS OF THE BMPs AND DISCHARGE OUTFALLS MUST BE MADE BY THE PROJECT ESCP INSPECTOR. THESE INSPECTIONS AND OBSERVATIONS MUST BE RECORDED IN A LOG THAT IS AVAILABLE ON SITE. (SCHEDULE A.8.b.i.) & (SCHEDULE B.1.4(1))
- BMPs MUST BE INSPECTED BEFORE, DURING, AND AFTER SIGNIFICANT STORM EVENTS. (SCHEDULE A.7.1)
- ALL ESCP CONTROLS AND PRACTICES MUST BE INSPECTED VISUALLY ONCE TO ENSURE THAT BMPs ARE IN WORKING ORDER PRIOR TO THE SITE BECOMING INACTIVE OR IN ANTICIPATION OF SITE INACCESSIBILITY AND MUST BE INSPECTED VISUALLY ONCE EVERY TWO (2) WEEKS DURING INACTIVE PERIODS GREATER THAN SEVEN (7) CONSECUTIVE CALENDAR DAYS. (SCHEDULE B.1.5.(2)-(3))
- IF PRACTICAL, INSPECTIONS MUST OCCUR DAILY AT A RELEVANT AND ACCESSIBLE DISCHARGE POINT OR DOWNSTREAM LOCATION DURING PERIODS WHEN THE SITE IS INACCESSIBLE DUE TO INCLEMENT WEATHER. (SCHEDULE B.1.5.(4))
- ALL PERMANENT STORM WATER FACILITIES INCLUDING BUT NOT LIMITED TO PONDS, DITCHES, CULVERTS, ETC. ASSOCIATED WITH THIS PROJECT TO BE COMPLETED DURING THE DETAILED DESIGN PORTION OF THE PROJECT.
- SEE DRAWING S3100 FOR OVERALL PLANT SITE PLAN THAT SHOWS CONSTRUCTION TRAILER, PARKING, LAYDOWN, AND SOIL STORAGE/SPILL AREAS. THE EROSION CONTROL MEASURES IMPLEMENTED AROUND THESE AREAS, AND ADDITIONAL EROSION CONTROL GENERAL NOTES.
- DETAILS AND SECTIONS PROVIDED ON DRAWINGS S3901, S3902, AND S3920 ARE EXAMPLES OF EROSION AND SEDIMENT CONTROL THAT COULD BE USED DURING DETAILED DESIGN OF THE PROJECT.
- ALL DISTURBED AREAS NOT RECEIVING AGGREGATE, ASPHALT, OR CONCRETE SURFACING SHALL BE SEED.
- FOR TRANSMISSION TOWER CONSTRUCTION, SEE DRAWING S3921 FOR EXAMPLE OF EROSION AND SEDIMENT CONTROL.

NOT TO BE USED FOR CONSTRUCTION

THE DISTRIBUTION AND USE OF THE ACTIVE FILE FOR THIS PROJECT IS LIMITED TO THE PROJECT AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

REGISTRATION NO. 12/31/10



EXPIRATION DATE: 12/31/10

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# EROSION AND SEDIMENT CONTROL PLANS

## BMP MATRIX AND RATIONALE STATEMENT

BMP	CONSTRUCTION PHASE					WET WEATHER
	PRE-EARTHWORK ACTIVITIES	CLEARING AND GRADING	BUILDING AND EQUIPMENT CONSTRUCTION	CLEAN-UP AND RESTORATION		
EROSION PREVENTION						
EP-1 SCHEDULING	X	X	X	X	X	X
EP-4 TOPSOILING		X		X		X
EP-2 PRESERVE NATURAL VEGETATION	X	X	X	X		X
EP-6 PERMANENT SEEDING				X		X
EP-8 MULCHES				X		X
EP-10 EROSION CONTROL BLANKETS		X	X	X		X
EP-13 DUST CONTROL		X	X	X		X
SEDIMENT CONTROL						
SC-1 SEDIMENT FENCE	X	X	X	X		X
SC-6 COMPOST SOCK		X	X	X		X
SC-10 ENTRANCE/EXIT TRACKING CONTROLS	X	X	X	X		X
RUN-OFF CONTROL						
RC-2 ENERGY DISSIPATORS		X	X	X		X
POLLUTION PREVENTION						
NS-2 PAVING OPERATIONS CONTROLS	X	X	X	X		
NS-4 ILLICIT CONNECTION/ ILLEGAL DISCHARGE	X	X	X	X		
NS-5 VEHICLE AND EQUIPMENT CLEANING	X	X	X	X		
NS-6 VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE	X	X	X	X		
NS-7 MATERIAL DELIVERY AND STORAGE CONTROLS	X	X	X	X		
NS-8 MATERIAL USE	X	X	X	X		
NS-9 STOCKPILE MANAGEMENT		X	X	X		
NS-10 SPILL PREVENTION AND CONTROL PROCEDURES	X	X	X	X		
NS-11 SOLID WASTE MANAGEMENT	X	X	X	X		
NS-12 HAZARDOUS MATERIALS AND WASTE MANAGEMENT	X	X	X	X		
NS-13 CONTAMINATED SOIL MANAGEMENT		X	X	X		
NS-14 CONCRETE MANAGEMENT		X	X	X		
NS-15 SANITARY WASTE MANAGEMENT	X	X	X	X		
NS-17 TRAINING AND SIGNAGE	X	X	X	X		

FOR APPROXIMATE WORK TIME FRAME FOR BPM MATRIX, REFERENCE THE NARRATIVE DESCRIPTION SECTION - NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE.

A COMPREHENSIVE LIST OF AVAILABLE BMP OPTIONS BASED ON BESS'S 1995-C PERMIT APPLICATION AND ESCP GUIDANCE DOCUMENT, HAS BEEN REVIEWED AND IDENTIFIED AS APPROPRIATE TO BE INCLUDED IN THIS CONSTRUCTION CONTROL PLAN (CCP). SOME OF THE ABOVE MENTIONED BMPs WERE NOT SELECTION CRITERIA FOR THIS PROJECT AS THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED.

INITIAL: **HTB** DATE: **12/31/10**

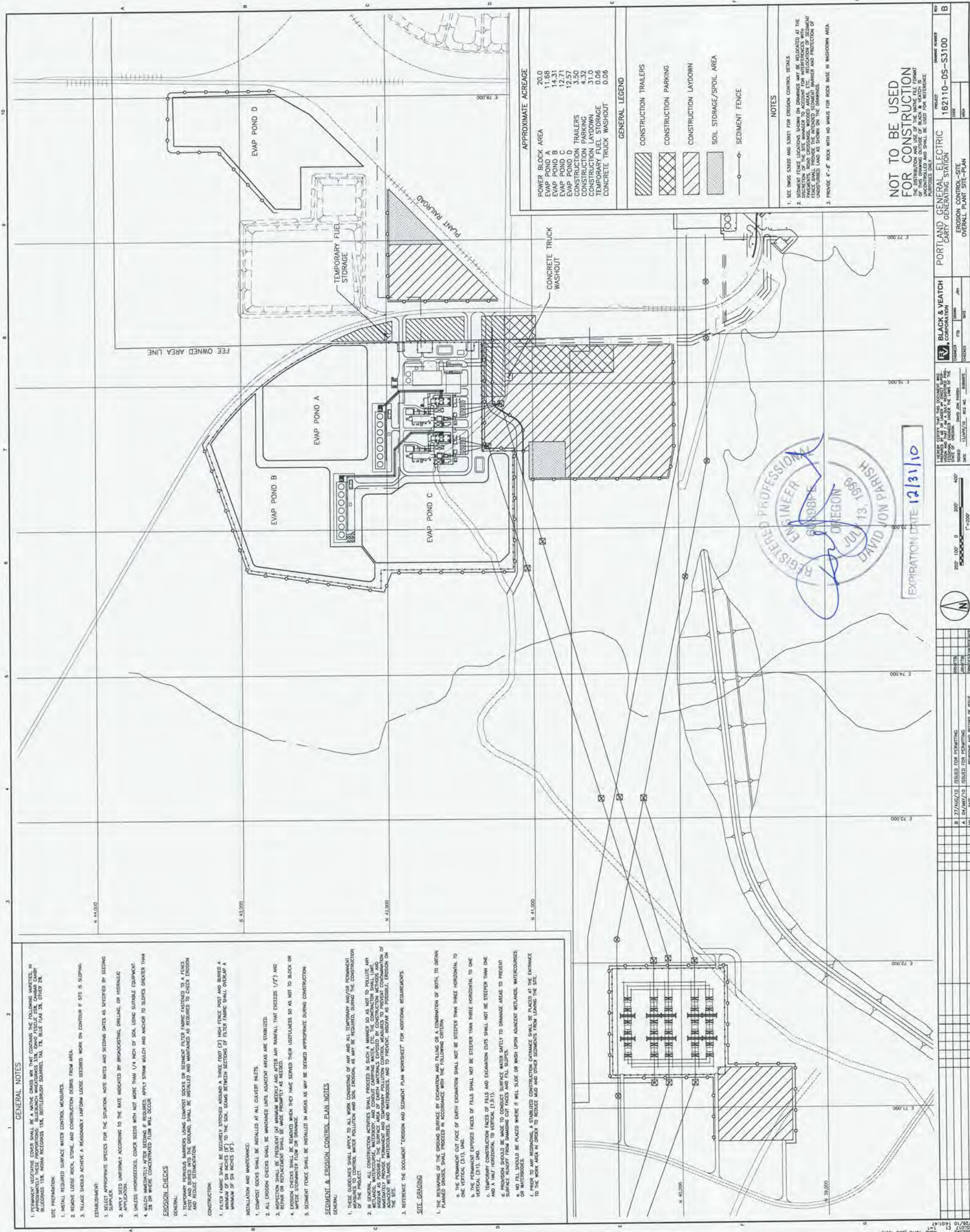


BLACK & VEATCH  
 ENGINEER  
 EXPIRATION DATE: 12/31/10

NOT TO BE USED  
 FOR CONSTRUCTION  
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PROJECT: 162110-DS-S3000A  
 SHEET: A  
 DATE: 12/31/10  
 PROJECT: PORTLAND GENERAL ELECTRIC  
 LOCATION: CARRY GENERATING STATION  
 DRAWN BY: EROSION CONTROL-SITE  
 CHECKED BY: EROSION CONTROL-SITE  
 PROJECT NUMBER: 162110-DS-S3000A





APPROXIMATE ACREAGE

POWER BLOCK AREA	20.0
EVAP POND A	11.68
EVAP POND B	14.31
EVAP POND C	12.71
EVAP POND D	12.57
CONSTRUCTION TRAILERS	3.50
CONSTRUCTION PARKING	4.32
CONSTRUCTION LAYDOWN	31.0
TEMPORARY FUEL STORAGE	0.06
CONCRETE TRUCK WASHOUT	0.06

GENERAL LEGEND

[Hatched Box]	CONSTRUCTION TRAILERS
[Cross-hatched Box]	CONSTRUCTION PARKING
[Diagonal Hatched Box]	CONSTRUCTION LAYDOWN
[Dotted Box]	SOIL STORAGE/SPOIL AREA
[Line with Circles]	SEDIMENT FENCE

NOTES

- SEE DWGS S1020 AND S1021 FOR EROSION CONTROL DETAILS.
- SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS ARE LOCATED AT THE PERMANENT EROSION CONTROL AREAS. MATERIALS INCLUDING FERTILIZERS, PESTICIDES, PAINTS, OILS, AND OTHER HAZARDOUS MATERIALS SHALL NOT BE STORED OR USED IN THESE AREAS. RELOCATION OF SEDIMENT FENCES SHALL BE PERMITTED ONLY IN EMERGENCIES AND WITH THE APPROVAL OF THE ENGINEER.
- PROVIDE 4'-8" ROCK WITH NO MAJUS FOR ROCK BASE IN WASHDOWN AREA.

**NOT TO BE USED FOR CONSTRUCTION**  
THE DISTRIBUTION AND USE OF THIS DRAWING IS LIMITED TO THE PROJECT AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

**GENERAL NOTES**

- PERMANENT VEGETATIVE COVER SHALL BE A NATIVE GRASS MIX THAT CONTAINS THE FOLLOWING VARIETIES IN APPROXIMATELY THESE PERCENTAGES: 15% BOUTELLOUS SPOONBEAT, 7% BLUE JAY, 3% OTHER 2%.
- INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
- REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
- TRUCKS SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDING, WORK ON CONTOUR IF SITE IS SLOPING.

**ESTABLISHMENT:**

- SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES AS SPECIFIED BY SEEDING SUPPLIER.
- APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
- UNLESS HYDROSEEDING COVER SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
- MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. APPLY STRAW MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED TROW WILL OCCUR.

**EROSION CHECKS**

**GENERAL:**

- TEMPORARY PERVIOUS BARRIERS USING COMPOST BLOCKS OR SEDIMENT FILTER FABRIC INSTALLED ON A FENCE LINE SHALL BE MAINTAINED AS INSTALLED. FENCES SHALL BE REPAIRED AND MAINTAINED AS REQUIRED TO CHECK EROSION AND REDUCE SEDIMENTATION.

**CONSTRUCTION:**

- FILTER FABRIC SHALL BE SECURELY STITCHED AROUND A THREE FOOT (3') HIGH FENCE FOOT AND BURIED A MINIMUM OF SIX INCHES (6") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF SIX INCHES (6").
- INSTALLATION AND MAINTENANCE:
- COMPOST BLOCKS SHALL BE INSTALLED AT ALL CULVERT INLETS.
- ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
- INSPECTION SHALL BE FREQUENT AT MINIMUM WEEKLY AND AFTER ANY RAINFALL THAT EXCEEDS 1/2" AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
- EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPED STORMWATER FLOW OR DRAINAGE.
- SEDIMENT FENCE SHALL BE INSTALLED IN AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.

**SEDIMENT & EROSION CONTROL PLAN NOTES**

**GENERAL:**

- THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.
- IN GENERAL, CONSTRUCTION ACTIVITIES SHALL PROCEED IN SUCH A MANNER AS TO NOT POLLUTE ANY ADJACENT WETLANDS, WATERCOURSES, WATERBODIES, AND TO PREVENT, AS FAR AS POSSIBLE, EROSION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, AS FAR AS POSSIBLE, EROSION ON THE SITE.
- REFER TO THE DOCUMENT "EROSION AND SEDIMENT PLAN WORKSHEET" FOR ADDITIONAL REQUIREMENTS.

**SITE GRADING**

- THE REMAINING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRASSES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
- THE SLOPE OF THE FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), UNLESS:
- THE PERMANENT EXPOSED FACES OF CUTS SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1), UNLESS:
- TEMPORARY CONSTRUCTION FACES OF CUTS AND EXCAVATION CUTS SHALL NOT BE STEEPER THAN ONE AND A HALF HORIZONTAL TO VERTICAL (1.5:1).
- PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO DRAINAGE AREAS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
- NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON ADJACENT WETLANDS, WATERCOURSES OR WATERBODIES.
- PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE DISTANCE TO THE WORK AREA IN ORDER TO REDUCE SOIL AND OTHER SEDIMENTS FROM LEAVING THE SITE.

**APPROVED:**

REGISTERED PROFESSIONAL ENGINEER  
DAVID JON PARISH  
JULY 13, 1999  
EXPIRATION DATE: 12/31/10

**PROJECT:** PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION

**DATE:** 02/28/10 14:01:47

**SCALE:** 1"=200'

**DATE:** 12/13/10

**BLACK & VEATCH**  
CORPORATION  
775 MAIN ST.  
DENVER, CO 80202  
TEL: 303.733.1000

**182110-DS-S3100**  
EROSION CONTROL-SITE  
OVERALL PLANT SITE-PLAN

**REVISIONS:**

NO.	DATE	DESCRIPTION AND RECORD OF CHANGES
1		
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**PROJECT NUMBER:** 182110-DS-S3100

**PROJECT NAME:** PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION

**PROJECT CODE:** EROSION CONTROL-SITE

**PROJECT TYPE:** OVERALL PLANT SITE-PLAN

**PROJECT DATE:** 02/28/10 14:01:47

**PROJECT LOCATION:** PORTLAND, OREGON

**PROJECT OWNER:** PORTLAND GENERAL ELECTRIC

**PROJECT MANAGER:** DAVID JON PARISH

**PROJECT ENGINEER:** DAVID JON PARISH

**PROJECT CONTRACTOR:** BLACK & VEATCH

**PROJECT SUBCONTRACTOR:** [None]

**PROJECT APPROVED:** [Signature]

**PROJECT DATE:** 12/13/10

**PROJECT SCALE:** 1"=200'

**PROJECT SHEET:** 182110-DS-S3100-01

**PROJECT TOTAL SHEETS:** 1

**PROJECT DRAWING DATE:** 02/28/10

**PROJECT PROJECTOR:** DAVID JON PARISH

**PROJECT CHECKED:** [None]

**PROJECT DESIGNED:** [None]

**PROJECT DATE:** 02/28/10

**PROJECT SCALE:** 1"=200'

**PROJECT SHEET:** 182110-DS-S3100-01

**PROJECT TOTAL SHEETS:** 1

**PROJECT DRAWING DATE:** 02/28/10

**PROJECT PROJECTOR:** DAVID JON PARISH

**PROJECT CHECKED:** [None]

**PROJECT DESIGNED:** [None]

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**PROJECT CHECKED:** [None]

**PROJECT DESIGNED:** [None]

**PROJECT DATE:** 02/28/10

**PROJECT SCALE:** 1"=200'

**PROJECT SHEET:** 182110-DS-S3100-01

**PROJECT TOTAL SHEETS:** 1

**PROJECT DRAWING DATE:** 02/28/10

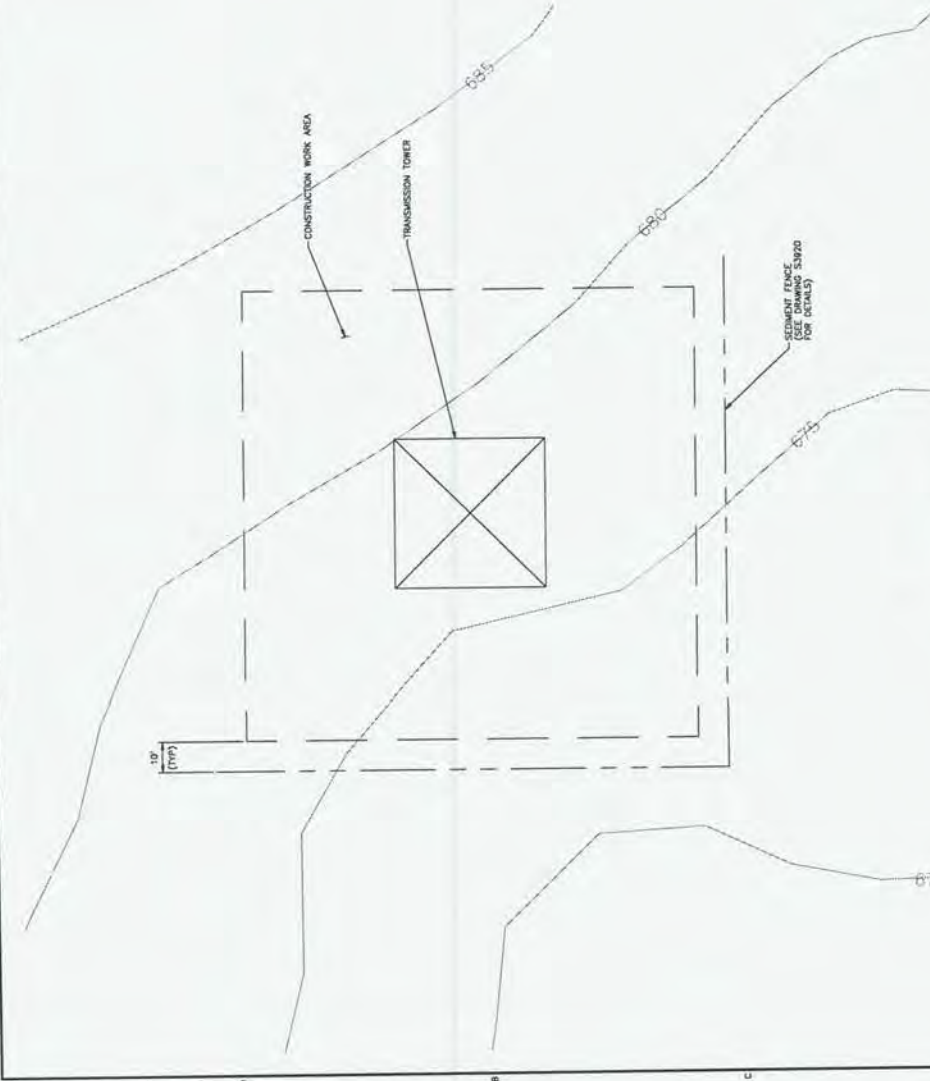
**PROJECT PROJECTOR:** DAVID JON PARISH

**PROJECT CHECKED:** [None]

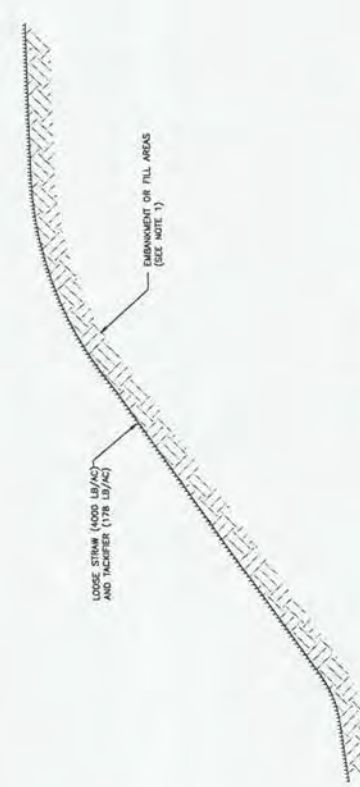
**PROJECT DESIGNED:** [None]

**PROJECT DATE:** 02/28/10

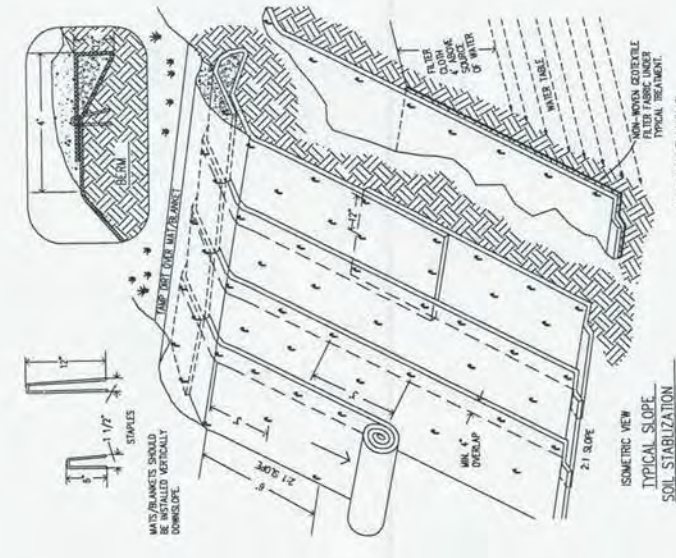




TRANSMISSION TOWER  
EROSION CONTROL AND SEDIMENT PLAN  
(FOR EXAMPLE ONLY)  
N.T.S.



TYPICAL MULCHING DETAIL  
N.T.S.



TYPICAL EROSION CONTROL BLANKET DETAIL  
N.T.S.

ISOMETRIC VIEW  
TYPICAL SLOPE  
SOIL STABILIZATION  
TYPICAL SLOPE LINING  
TYPICAL TREATMENT

NOTES:  
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, STUMPS AND OTHER OBSTRUCTIONS. BLANKETS SHALL HAVE GOOD SOIL CONTACT.  
2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL DO NOT STRETCH.  
3. 12" STAPLES SHALL BE USED ON OVERLAPS.  
6" STAPLES MAY BE USED ELSEWHERE.



EXPIRATION DATE: 12/31/10

NOTES	
1. EMBANKMENT OR FILL AREAS SHALL BE ROUGHENED BY ROLLING WITH CRIMPING OR PUNCHING-TYPE ROLLER. TRACK MARKING SHOULD BE USED WHEN ROLLING IS APPROPRIATE.	

<b>NOT TO BE USED FOR CONSTRUCTION</b>		PROJECT NUMBER <b>162110-DS-S3921</b>
THE DISTRIBUTION AND USE OF THE DRAWING SHALL BE LIMITED TO THE PROJECT AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.		DATE <b>12/31/10</b>
PROJECT <b>PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION</b>		DATE <b>12/31/10</b>
DRAWN BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>
CHECKED BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>
APPROVED BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>
PROJECT <b>PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION</b>		DATE <b>12/31/10</b>
DRAWN BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>
CHECKED BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>
APPROVED BY <b>BLACK &amp; VEATCH</b>		DATE <b>12/31/10</b>

NO.	DATE	REVISIONS AND RECORD OF ISSUE	BY	CHECKED BY
1	12/31/10	ISSUED FOR PERMITTING	JAN	JAN
2	12/31/10	ISSUED FOR PERMITTING	JAN	JAN
3	12/31/10	ISSUED FOR PERMITTING	JAN	JAN
4	12/31/10	ISSUED FOR PERMITTING	JAN	JAN
5	12/31/10	ISSUED FOR PERMITTING	JAN	JAN

PROJECT NUMBER <b>162110-DS-S3921</b>	DATE <b>12/31/10</b>
PROJECT <b>PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION</b>	DATE <b>12/31/10</b>
DRAWN BY <b>BLACK &amp; VEATCH</b>	DATE <b>12/31/10</b>
CHECKED BY <b>BLACK &amp; VEATCH</b>	DATE <b>12/31/10</b>
APPROVED BY <b>BLACK &amp; VEATCH</b>	DATE <b>12/31/10</b>







# EROSION AND SEDIMENT CONTROL PLANS

## BMP MATRIX AND RATIONALE STATEMENT

BMP	CONSTRUCTION PHASE					WET WEATHER
	PRE-EARTHWORK ACTIVITIES	CLEARING AND GRADING	BUILDING AND EQUIPMENT CONSTRUCTION	CLEAN-UP AND RESTORATION		
EROSION PREVENTION						
EP-1 SCHEDULING	X	X	X	X	X	X
EP-4 TOPSOILING		X		X		
EP-2 PRESERVE NATURAL VEGETATION	X	X	X	X	X	X
EP-6 PERMANENT SEEDING				X		
EP-8 MULCHES				X		X
EP-10 EROSION CONTROL BLANKETS		X	X	X	X	X
EP-13 DUST CONTROL		X	X	X		
SEDIMENT CONTROL						
SC-1 SEDIMENT FENCE	X	X	X	X	X	X
SC-6 COMPOST SOCK		X	X	X	X	X
SC-10 ENTRANCE/EXIT TRACKING CONTROLS	X	X	X	X	X	X
RUN-OFF CONTROL						
RC-2 ENERGY DISSIPATORS		X	X	X	X	X
POLLUTION PREVENTION						
NS-2 PAVING OPERATIONS CONTROLS	X	X	X	X		
NS-4 ILLICIT CONNECTION/ ILLEGAL DISCHARGE	X	X	X	X		
NS-5 VEHICLE AND EQUIPMENT CLEANING	X	X	X	X		
NS-6 VEHICLE AND EQUIPMENT FUELING, MAINTENANCE, AND STORAGE	X	X	X	X		
NS-7 MATERIAL DELIVERY AND STORAGE CONTROLS	X	X	X	X		
NS-8 MATERIAL USE	X	X	X	X		
NS-9 STOCKPILE MANAGEMENT		X	X	X		
NS-10 SPILL PREVENTION AND CONTROL PROCEDURES	X	X	X	X		
NS-11 SOLID WASTE MANAGEMENT	X	X	X	X		
NS-12 HAZARDOUS MATERIALS AND WASTE MANAGEMENT	X	X	X	X		
NS-13 CONTAMINATED SOIL MANAGEMENT		X	X	X		
NS-14 CONCRETE MANAGEMENT		X	X	X		
NS-15 SANITARY WASTE MANAGEMENT	X	X	X	X		
NS-17 TRAINING AND SIGNAGE	X	X	X	X		

FOR APPROXIMATE WORK TIME FRAME FOR BPM MATRIX, REFERENCE THE NARRATIVE DESCRIPTION SECTION - NATURE OF CONSTRUCTION ACTIVITY AND ESTIMATED TIME TABLE.

A COMPREHENSIVE LIST OF AVAILABLE BMP OPTIONS BASED ON BESS'S 1995-C PERMIT APPLICATION AND ESCP GUIDANCE DOCUMENT HAS BEEN PROVIDED TO THE APPLICANT. THE APPLICANT HAS REVIEWED AND APPROVED THE LISTED BMP OPTIONS. SOME OF THE ABOVE MENTIONED BMPs WERE NOT BEING USED BECAUSE THEY WERE DETERMINED TO NOT EFFECTIVELY MANAGE EROSION PREVENTION AND SEDIMENT CONTROL FOR THIS PROJECT BASED ON SPECIFIC SITE CONDITIONS, INCLUDING SOIL CONDITIONS, TOPOGRAPHIC CONSTRAINTS, ACCESSIBILITY TO THE SITE, AND OTHER RELATED CONDITIONS. AS THE PROJECT PROGRESSES AND THERE IS A NEED TO REVISE THE ESCP, AN ACTION PLAN WILL BE SUBMITTED.

DATE: 12/31/10



EXPIRATION DATE: 12/31/10

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THIS DOCUMENT IS UNCONTROLLED AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

PROJECT NUMBER	162110-DS-S3000A
PROJECT	PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION
DATE	12/31/10
ISSUED FOR PERMITTING	NO
ISSUED FOR RECORD OF WORK	NO
REVISED AND RECORD OF WORK	NO
PROJECT NUMBER	162110-DS-S3000A
PROJECT	PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION
DATE	12/31/10
ISSUED FOR PERMITTING	NO
ISSUED FOR RECORD OF WORK	NO
REVISED AND RECORD OF WORK	NO





**GENERAL NOTES**

- PERMANENT VEGETATIVE COVER SHALL BE A NATIVE GRASS MIX THAT CONTAINS THE FOLLOWING VARIETIES, IN APPROXIMATELY THESE PERCENTAGES: 15% BOUTELLOUS GRASS, 15% BLUE STALK GRASS, 15% BLUE GRASS, 15% BLUE STALK GRASS, 15% BLUE GRASS, 15% BLUE STALK GRASS, 15% BLUE GRASS, 15% BLUE STALK GRASS.
  - INSTALL REQUIRED SURFACE WATER CONTROL MEASURES.
  - REMOVE LOOSE ROCK, STONE, AND CONSTRUCTION DEBRIS FROM AREA.
  - VEGETATION SHOULD ACHIEVE A REASONABLY UNIFORM LOOSE SEEDING. WORK ON CONTOUR IF SITE IS SLOPING.
- ESTABLISHMENT:**
- SELECT APPROPRIATE SPECIES FOR THE SITUATION. NOTE RATES AND SEEDING DATES AS SPECIFIED BY SEEDING SUPPLIER.
  - APPLY SEED UNIFORMLY ACCORDING TO THE RATE INDICATED BY BROADCASTING, DRILLING, OR HYDRAULIC APPLICATION.
  - UNLESS HYDROSEED, COVER SEEDS WITH NOT MORE THAN 1/4 INCH OF SOIL USING SUITABLE EQUIPMENT.
  - MULCH IMMEDIATELY AFTER SEEDING IF REQUIRED. APPLY STRAW MULCH AND ANCHOR TO SLOPES GREATER THAN 3% OR WHERE CONCENTRATED FLOW WILL OCCUR.

**EROSION CHECKS**

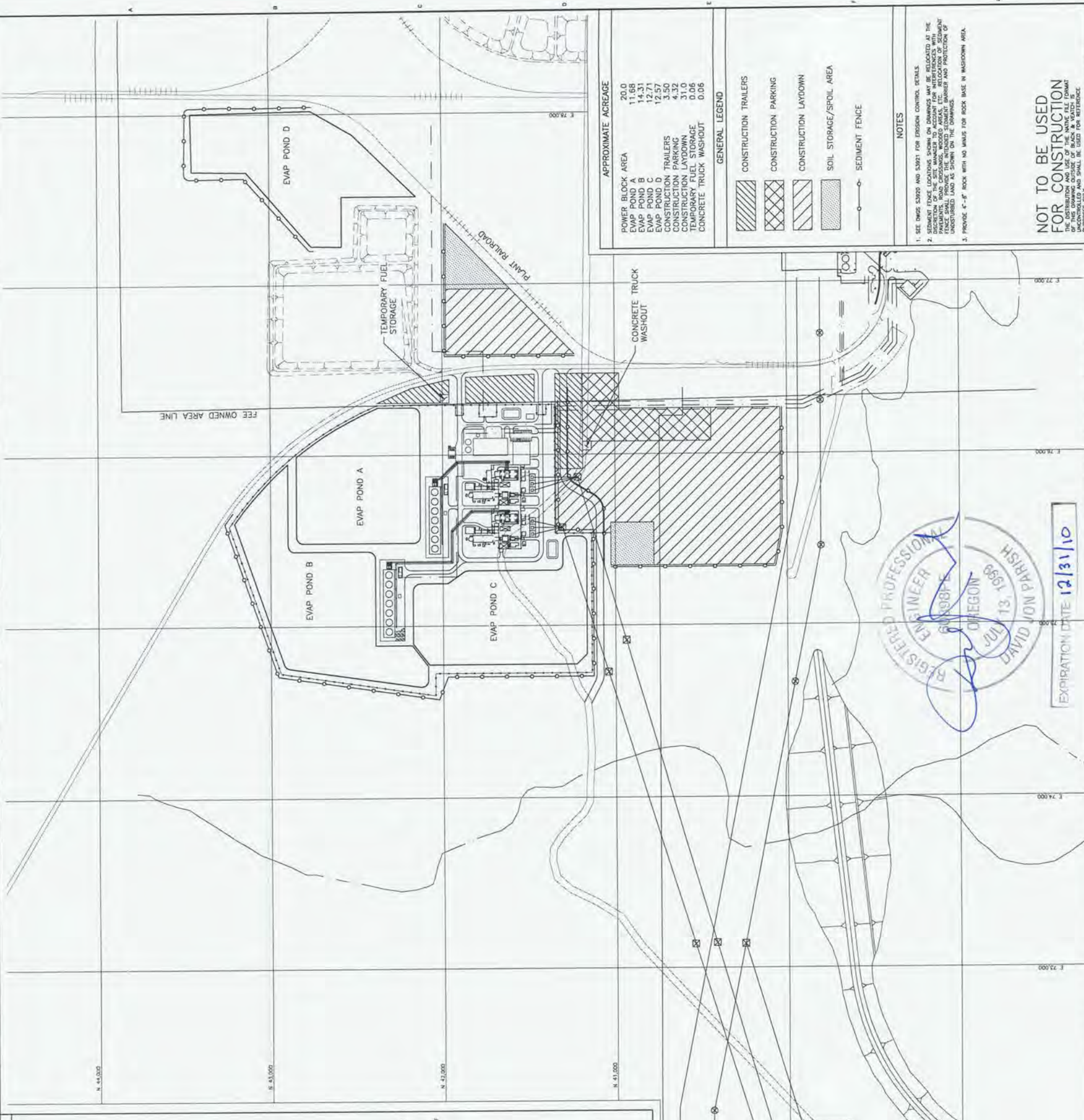
- GENERAL:**
- TEMPORARY PERVIOUS BARRIERS USING COMPOST BLOCKS OR SEDIMENT FILTER FABRIC INSTALLED ON A FLOOD PRONE AREA SHALL BE INSTALLED AND MAINTAINED AS REQUIRED TO PREVENT EROSION AND REDUCE SEDIMENTATION.
- CONSTRUCTION:**
- FILTER FABRIC SHALL BE SECURELY STITCHED AROUND A THREE FOOT (3') HIGH FENCE POST AND BURIED A MINIMUM OF SIX INCHES (6") TO THE SOIL. SEAMS BETWEEN SECTIONS OF FILTER FABRIC SHALL OVERLAP A MINIMUM OF SIX INCHES (6").
  - COMPOST BLOCKS SHALL BE INSTALLED AT ALL CULVERT INLETS.
  - ALL EROSION CHECKS SHALL BE MAINTAINED UNTIL ADJACENT AREAS ARE STABILIZED.
  - INSPECTION SHALL BE FREQUENT AT MINIMUM WEEKLY AND AFTER ANY RAINFALL THAT EXCEEDS 1/2" AND REPAIR OR REPLACEMENT SHALL BE MADE PROMPTLY AS NEEDED.
  - EROSION CHECKS SHALL BE REMOVED WHEN THEY HAVE SERVED THEIR USEFULNESS SO AS NOT TO BLOCK OR IMPED STORMWATER FLOW OR DRAINAGE.
  - SEDIMENT FENCE SHALL BE INSTALLED IN AREAS AS MAY BE DEEMED APPROPRIATE DURING CONSTRUCTION.

**SEDIMENT & EROSION CONTROL PLAN NOTES**

- GENERAL:**
- THESE GUIDELINES SHALL APPLY TO ALL WORK CONSISTING OF ANY AND ALL TEMPORARY AND/OR PERMANENT MEASURES TO CONTROL WATER POLLUTION AND SOIL EROSION, AS MAY BE REQUIRED, DURING THE CONSTRUCTION OF THE PROJECT.
  - IN GENERAL, EROSION CONTROL MEASURES SHALL BE INSTALLED IN SUCH A MANNER AS TO NOT POLLUTE ANY ADJACENT WETLANDS, WATERCOURSES, WATERBODIES, AND TO PREVENT, AS FAR AS POSSIBLE, EROSION OF ADJACENT WETLANDS, WATERCOURSES, AND WATERBODIES, AND TO PREVENT, AS FAR AS POSSIBLE, EROSION ON THE SITE.
  - REFER TO THE DOCUMENT "EROSION AND SEDIMENT PLAN WORKSHEET" FOR ADDITIONAL REQUIREMENTS.

**SITE GRADING**

- THE REFINING OF THE GROUND SURFACE BY EXCAVATION AND FILLING OR A COMBINATION OF BOTH, TO OBTAIN PLANNED GRASSES, SHALL PROCEED IN ACCORDANCE WITH THE FOLLOWING CRITERIA:
  - THE SLOPES OF THE FACE OF EARTH EXCAVATION SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) UNLESS OTHERWISE NOTED.
  - THE PERMANENT EXPOSED FACES OF FILLS SHALL NOT BE STEEPER THAN THREE HORIZONTAL TO ONE VERTICAL (3:1) UNLESS OTHERWISE NOTED.
  - TEMPORARY CONSTRUCTION FACES OF FILLS AND EXCAVATION CUTS SHALL NOT BE STEEPER THAN ONE AND A HALF HORIZONTAL TO VERTICAL (1.5:1).
  - PROVISION SHOULD BE MADE TO CONDUCT SURFACE WATER SAFELY TO DRAINAGE AREAS TO PREVENT SURFACE RUNOFF FROM DAMAGING CUT FACES AND FILL SLOPES.
  - NO FILL SHOULD BE PLACED WHERE IT WILL SLIDE OR WASH UPON ADJACENT WETLANDS, WATERCOURSES OR WATERBODIES.
  - PRIOR TO ANY REGRADING, A STABILIZED CONSTRUCTION ENTRANCE SHALL BE PLACED AT THE DISTANCE TO THE WORK AREA IN ORDER TO PREVENT SOIL AND OTHER SEDIMENTS FROM LEAVING THE SITE.



**APPROXIMATE ACREAGE**

POWER BLOCK AREA	20.0
EVAP POND A	11.68
EVAP POND B	14.31
EVAP POND C	12.71
EVAP POND D	12.57
CONSTRUCTION TRAILERS	3.50
CONSTRUCTION PARKING	4.32
CONSTRUCTION LAYDOWN	31.0
TEMPORARY FUEL STORAGE	0.06
CONCRETE TRUCK WASHOUT	0.06

**GENERAL LEGEND**

[Hatched Box]	CONSTRUCTION TRAILERS
[Cross-hatched Box]	CONSTRUCTION PARKING
[Diagonal Lines]	CONSTRUCTION LAYDOWN
[Stippled Box]	SOIL STORAGE/SPOIL AREA
[Line with Circles]	SEDIMENT FENCE

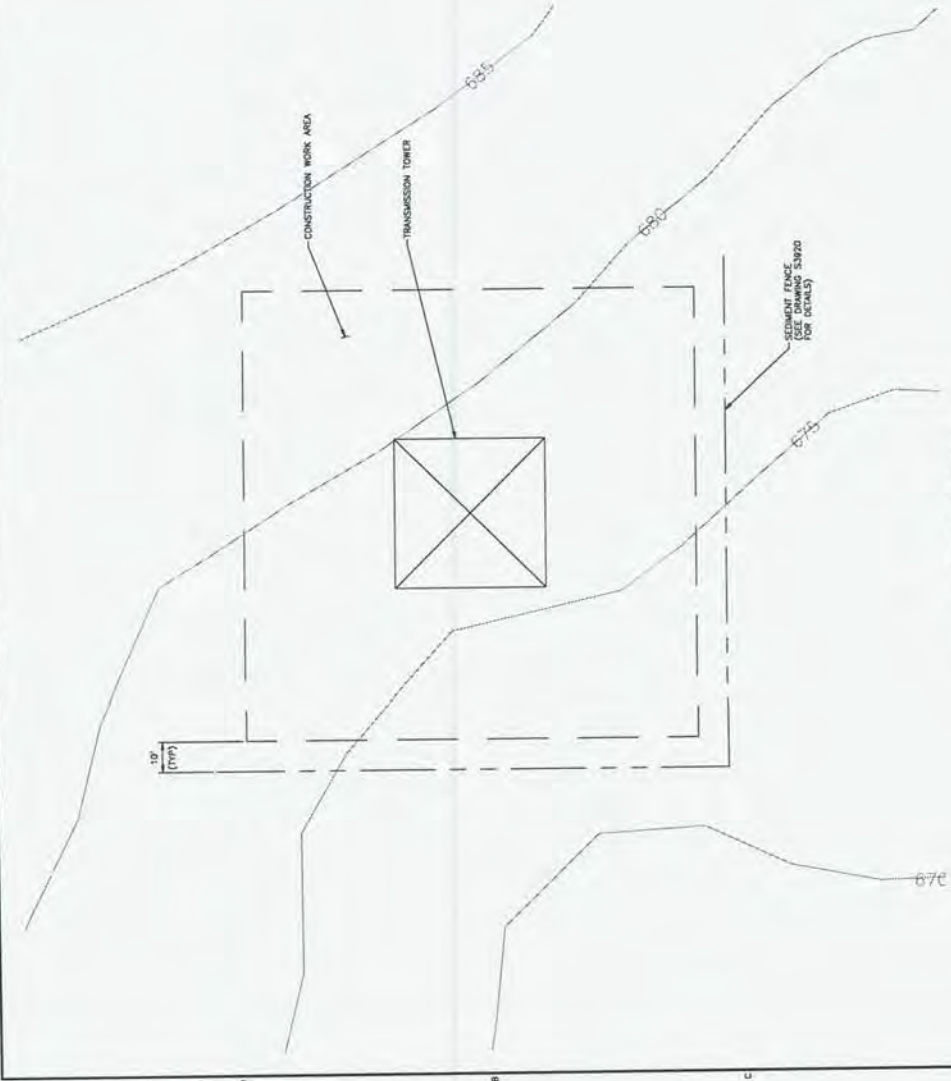
- NOTES**
- SEE DWGS 5320 AND 5321 FOR EROSION CONTROL DETAILS.
  - SEDIMENT FENCE LOCATIONS SHOWN ON DRAWINGS ARE LOCATED IN THE PERMANENT VEGETATIVE COVER AREAS. THE PERMANENT VEGETATIVE COVER AREAS SHALL BE MAINTAINED AND PROTECTED WITH PARAPETS, ROAD BARRIERS, WOODED AREAS, ETC. RELOCATION OF SEDIMENT FENCES SHALL BE MADE AS NECESSARY TO MAINTAIN THE PROTECTION OF UNDISTURBED LAND AS SHOWN ON THE DRAWINGS.
  - PROVIDE 4'-8" ROCK WITH NO MUDS FOR ROCK BASE IN WASHDOWN AREA.

**NOT TO BE USED FOR CONSTRUCTION**  
 THE DISTRIBUTION AND USE OF THIS DRAWING IS LIMITED TO THE PROJECT AND SHALL BE USED FOR REFERENCE PURPOSES ONLY.

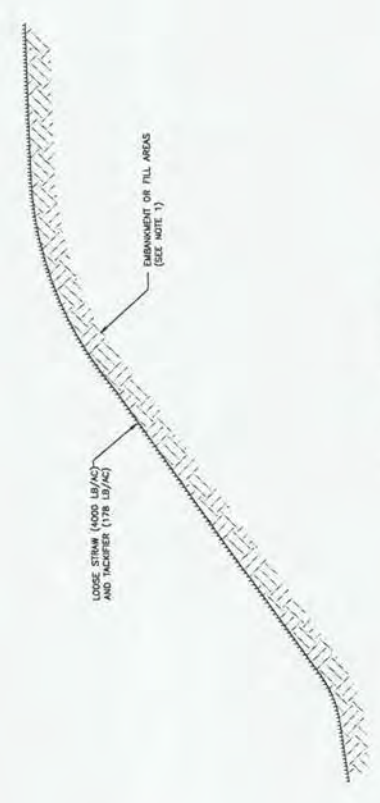


PROJECT	182110-DS-S3100
OWNER	PORTLAND GENERAL ELECTRIC CARRY GENERATING STATION
DATE	02/28/10 (14:01:47)
SCALE	AS SHOWN
DESIGNER	BLACK & VEATCH CORPORATION
CHECKED	FRS
APPROVED	DAVID JON PARISH
DATE	12/31/10
ISSUED FOR PERMITTING	2/27/10
ISSUED FOR PERMITTING	4/27/10
ISSUED FOR PERMITTING	8/4/10
ISSUED FOR PERMITTING	12/31/10

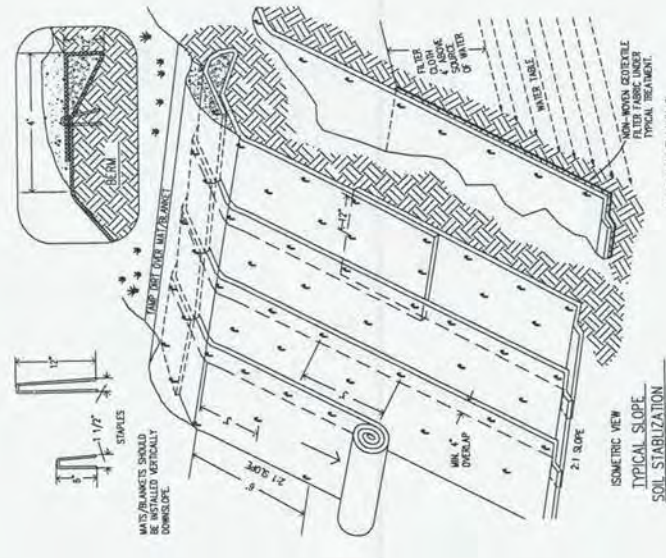




TRANSMISSION TOWER  
 EROSION CONTROL AND SEDIMENT PLAN  
 (FOR EXAMPLE ONLY)  
 N.T.S.



TYPICAL MULCHING DETAIL  
 N.T.S.



TYPICAL EROSION CONTROL BLANKET DETAIL  
 N.T.S.

ISOMETRIC VIEW  
 TYPICAL SLOPE  
 SOIL STABILIZATION

- NOTES:
1. SLOPE SURFACE SHALL BE FREE OF ROCKS, STUMPS, AND OTHER OBSTRUCTIONS. STAPLES SHALL HAVE GOOD SOIL CONTACT.
  2. LAY BLANKETS LOOSELY AND STAKE OR STAPLE TO MAINTAIN DIRECT CONTACT WITH THE SOIL DO NOT STRETCH.
  3. 12" STAPLES SHALL BE USED ON OVERLAPS.
  4. STAPLES MAY BE USED ELSEWHERE.

WET SLOPE LINING

NOTES

1. UNBANKMENT OR FILL AREAS SHALL BE ROUGHENED BY ROLLING WITH CRIMPING OR PUNCHING-TYPE ROLLER. TRACK MAJORS SHOULD BE USED WHEN ROLLING IS APPLICABLE.

**NOT TO BE USED FOR CONSTRUCTION**

THE DISTRIBUTION AND USE OF THIS DRAWING IN ANY FORMAT OR BY ANY MEANS, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM, IS PROHIBITED.



EXPIRATION DATE: 12/31/10

PROJECT	162110-DS-S3921	DATE	
CONTRACT	PORTLAND GENERAL ELECTRIC CARTY GENERATING STATION	ISSUED FOR PERMITTING	8/27/06
AREA	EROSION CONTROL-SITE	ISSUED FOR PERMITTING	8/27/06
NO.		REVISIONS AND DATES OF ISSUE	
		NO.	DATE
		1	8/27/06
		2	8/27/06
		3	8/27/06
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# Oregon

Theodore R. Kulongoski, Governor

## Department of Environmental Quality

Eastern Region Bend Office  
475 NE Bellevue Drive, Suite 110  
Bend, OR 97701-7415  
(541) 388-6146  
FAX (541) 388-8283

July 28, 2010

Sue Oliver  
Energy Facility Siting Analyst  
Oregon Department of Energy  
Hermiston Field Office  
395 E. Highland Ave.  
Hermiston, OR 97838

Re: Confirmation of Permit Application for  
Carty Generating Station  
1200-C Construction Stormwater Permit  
Morrow and Gilliam Counties

Dear Ms. Oliver:

On May 28, 2010 the Department of Environmental Quality received a National Pollutant Discharge Elimination System (NPDES) 1200-C permit application for stormwater discharge from the construction of Portland General Electric Company's Carty Generating Station. The application was submitted to Jackie Ray, Eastern Region Water Quality Permit Coordinator, in DEQ's Pendleton office. Payment for the permit application was received by Ms. Ray on July 21, 2010.

Now that payment has been received, the permit application is complete with the exception of a site certification from the Oregon Department of Energy (ODOE) and final review of and revisions to the Erosion and Sediment Control Plan (ESCP). The permit application will be approved once the ESCP is determined to meet the application requirements and pending the determination by the Energy Facility Siting Council that the Carty Generating Station Project meets Oregon's land use standards.

I have given the ESCP a preliminary review. While the ESCP will require a few revisions and some additional information, the changes will be minor. I expect that DEQ will be able to issue the NPDES 1200-C construction stormwater permit for the Carty Generating Station Project within one to two weeks of receiving the site certification from ODOE and the requested revisions to the ESCP.

Should you have any questions about the content of this letter, please contact me at 541-633-2026 or via e-mail at [hesse.todd@deq.state.or.us](mailto:hesse.todd@deq.state.or.us).

Sincerely,

Todd Hesse  
Environmental Engineer  
DEQ - Eastern Region  
475 NE Bellevue Dr Suite 110  
Bend, OR 97701

Cc: Jackie Ray, DEQ-Pendleton







**EXHIBIT J**

**JURISDICTIONAL WATERS**

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

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## APPENDICES

J-1 Wetland Delineation Report

## J.1 INTRODUCTION

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

Response: This exhibit identifies and describes existing wetlands shown on the National Wetlands Inventory (NWI) map and examined in the field within the Default Analysis Area. The Default Analysis Area for wetlands was defined as the proposed Energy Facility Site and associated transmission line right-of-way (ROW).

## J.2 POTENTIAL WATERS OF THE STATE OR WATERS OF THE UNITED STATES

**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: Each wetland is described below from information obtained during site visits by Ecology and Environment, Inc. (E & E), in 2009. The Wetland Delineation Report, with accompanying data sheets for each wetland, is attached as Appendix J-1. All figure and photolog references are to their locations in the Wetland Delineation Report, Appendix J-1. The wetlands may qualify as “waters of the state,” but neither they nor any ephemeral drainage features in Sixmile Canyon in the vicinity of the proposed Carty Generating Station are “waters of the United States.” This is because the wetlands and drainage features are isolated, without any surface connection or “significant nexus” to a traditionally navigable water of the United States. *See Rapanos v. United States*, 547 U.S. 715, 739, 742 (2006) (Scalia, J., concurring), 759, 779 (Kennedy, J., concurring); *Solid Waste Agency v. U.S. Army Corps of Eng’rs*, 531 U.S. 159, 167, 171-72 (2001); EPA & U.S. Army Corp of Engineers, *Clean Water Act Jurisdiction Following the U.S. Supreme Court’s Decision in Rapanos v. United States & Carabell v. United States* (Dec. 2, 2008). The nearest traditionally navigable water of the United States is the Columbia River, approximately 10 miles to the north. The small, isolated wetlands and drainage features described below have no physical, chemical, biological, or other effects on the river.

### J.2.1 Wetland A

Wetland A is a palustrine scrub-shrub wetland located in the northwest area of the Energy Facility Site (Appendix J-1 Supplement, Figure 6a; Photologs A-1 through A-4). This wetland area is approximately 0.5 acre (1823.5 square meters) and is dominated by common reed (*Phragmites australis*) and hard-stem bulrush (*Scirpus acutus*). During the field visit in the first week of May, ponding ranged from 1 to 2 inches near the fringe of the wetland (Photolog A-4).

At the sample point, soils were saturated to the surface, and the hydric soil indicator is redox dark surface. The wetland is well defined by vegetative and topographic boundaries. The local topography slopes down to this area and continues down Sixmile Canyon. This wetland appears to have formed in part due to runoff and/or seepage from irrigation activities to the west.

### **J.2.2 Wetland B**

Wetland B is a palustrine forested wetland located in the Energy Facility Site and within the east end of the transmission line corridor (Figure 6b; Photologs B1 through B-6). This wetland is approximately 2.1 acres (8919.7 square meters) in size. The dominant vegetation consists of Russian olive (*Elaeagnus angustifolia*), Pacific willow (*Salix lucida* ssp. *lasiandra*), broadleaf cattail (*Typha latifolia*), hard-stem bulrush, Canada goldenrod (*Solidago canadensis*), and traces of sweetmarsh groundsel (*Senecio foetidus*). The soil profile results in a hydric soil indicator of sandy mucky mineral. In May 2009, the water table was observed at a depth of approximately 2 inches below ground surface. The wetland occurs in a low area in Sixmile Canyon with local topography sloping down toward the wetland. Upslope of this wetland are irrigated agricultural lands, the Carty Reservoir, and shrub-steppe dominated rangeland. An NWI feature is mapped running through the wetland as a vegetated channel. The wetland extends slightly beyond the NWI boundaries and is not continuous (Figure 3a).

### **J.2.3 Wetland C**

Wetland C is a palustrine emergent wetland located within the transmission line corridor, approximately 7.8 miles west of the Energy Facility Site (Figure 6c; Photologs C-1 through C-7). Approximately 0.9 acres (3677.0 square meters) of this wetland occurs within the ROW. The sample point was dominated by cattails with some lamb's quarters and traces of Russian thistle (*Salsola tragus* L.) and annual rabbitsfoot grass (*Polypogon monspeliensis*). Wetland C is part of a larger wetland system, extending north outside of the transmission corridor into the drainage area that appears to have a sustained source of hydrologic contribution from agricultural irrigation runoff. The soil profile results in a hydric soil indicator of sandy redox, and a sulfuric odor was prominent during excavation of the soil pit, indicating anaerobic conditions due to long duration saturation of the soil. The wetland is well defined by vegetative and topographic boundaries. Local topography slopes down toward this swale feature, and it occurs down slope of irrigated agriculture cropland and is generally surrounded by a shrub-steppe vegetation community with invasive weed species.

### **J.2.4 Wetland D**

Wetland D is a palustrine emergent wetland located within the transmission line corridor, approximately 9 miles west of the Energy Facility Site (Figure 6d; Photologs D-1 through D-7). Approximately 0.2 acres (955 square meters) of this wetland feature occurs within the ROW. The northern sample point was dominated by common cattail and reed canarygrass (*Phalaris arundinacea*) and the southern by annual rabbitsfoot grass (*Polypogon*) and Canada goldenrod. In May 2009, approximately 1 inch of surface water was present. The soil profile sampled in

September 2009 resulted in a sandy redox hydric soil indicator. North of this feature and outside the survey corridor is a discontinuous wetland/drainage complex for approximately 0.9 miles (1,415 meters) up to the edge of an irrigated agriculture field. The lower area of the wetland is crossed by an existing one-lane, 12-foot-wide dirt road that includes fill and has one approximately 24-inch diameter galvanized pipe culvert. The drainage appears to have no perennial or intermittent connectivity to other streams or wetland features as it dissipates into a flat range area south of the slope outside the Site Boundary. Local topography slopes down toward this wetland and overall toward the southwest. The vegetation on surrounding hillsides consists of a shrub-steppe plant community with invasive weedy species.

### **J.2.5 Wetland H**

This wetland is located west of the Energy Facility Site and north of the Carty Reservoir (Figure 6b; Photologs H1-1 through H2-2) and is classified as palustrine emergent. NWI has mapped a wetland feature here, although the boundaries are not consistent with E & E's field observations. It appears that a man-made ditch has focused distribution of water into a channel that starts near the base of the Carty Reservoir embankment and continues north to a culvert under an access road. It is unclear to what extent this water may result from seepage from Carty Reservoir and from runoff or seepage from irrigation activities to the northwest, though likely both contribute. In this ditch at the southern extent, there occurs a palustrine emergent wetland dominated by cattail, Canada goldenrod, and sweetmarsh groundsel in an area less than 0.1 acres (approximately 377 square meters). Soils are characterized by a sandy redox hydric soil indicator. The ditch north of the wetland appears to be dominated by goldenrod, groundsel, and Canada thistle (*Cirsium arvense*), without cattail, thus not passing the dominance test. Areas around the ditch are dominated by cheatgrass (*Bromus tectorum*), big sagebrush (*Artemisia tridentate*), and lamb's quarters (*Chenopodium album*), and soils show no mottling until reaching depths of 14 to 18 inches. Upland soil pits also reveal that flood or alteration events occurred, which deposited a coarse sand and gravel layer at approximately 10 inches of depth. Directly adjacent to the northern end of the ditch wetland is a small wet area (H2) approximately 28 square meters with probable hydrologic connectivity to Wetland H and vegetation consisting entirely of hardstem bulrush. It has soils characterized by a sandy redox hydric soil indicator.

### **J.2.6 Wetland J**

Wetland J is a palustrine emergent wetland approximately 44.4 square meters in area, located approximately 60 meters west of Wetland A. This feature appears to be fed by local drainage from the nearby irrigated cropland and local topography. Vegetation consisted entirely of hard-stem bulrush. The soil profile revealed a depleted matrix hydric soil indicator and hydrology was indicated by water-stained leaves and passing the FAC-Neutral Test. The wetland is well defined by vegetative and topographic boundaries and is located in a low area of Sixmile Canyon (Figure 6a). It is surrounded by weedy vegetation transitioning to shrub-steppe upland habitat.

### **J.2.7 Sixmile Canyon**

An approximately 10-foot-wide ephemeral drainage is present in Sixmile Canyon to the north of Carty Reservoir, with a downward trend to the north from the base of the Carty Reservoir embankment (Figures 5a and 6b). The drainage appears to have been altered by past human activity: digging of a ditch in the reach from Tower Road southwest and south to the base of Carty Reservoir. It passes through Wetland H, and by Wetland A, and includes facultative vegetation at intermittent sections of the channel. There was no surface flow during the May 2009 or October 2009 site visits, although the bed surface was wet in May, likely due to a precipitation event the previous day. It is unclear whether this feature potentially has a hydrologic connection to other wetland features located in Sixmile Canyon 4.5 miles north during significant flood events. According to StreamNet (2009), the upper portion of Sixmile Canyon where it occurs within the Site Boundary is a non-fish-bearing feature and field observations revealed that there is no suitable habitat for fish in this feature within the study area. A stream data sheet is available in the Wetland Delineation Report (Appendix J-1).

### **J.2.8 Willow Creek**

Willow Creek is a perennial stream crossed by the transmission line corridor that runs parallel to the west side to Heppner Highway 74 (Figure 6e). The transmission corridor crosses Willow Creek south of the Heppner Highway/Rhea Road junction. According to StreamNet (2009), this is a non-anadromous fish-bearing stream, although it does contain a resident rainbow trout population. The stream is characterized by a stream bed width of 4 to 6 feet and 2 to 3 foot bank heights, above the ordinary high water mark. The highest banks extend upward an additional 3 feet, creating a high bank spread of approximately 35 feet with steep high bank slopes. Substrate material is a mix of gravel, sand, and silt, with a depth of water measured between 6 and 24 inches during the September 2009 site visit. This stream is classified as a level 2 stream by the United States Geological Survey (USGS) and is identified by NWI as a riverine wetland, although the bed is unvegetated.

### **J.2.9 Eightmile Canyon**

The Eightmile Canyon drainage is crossed by the transmission corridor approximately 471 meters west of Heppner Highway 74 in Gilliam County (Figure 6e). Although this feature is categorized as perennial by USGS and mapped by NWI as a freshwater emergent wetland, surveys revealed that it was dry in early May of 2009 and during subsequent field visits, showing no indication of recent flow and containing no hydrophytic vegetation or riparian vegetation within the survey corridor. The flow duration is ephemeral when analyzed using the Oregon Streamflow Duration Field Assessment Method. The channel is approximately 4 feet deep in the most well defined sections within the transmission line corridor, indicating that historical water flows were present causing erosion. The channel is crossed by a dirt road in two places south of Rhea Road, and, although these crossings have filled the channel, without culverts, no ponding or diversion has occurred, thus indicating infrequent flow.

### **J.3 ANALYSIS OF POTENTIAL IMPACTS TO WATERS OF THE STATE OR WATERS OF THE UNITED STATES**

**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 141-085-0510, or waters of the United States, as defined under Section 404 of the Clean Water Act.*

As discussed in Section J.2, above, the wetlands and other features described in Sixmile Canyon may be “waters of the state,” but they are not “waters of the United States.” The analysis area includes those areas that would be directly impacted by construction or operation of the Energy Facility Site or transmission line ROW. Within the Energy Facility Site, four wetlands and one drainage feature were investigated (Appendix J-1, Figure 5a). These features are not anticipated to be impacted by construction or operation of the transmission line or generating facility. Features would be avoided, as the project would utilize existing roads where possible and constructing new ones outside water feature boundaries. The transmission interconnection between the generating facility and Grassland Switchyard would span the area over Wetland B, Wetland H, and Sixmile Canyon, and towers would be sited greater than 100 feet outside water feature boundaries. Stringing the transmission cable across water features would be done by helicopter or on foot to minimize impacts during construction.

An existing road crossing Sixmile Canyon was analyzed for potential impacts. No modifications or improvements would be required at this road crossing, so no impacts are anticipated. Sixmile Canyon contains an ephemeral drainage feature with an excavated/ditched channel. It is not clear how frequently it has surface flow, but after observation during spring, summer, and fall site visits, it is possible that flow may occur during significant flood events.

Within the transmission line corridor, Wetland C would be avoided by a proposed construction and maintenance road. This palustrine emergent wetland feature is fed predominantly by irrigation runoff from the nearby agriculture area and is disturbed by existing primitive road crossings in upper portions of the wetland area outside the ROW. This road surface would not impact the wetland, and no structures would be placed within 100 feet of the water feature. Appendix I-2 of Exhibit I contains a sedimentation and erosion control plan detailing the methods that would be implemented to avoid construction impacts to the wetland.

Wetland D occurs partially within the transmission corridor, approximately 9 miles west of the Energy Facility Site (Figure 5c). This water feature extends across the transmission corridor and would be avoided during construction and operation by utilizing an existing road that crosses it, which has a culvert. This road would be used during construction and operation; the road surface is approximately 12 feet-wide at the crossing, and no potential improvements to the road would impact the wetland.

The transmission line would span Wetlands C and D and Willow Creek, as well as drainage features in Eightmile Canyon and Sixmile Canyon. Existing roads would be used, including the bridge at Rhea Road, to cross features with construction vehicles, and stringing the line would be

conducted by helicopter or on foot within the features to minimize impact. Towers would be sited outside of 100-foot water feature buffers. No adverse impacts to these water features would result from construction and operation of the transmission line.

#### **J.4 DESCRIPTION OF SIGNIFICANT POTENTIAL IMPACTS TO EACH WATER FEATURE**

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

Response: No fill or removal would occur in wetlands due to the construction or operation of the Carty Generating Station, and wetland features would be avoided by construction traffic. No significant impacts to wetlands are anticipated. However, a brief description of the potential impact is described here.

Water features occur both on the Energy Facility Site and on the transmission line ROW. The Carty Generating Station would not adversely impact any of these features. The wetlands and water features occurring along the transmission line ROW would be avoided or existing crossings would be used (such as in wetland D).

The transmission line ROW is approximately 18 miles long, and at the time the new 500-kilovolt transmission line is constructed, would require the installation of towers to support the transmission lines. The access road that would be used for construction vehicles and transportation of equipment would avoid all wetlands. [All other water features would be avoided during construction and operation.]

The existing dirt road crossing the drainage feature in Sixmile Canyon may be used for construction and operation of the transmission line. This crossing is characterized by a channel width approximately 10 feet from bank to bank that has been partially filled for an approximately 14-foot long section of the drainage with no culvert. An approximately 4-inch deep erosional cut was present during site visits, possibly due to channel flow during heavy precipitation events. Due to the ephemeral nature of the drainage, its previous disturbance from presumed excavation and presence of an existing road crossing, construction and operation of the transmission line is not anticipated to adversely affect this feature. No modifications or improvements would be required at this crossing, so no adverse impacts are expected.

Adverse impacts to these water features would be avoided by accomplishing the following three steps.

1. Preliminary data gathering and synthesis



This step is complete, and included mapping water features within the Energy Facility Site and transmission line ROW, as shown in Appendix J-1. The study area for this analysis is approximately 2,400 acres; including the Energy Facility Site and transmission line ROW located west of the Energy Facility Site. The transmission line ROW is 700 feet wide for most of its length and approximately 18 miles long.

2. Preliminary plant and tower location and field verification

Water features were preliminarily identified using NWI maps and soil survey maps for the area. Identified waters were then field verified. These mapped locations were reviewed, and it was determined through a preliminary layout that the Carty Generating Station and transmission towers would avoid disturbing water features within the analysis area. The transmission line ROW access road would utilize an existing road crossing at one wetland.

3. Construction impact minimization

Proposed tower locations have been identified based on the field verification of wetland boundaries and placed 100 feet outside the wetlands and streams wherever possible. Transmission lines typically span low-lying areas between towers, avoiding most wetlands and water features. Construction access would be accomplished on existing roads wherever possible. One wetland would require crossing for construction and operation of the towers and lines, although an existing road crossing would be used, and no removal or fill would occur in the wetland to maintain the crossing.

**J.5 EXPLANATION OF WHY A REMOVAL-FILL AUTHORIZATION WOULD NOT BE REQUIRED, IF APPLICABLE**

**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.*

Response: A Removal-Fill permit would not be required because no impacts to waters of the state are expected. No project features occur in water features, and no removal-fill in waters of the state would be necessary to construct or operate the Carty Generating Station.

**J.6 EVIDENCE THAT REMOVAL-FILL 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.*

Response: Portland General Electric Company does not anticipate applying for a Removal-Fill permit.

## **J.7 MITIGATION FOR IMPACTS TO WATER FEATURES**

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

Response: The construction and operation of the proposed Carty Generating Station is not anticipated to impact any water features.. No removal-fill and no adverse impacts would occur to the features identified in J.2 due to the proposed project. Therefore, no compensatory wetland mitigation or monitoring is necessary.

# **APPENDIX J-1**

## **Wetland Delineation Report**



---

# **Wetland Delineation Report**

## **Carty Generating Station**

Submitted to:



**December 2009**

**Prepared by:**

**Ecology and Environment, Inc.  
333 SW Fifth Avenue  
Portland, Oregon 97204**



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# Executive Summary

This report presents results of delineation of waters of the United States that will be temporarily and/or permanently affected during the construction and operation of the Carty Generating Station in Morrow and Gilliam Counties, Oregon. The delineation of waters of the United States included wetlands within the boundaries of potential disturbance resulting from installation of the project. The purpose of field delineations was also to generate information necessary to support an application for a Nationwide Permit 12, regulated under Section 404 of the Clean Water Act and other state applications. Nationwide Permit 12 authorizes discharge of dredged material associated with activities for construction (excavation, backfill, or bedding) maintenance and the repair of utility lines and associated facilities, including pipelines, provided that the activity meets the terms of the Nationwide 12 Permit and additional specific conditions stipulated by the permit.

Portland General Electric is proposing to construct and operate an approximately 900 megawatt combined-cycle, natural gas-fired power generating station (the Carty Generating Station) and an associated 18-mile transmission line in Morrow and Gilliam Counties, Oregon. This site is located approximately 13 miles southwest of Boardman, Oregon, and will be constructed adjacent to the existing Boardman facility and Carty Reservoir. The proposed transmission line will extend west from the generating station, cross into Gilliam County, and interconnect with the existing Bonneville Power Administration Slatt substation.

Ecology and Environment, Inc performed a jurisdictional delineation of waters of the United States located within the project area during site visits from May 5<sup>th</sup> to November 11<sup>th</sup>, 2009. E&E biologists followed methodologies described in the *1987 U.S. Army Corps of Engineers Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Corps 2008).

Six wetlands (totaling approximately 4 acres) and three stream features were identified and delineated occurring entirely or partially within the site boundary. Wetland A (approx. 0.5 acres), Wetland B (approx. 2.2 acres), Wetland H (approx 0.1 acres), and Wetland J (0.01 acres) were located within the proposed Energy Facility Site. Wetland C (0.9 acres) was located partially within the transmission line corridor, approximately 5.7 miles west of the proposed energy facility site. Wetland D (0.2 acres) was located within the transmission line corridor, approximately 7 miles west of the proposed energy facility site.

The three streams that would be crossed by the project include Sixmile Canyon drainage, an ephemeral stream located within the proposed Energy Facility Site; Willow Creek, a perennial stream located within the transmission corridor west of Heppner Highway 74; and Eightmile Canyon, a disconnected ephemeral tributary of Willow Creek. All three streams flow north. Willow Creek flows into the Columbia River, while Sixmile Canyon drainage connects discontinuously to Sixmile Canyon Creek, which flows into the Columbia River.

Carty Reservoir is located adjacent to the proposed Energy Facility Site. Carty Reservoir has a maximum surface area of approximately 1,450 acres and contains approximately 38,000 acre feet of water (12 billion gallons) at a maximum pool elevation of 677 feet above mean sea level. The Reservoir was established for industrial use to provide water for energy generation facilities, but has since become an area that is utilized by various wildlife species.

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# 1.0 Landscape Setting and Land Use

The natural gas-fired power generating station (the Carty Generating Station) will be located approximately 13 miles southwest of Boardman, in Morrow County, Oregon, adjacent to the existing Boardman facility and Carty Reservoir. The proposed 18-mile transmission line will extend west from the generating station, cross into Gilliam County, and interconnect with the Bonneville Power Administration Slatt substation. This section summarizes the results of the investigations for this project.

## 1.1 Landscape Setting

The Energy Facility Site and transmission right-of-way (ROW) are located in the Columbia Plateau ecoregion and Pleistocene Lake Basin subdivision. The following text has been adapted from Thorson et. al (2003): The Columbia Plateau is an arid, sagebrush steppe and grassland that is flanked by moister, predominantly forested, mountainous ecoregions. It is underlain by basalt up to two miles thick and partially covered by thick loess deposits. Where precipitation amounts are sufficient, its deep loess soils have been extensively cultivated for wheat. The Pleistocene Lake Basins once contained vast temporary lakes that were created by flood waters from glacial lakes Missoula and Columbia. In Oregon, the flood waters accumulated from the eastern entrance of the Columbia River Gorge upstream to the Wallula Gap to form ancient Lake Condon. Today, the Pleistocene Lake Basin is the driest and warmest part of the Columbia Plateau with mean annual precipitation varying from 7 to 10 inches. Native vegetation consists of bunchgrass and sagebrush. Major irrigation projects provide Columbia River water to the Pleistocene Lake Basin, allowing the conversion of large areas into agriculture.

Total acreage for the project area is approximately 2,400 acres; consisting of the 910 acres in the vicinity of the 90-acre Energy Facility Site and a 1,400-acre transmission line ROW located west of the Energy Facility Site. When constructed, the Carty Generating Station would be located within a fenced area consisting of approximately 66 acres, including up to four evaporation ponds. A fenced, 13-acre switchyard would be located west of the Carty Generating Station. Approximately 37 acres in the vicinity of the station will be used for temporary construction purposes. PGE is evaluating two Carty Generating Station Site Options within the Energy Facility Site; they are referred to as Carty Generating Station Site Option 1 and Carty Generating Station Site Option 2. Acreages of component footprints are approximations; size of facilities could vary.

Land use within the Energy Facility Site and the transmission ROW consists primarily of local and private roads, cultivated crops, and herbaceous vegetation on rangeland. The

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project would traverse agricultural crops, grazing land, shrub steppe, and grassland in Morrow and Gilliam Counties. The Nature Conservancy, in agreement with Portland General Electric, has designated an area that encompasses some of the northeastern portion of the Energy Facility Site as the Boardman Conservation Area. This area was established for protection and monitoring of the Washington Ground Squirrel (*Spermophilus washingtoni*).

Within the Energy Facility Site and including approximately 2.1 miles along the transmission ROW, vegetation consists of shrub-steppe habitat, agriculture cropland, and few riparian areas. Approximately one-fifth of this area, including the Nature Conservancy wildlife conservation area, was burned by a fire that occurred in 2008. Dominant plant species include cheatgrass (*Bromus tectorum*), stork's bill (*Erodium cicutarium*), Russian thistle (*Salisola tragus* L.), yarrow (*Achillea millefolium*), fiddleneck (*Amsinckia* sp.), green rabbitbrush (*C. viscidiflorus*), and gray rabbitbrush (*C. nauseosus*) with sub dominants of big sagebrush (*Artemisia tridentata*), bluebunch wheatgrass (*Pseudoroegneria spicata*), and desert parsley (*Lomatium dissectum*). Areas of shrub-steppe that were not impacted by recent fires are dominated by big sagebrush, bluebunch wheatgrass, cheatgrass, and rabbitbrush. Along the transmission line corridor from the proposed Carty Generating Station west 7 miles, vegetation consists of irrigated agriculture crops, cheatgrass, Russian thistle, and rabbitbrush dominated shrub-steppe and a riparian zone with mixed upland and water tolerant plants. The riparian area is dominated by Russian olive (*Elaeagnus angustifolia*) and Pacific willow (*Salix lasiandra*) in the shrub and tree layer with three-square bulrush (*Scirpus americanus*), Canada goldenrod (*Solidago canadensis*), and Sweetmarsh groundsel (*Senecio foetidus*) dominating the herb strata. Table 4.1 lists dominant plant species found across the project site.

### **1.1.1 Waterbody Crossing and Water Resources**

The project would cross the Middle Columbia-Lake Wallula watershed in Morrow County and the Willow watershed in Gilliam County. The project would not cross any Source Water Protection areas.

The project would cross the ephemeral Sixmile Canyon drainage in Morrow County and the ephemeral Eightmile Canyon Creek and perennial Willow Creek in Gilliam County. The headwaters of Willow Creek originate in the Umatilla National Forest in southern Morrow County. The creek flows northwest through Heppner, Lone, and Cecil, in Morrow County before crossing into Gilliam County south of the proposed transmission line crossing. Willow Creek is listed under Section 303(d) of the Clean Water Act as a sensitive water body for pH and temperature impairments at the proposed crossing location.

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The project does not cross any sole-source aquifers, Critical Ground Water Areas, Ground Water Limited Areas, or Groundwater Management Districts in Oregon. These areas are managed by the State of Oregon Water Resources Department.

### **1.1.2 Geologic Setting**

The project area lies within the Columbia Basin physiographic province, east of the Cascade Mountain Range and just south of the Columbia River. The geology of the Columbia River plateau consists of older volcanic formations overlain by the Columbia River Basalt Group, a series of flood basalt flows that erupted during the Miocene period in eastern Washington and flowed west, many ending along the Oregon Coast. Thickness of individual basalt flows varies from 50 feet to 200 feet.

Overlying the Columbia River Basalts are younger sedimentary and volcanic geologic units consisting of alluvium, landslides, river terrace deposits, catastrophic flood deposits, and loess deposits (Brown 1979). Because these sediments are highly susceptible to erosion, outcrops are rare, though they can be found in areas underneath a protective cap of younger volcanics (Brown 1979).

Geologic units that would be crossed by the project include Gaciofluvial, Lacustrine, and Pediment sedimentary deposits (Pleistocene), Saddle Mountain Basalt (Upper and Middle Miocene), and Tuffaceous sedimentary rocks and Tuff (Pliocene and Miocene).

The nearest fault zone is the northwest-striking Arlington-Shutler Butte fault, which is located approximately 2 miles west of the Slatt substation (USGS 2006). There is no historic earthquake or slip-rate data available for this fault, but it is believed to have been active in the middle to late Quaternary (Personius and Lidke 2003)

### **1.1.3 Local Soil Types**

The *Morrow County Area Soil Survey* identified the most prevalent soils within the proposed footprint of the Carty Generating Station as Koehler loamy fine sand (2 to 5% slopes) soil unit, Taunton fine sandy loam (2 to 5% slopes) soil unit, Quincy loamy fine sand (2 to 12% slopes) soil unit, and Sagehill fine sandy loam (2 to 5% slopes) soil unit. In addition, in the areas of the delineated wetlands, Royal silt loam (0 to 3% slopes) soil unit, and Taunton fine sandy loam (5 to 12% slopes) soil unit are present.

Koehler loamy fine sand is a moderately deep, excessively drained soil formed in mixed sand and can occur in association with Quinton, Hezel, and Burbank soils. The surface layer of this soil is very dark, grayish–brown, loamy fine sand and is typically about 4 inches thick (Hosler 1983). The substratum is about 20 inches thick and is composed of brown and



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dark brown loamy fine sand. A calcareous hardpan is present at a depth of approximately 28 inches. Runoff is slow from this soil, and erosion potential is rated as slight.

Taunton fine sandy loam is a moderately deep, well drained soil formed in old alluvium that has been modified by wind. In a representative soil profile, the surface layer is dark grayish brown fine sandy loam and is typically about 5 inches thick (Hosler 1983). The subsoil is dark brown fine sandy loam with a thickness of about 10 inches, and the substratum is dark brown, calcareous very sandy loam with a thickness of about 17 inches. A cemented calcareous hardpan is present at a depth of approximately 32 inches. Permeability in this soil is moderately rapid, runoff is medium, and erosion potential is rated as moderate.

Quincy loamy fine sand is a deep, excessively drained soil formed in mixed sand, which is located on terraces near the Columbia River. The surface layer is dark brown loamy fine sand about 6 inches in thickness, and the layer below is dark brown and brown loamy fine sand to a depth of 60 inches or more (Hosler 1983). Permeability in this soil is rapid, thus runoff is slight and the erosion potential is rated as slight.

Sagehill fine, sandy loam is a very deep, well-drained soil formed in wind-laid material and calcareous lacustrine sediment. The surface layer is dark, grayish-brown fine, sandy loam with a thickness of about 5 inches. The subsoil beneath is comprised of dark brown, fine sandy loam with a thickness of about 16 inches. The substratum is comprised of a dark brown, fine, sandy loam in the upper 7 inches above and a brown and dark-grayish brown silt loam, which extends to a depth of 60 inches or more below (Hosler 1983). Permeability through the surface down to the substratum is moderately rapid. Within the substratum, it is moderate. Runoff is slow in this soil, and the erosion potential is slight.

Royal silt loam is a very deep, well drained soil formed in wind-laid material, located in long, narrow areas of alluvial bottom lands adjacent to streams (Hosler 1983). The surface layer is very dark, grayish-brown silt loam with a thickness of about 6 inches. The subsoil is dark brown and dark, grayish-brown, fine sandy loam with a thickness of 27 inches. The substratum is dark grayish-brown stratified fine sandy loam and fine sand with a depth of 60 inches or greater. Permeability in this soil is rapid, thus runoff is slight, and the erosion potential is rated as slight.

Soil types along the transmission line corridor are comprised of multiple soil units; therefore, only the soils in the areas of the delineated wetlands are discussed in detail here. The *Morrow County Area Soil Survey* and the *Soil Survey of Gilliam County* identified the soils within the wetland areas as Sagehill fine sandy loam (5 to 12 percent slopes and 12 to 20 percent slopes) soil units. Please see the description provided above for Sagehill fine sandy loam.

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## **1.2 Site Alterations**

All four wetlands and three streams are affected by site alterations, mainly from industrial, agriculture, and livestock activities. Agriculture irrigation runoff appears to be a significant contributor to the persistence of hydrophytic vegetation in the wetlands on site. Disturbance due to grazing could also be a cause of site alterations within the project area. Some vegetation was not identifiable to species due to the extent of grazing.

Fourmile and Sixmile Canyon drainages appear to have traditionally drained the Squaw and Ella butte areas to the south and deposit into the Columbia River. Currently the Carty reservoir blocks historical flow and collects drainage from the Squaw and Ella butte areas. Water contributing to Sixmile Canyon drainage appears to come predominantly from nearby agriculture irrigation drainage and possibly seepage from the reservoir.

A bridge at Rhea Road currently spans Willow Creek. The installation date is unknown. During site surveys, it was observed that recent upgrades to the bridge have occurred. Construction and equipment vehicles will use this bridge during transmission line ROW construction.

## **1.3 Precipitation Data and Analysis**

The nearest precipitation data is from Hermiston, OR, located approximately 27 miles east of the Energy Facility Site, indicates an average annual precipitation of 8.96 inches per year (WRCC 2009). Table J.1 shows monthly precipitation data at Pendleton, Oregon (the closest accessible NOAA weather data source), including precipitation data for 3 months prior to surveys.

<b>Table J.1 Precipitation Data for Pendleton, OR (February-November 2009)</b>										
<b>Precipitation (in inches)</b>										
<b>Date</b>	<b>February</b>	<b>March</b>	<b>April</b>	<b>May</b>	<b>June</b>	<b>July</b>	<b>August</b>	<b>September</b>	<b>October</b>	<b>November</b>
1	0	0.05	0.28	0	0	0	0	0	0	0
2	T	0.55	0.1	0.29	0	0	0	0	T	0
3	0	0.12	T	0.05	0	0	0	0	0.39	0
4	0	T	0	0.16	0.9	0	T	0	0.06	0
5	0.16	0.34	0	0.11	0	T	0	0.02	0	T
6	0.04	0	0	0.22	0	T	0.1	0.02	0	0.09
7	0	T	0	0.03	T	0	0.9	0	0	T
8	T	T	0	0	0	0	0.01	0	0	T
9	T	T	0	0	0	0	0	0	0	0.08
10	0.16	T	0	0.1	0	0	0	0	0	0.05
11	0.09	0	0	0.13	T	0	0	0	0	0.04
12	0	0	0.08	0.01	0.05	T	T	0	0	T
13	0	0	T	0.01	T	0	0.02	0	0.28	0.03
14	T	0.06	0.02	0.03	0.03	0	0	0	0.18	T
15	0.01	0.06	T	0	0	0	0	0	0	T
16	0	0.02	0	0	0	0	0	0	0	0
17	T	T	T	0	0	0	0	T	T	0.1
18	0	0.01	0	0	0	0	0	0	0	0
19	0	0	0	0.02	0.07	0	0	0	0	T
20	T	0	0	0	0	0	0	0	0	0.06
21	T	0.23	0	0	0	0	0	0	0.01	T
22	0.08	0.28	0	0	0	0	0	0	0	0.01
23	0.34	T	T	0	0	0	0	0	0.2	0
24	T	0.08	0	0	0	0	0	0	0	0
25	0.01	0.06	0	0	0	0	0	0	T	0
26	0.1	0	0	0	0	0	0	0	0.28	0.1
27	0	0	0.08	0	0	0	0	0	0.01	0.35
28	T	0.72	0.41	0	0	0	0	0	0	0
29		0.01	T	0	0	0	0.01	0	0.09	0
30		0	0	0	0	0	0	0	0	0
31		0.03		0		0	0		T	
<b>Total</b>	<b>0.99</b>	<b>2.62</b>	<b>0.97</b>	<b>1.16</b>	<b>1.05</b>	<b>T</b>	<b>1.04</b>	<b>0.04</b>	<b>1.5</b>	<b>0.91</b>

T: Trace, some precipitation fell but not enough to measure

Source: National Weather Service Forecast Office, NOAA, Pendleton, OR

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## 1.4 Methods

The routine on-site determination methods outlined in the Corps *Wetland Delineation Manual* (Environmental Laboratory 1987) and the *Interim Regional Supplement to the Corps of Engineers Wetland Delineation Manual: Arid West Region* (Environmental Laboratory 2008) were used to delineate wetlands and other waters of the United States. Field work was conducted during multiple site visits from May 5<sup>th</sup> to November 11<sup>th</sup>, 2009.

According to these manuals, the identification of wetlands is based on a three-factor approach involving indicators of hydrophytic vegetation, hydric soil, and wetland hydrology. The Arid West Supplement covers all of the surveyed area, which is classified by the Corps as the Columbia/Snake Rivers Plateau. According to the Arid West Supplement for this subregion, the climate is semi-arid with average annual temperatures of 40 to 49°F in much of the area and average annual precipitation in lowland areas ranging from 6 to 20 inches (Environmental Laboratory 2008).

Prior to engaging in field work, Ecology and Environment, Inc. (E & E) staff reviewed background reference materials to familiarize personnel with the project area. These materials included ortho-aerial photographs, U.S. Geological Survey (USGS) topographic maps (Ella and Dalreed Butte quadrangles), National Wetland Inventory (USFWS, 2009), National Cooperative Soil Survey's web soil survey (NRCS 2009), Soil Survey of the Morrow County Area (Hosler 1983), and the Soil Survey of Gilliam County (Hosler 1984).

Site-specific methods included surveying the area within the energy facility site boundary which includes at minimum a 250-foot buffer around the proposed footprint of the Carty Generation Station and a 350-foot buffer off center-line of the transmission line (700-foot total width). Field maps including hydric soils maps, National Wetlands Inventory (NWI) maps, and topography maps were utilized in the field. Soil pits were dug in areas containing hydrophytic vegetation to check for the presence of hydric soils. Due to the dry season in which surveys were conducted, secondary hydrology indicators were often used to determine the presence of wetlands. Weather during the 2009 field surveys was generally clear and cool, with mean daily temperatures in the 40's to mid-50 degrees Fahrenheit. Precipitation during the May surveys was negligible (U.S. Department of the Interior 2009) and the effect of precipitation prior to the November surveys was accounted for during data collection.

## 1.5 Description of All Wetlands and Other Non-Wetland Waters

Six wetlands occur entirely or partially within the proposed Energy Facility Site and transmission line corridor, totaling approximately 4 acres of wetland habitat. E & E delineated approximately 2.8 acres of wetlands in the proposed Energy Facility Site

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(Wetlands A, B, H, and J), and approximately 1.1 acres of wetlands within or intersected by the transmission line ROW (Wetlands C and D).

### **1.5.1 Wetlands**

The following descriptions of the onsite wetlands are based on data collected during E & E's field surveys. Data Sheets are provided in Appendix A, maps and wetland figures are in Appendix B, and the photo log is in Appendix C. All wetlands identified were classified as Palustrine Systems, as each community was dominated by trees, shrubs, or persistent emergent vegetation. Wetlands that will be impacted will require a mitigation assessment using the Oregon Rapid Wetland Assessment Protocol which assists in developing mitigation based on wetland functions and values.

#### **Wetland A**

Wetland A is a Palustrine Scrub-Shrub wetland located in the northwest area of the energy facility site (Figure J-1, J-7; Photologs A-1 through A-4). This wetland area is approximately 0.5 acre (1823.5 square meters), and is dominated by common reed (*Phragmites australis*) and hard-stem bulrush (*Scirpus acutus*). During the field visit in the first week of May, ponding ranged from 1 to 2 inches near the fringe of the wetland (Photolog A-4). At the sample point, soils were saturated to the surface and the hydric soil indicator is redox dark surface. The wetland is well defined by vegetative and topographic boundaries. The local topography slopes down to this area which contributes to the Sixmile Canyon drainage, although there is no direct connection between this wetland and the drainage channel.

Potential functions of this wetland include wildlife habitat, flood-flow alteration, sediment/toxicant retention and removal, and transformation of nutrients and sediments.

#### **Wetland B**

Wetland B is a Palustrine Forested wetland located in the energy facility site and within the east end of the transmission line corridor (Figure J-1 and J-8; Photologs B1 through B-6). This wetland is approximately 2.1 acres (8919.7 square meters) in size. The dominant vegetation consists of Russian olive, Pacific willow, common cattail, hardstem bulrush (*Scirpus acutus*), Canada goldenrod (*Solidago canadensis*), and traces of sweetmarsh groundsel (*Senecio foetidus*). The soil profile results in a hydric soil indicator of sandy mucky mineral. Surface water was present in the wetland during the May 5<sup>th</sup> site visit at a depth of approximately 2 inches below ground surface. The wetland occurs in a low area contributing to the Sixmile canyon drainage with local topography sloping down toward the wetland. Upslope of this wetland is irrigated agriculture land, the Carty Reservoir, and shrub-steppe dominated rangeland. An NWI feature is mapped running through the wetland as a vegetated channel. The wetland extends slightly beyond the NWI boundaries and is not continuous (Figure J-4).

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Potential functions of this wetland include wildlife habitat, flood-flow alteration, transformation of nutrients and sediments, and sediment/toxicant retention and removal.

### **Wetland C**

Wetland C is a Palustrine Emergent wetland located within the transmission line corridor, approximately 7.8 miles west of the proposed generating station footprint (Figure J-2 and J-9; Photologs C-1 through C-7). Approximately 0.9 acres (3677.0 square meters) of this wetland occur within the right-of-way. The sample point was dominated by cattails with some lamb's quarters and traces of Russian thistle and annual rabbitsfoot grass (*Polypogon monspeliensis*). Wetland C is part of a larger wetland system, extending north outside of the transmission corridor into the drainage area that appears to have a sustained source of hydrologic contribution from agricultural irrigation runoff. The soil profile results in a hydric soil indicator of sandy redox and a sulfuric odor was prominent during excavation of the soil pit, indicating anaerobic conditions due to long duration saturation of the soil. The wetland is well defined by vegetative and topographic boundaries. Local topography slopes down toward this swale feature and it occurs down slope of irrigated agriculture cropland and is generally surrounded by a shrub-steppe vegetation community with invasive weed species.

Potential functions of this wetland include flood-flow alteration, transformation of nutrients and sediments, and sediment/toxicant retention and removal.

### **Wetland D**

Wetland D is a Palustrine Emergent wetland located within the transmission line corridor, approximately 9 miles west of the proposed generating station footprint (Figure J-2 and J-10; Photolog D-1 through D-7). Approximately 0.2 acres (955 square meters) of this wetland feature occur within the right-of-way. The northern sample point was dominated by common cattail and reed canarygrass (*Phalaris arundinacea*) and the southern by annual rabbitsfoot grass (*Polypogon monspeliensis*) and Canada goldenrod (*Solidago Canadensis*). Approximately 1 inch of surface water was present during a site visit on May 5<sup>th</sup>. The soil profile sampled on September 30<sup>th</sup> resulted in a sandy redox hydric soil indicator. North of this feature and outside the survey corridor is a discontinuous wetland/drainage complex for approximately 0.9 miles (1,415 meters) up to the edge of an irrigated agriculture field. The lower area of the wetland is crossed by an existing one-lane, 12-foot wide dirt road that includes fill and has one, approximately 24-inch diameter galvanized pipe culvert. The drainage appears to have no perennial or intermittent connectivity to other streams or wetland features as it dissipates into a flat range area south of the slope outside the project area. Local topography slopes down toward this wetland and overall toward the southwest. The vegetation on surrounding hillsides consists of a shrubs-steppe plant community with invasive weedy species.

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Potential functions for this wetland include wildlife habitat, flood-flow alteration, sediment stabilization, and removal/transformation of nutrients and sediments.

### **Wetland H**

This wetland is located west of the generating station footprint and north of the Carty Reservoir (Figure J-1 and J-11; Photologs H1-1 through H2-2) and classified as Palustrine Emergent. NWI has mapped a wetland feature here, although the boundaries are not consistent with E & E's field observations. It appears that a man-made ditch has focused distribution of water into a channel that starts near the base of the Carty Reservoir embankment and continues north to a culvert under Boardman Plant Road. In this ditch at the southern extent, there occurs a palustrine emergent wetland dominated by cattail, Canada goldenrod, and sweetmarsh groundsel in an area less than 0.1 acres (approximately 377 square meters). Soils are characterized by a sandy redox hydric soil indicator. The ditch north of the wetland appears to be dominated by goldenrod, groundsel, and Canada thistle (*Cirsium arvense*), without cattail, thus not passing the dominance test. Areas around the ditch are dominated by cheatgrass, big sage, and lamb's quarters, and soils show no mottling until reaching depths of 14 to 18 inches. Upland soil pits also reveal that flood or alteration events occurred, which deposited a coarse sand and gravel layer at about 10 inches of depth. Directly adjacent to the northern end of the ditch wetland is a small wet area (H2) approximately 28 square meters with probable hydrologic connectivity to wetland H and vegetation consisting entirely of hardstem bulrush. It has soils characterized by a sandy redox hydric soil indicator.

### **Wetland J**

Wetland J is a palustrine emergent wetland approximately 44.4 square meters, located approximately 60 meters west of Wetland A. This feature appears to be fed by local drainage from the nearby irrigated cropland and local topography. Vegetation consisted entirely of hardstem bulrush (*Scirpus acutus*). The soil profile revealed a depleted matrix hydric soil indicator and hydrology was indicated by water-stained leaves and passing the FAC-Neutral Test. The wetland is well defined by vegetative and topographic boundaries and is located in a low area of the Sixmile Canyon drainage. It is surrounded by weedy vegetation transitioning to shrub-steppe upland habitat.

### **1.5.2 Other Jurisdictional Waters of the U.S.**

All waterways were identified based on the presence of a defined bed and bank. The ordinary high water mark was determined by field observations including scour, matted down or absent vegetation, shelving, abrupt change in plant community, or destruction of



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terrestrial vegetation. Criteria used to determine whether a waterway was ephemeral, intermittent, or perennial included channel characteristics, aerial photographs, USGS maps, and field observations used in conjunction with the Oregon Streamflow Duration Field Assessment method.

Sixmile Canyon drainage, an approximately 10-foot wide ephemeral drainage, was present within the site boundary of the proposed generating station, flowing north from the base of the Carty Reservoir embankment (Figure J-1). The drainage appears to have been altered by human activity: digging of a ditch in the reach from Boardman Plant Road southwest and south to the base of Carty Reservoir. It passes through Wetland H and by Wetland A and includes facultative vegetation at intermittent sections of the channel. There was no surface flow during the May or October site visit, although the bed surface was wet in May, probably due to a precipitation event the previous day. This feature potentially has a hydrologic connection to the larger Sixmile Canyon Creek located 4.5 miles north during 10 year flood events. According to StreamNet (2009), the upper portion of Sixmile Canyon where it occurs within the project boundary is a non-fish bearing stream. A stream data sheet is available in Appendix A.

The Eightmile Canyon drainage is crossed by the transmission corridor approximately 471 meters west of Heppner Highway 74 in Gilliam County (Figure J-4). Although this feature is categorized as perennial by USGS and mapped by NWI as a freshwater emergent wetland, surveys revealed that it was dry in early May of 2009 and during subsequent field visits, showing no indication of recent flow and contained no hydrophytic vegetation or riparian vegetation within the survey corridor. The flow duration is ephemeral when analyzed using the Oregon Streamflow Duration Field Assessment Method. The channel is approximately 4 feet deep in the most well defined sections within the transmission line corridor indicating that historical water flows were present causing erosion. The channel is crossed by a dirt road in two places south of Rhea Road, and, although these crossings have filled the channel without culverts, no ponding or diversion has occurred.

Willow Creek is a perennial stream crossed by the transmission line corridor and runs parallel on the west side to Heppner Highway 74 (Figure J-4). The proposed transmission corridor crosses Willow Creek south of the Heppner Highway/Rhea Road junction. According to StreamNet (2009), this is a non-anadromous fish bearing stream, although it does contain a resident rainbow trout population. The stream is characterized by a stream bed width of 4 to 6 feet and 2 to 3 foot bank heights to above ordinary high water mark. The highest banks extend upward an additional 3 feet, creating a high bank spread of approximately 35 feet with steep high bank slopes. Substrate material is a mix of gravel, sand and silt, with a depth of water between 6 and 24 inches during the September site

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visit. This stream is classified as a level 2 stream by USGS and is identified by NWI as a riverine wetland, although the bed is unvegetated.

## **1.6 Recommendations**

Stormwater management and erosion and sediment control measures should be implemented according to permit requirements to minimize potential water quality impacts to wetlands within the proposed generating station footprint and along the transmission line corridor. Temporary impacts to palustrine emergent wetlands can be mitigated with bio-mats in some cases such as construction road crossings where bio-mats are removed within 2 years of instillation. All impacts to palustrine scrub-shrub or palustrine forested wetlands are considered permanent due to the extended recovery time required by these types of vegetation communities to grow back to pre-impact conditions.

## **1.7 Deviation from Local Wetland Inventory or National Wetland Inventory**

There are five total NWI-mapped wetlands intersected by or within the project boundary, no Local Wetland Inventory was available. One of the mapped NWI wetlands, which occurred adjacent to Heppner Highway 74 approximately 7.8 miles east along the transmission corridor from the Slatt Substation, was recorded as a stock pond, although during field reconnaissance was identified as a gravel pile and pull out area near a stock yard. This wetland feature was either filled or was improperly mapped; no evidence of a wetland or stock pond was identified.

One of the NWI mapped wetlands is located in the energy facility site and the transmission corridor. It is categorized as a freshwater emergent wetland with a mapped area of 6.1 acres including what appears to capture a vegetated stream channel 965 meters long connecting to a larger area. The western half of the mapped stream channel was verified in the field and delineated occupying a larger area and identified as Wetland B described in Section 1.5. Field observation revealed no wetland area connecting Wetland B to the larger area of the NWI mapped wetland (Figure J-4). In the larger mapped area, a small wetland was found occurring in a drainage-way, likely excavated by human activity, and a very small nearby wetland both delineated as Wetland H. A majority of the larger area mapped by NWI as a wetland was upland dominated by big sage, lamb's quarters, alkali swainsonpea, and cheat grass with the drainage-way dominated by sweetmarsh groundsel and Canada goldenrod. A soil pit in this area outside the drainage-way consisted of sandy loam, a course sandy/gravel layer, a clay loam layer from 13 to 14 inches and sandy loam beneath. This soil profile does not meet a hydric soil indicator for the arid west, nor do the plants meet hydrophytic vegetation criteria or sufficient surface hydrology.

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Another NWI mapped feature is in the southern area of the energy facility site along the eastern boundary near the Carty Reservoir. This area is dominated by Russian olive (70%), cheat grass (50%), lamb's quarters (30%), Russian thistle (30%), and big sage (25%). Small distributions of Canada thistle (10%) and smooth horsetail (*Equisetum laevigatum*) (10%) are mixed in near the side of the gravel road which follows the base of the reservoir embankment. This plant community does not meet the hydrophytic vegetation criteria nor did wetland hydrology exist here at the time when surveys were conducted.

Wetland E described in section 1.5 is mapped by NWI, although field analysis resulted in boundaries that are slightly different. Change from a hydrophytic vegetation community to non-hydrophytic vegetation was used as the primary indicator to delineate the boundary in the field. The resulting area of 0.68 acres (2,744 square meters) was delineated for this feature, as compared to the NWI mapped area of 1.2 acres (4,656 square meters).

Eightmile Canyon stream is mapped by NWI as a palustrine emergent wetland, although field observations reveal that within the transmission corridor it lacks hydrophytic vegetation and wetland hydrology.

## **1.8 Mapping Method**

E & E used a Trimble XT and a Trimble XH GPS to map wetland community boundaries in the Carty Generation Station footprint in addition to desktop analysis based on field observations. The point information was exported to a database format using ArcView and edited before linking with Geographic Information System. All maps were created by E & E using this digitized data.

## **1.9 Results and Conclusions**

A total of six wetlands (totaling approximately 4 acres) were identified and delineated: four wetlands (2.8 acres) within the proposed Energy Site Facility and two wetlands (1.1 acres) along the transmission line ROW. Wetlands C, D, H, and J were recorded as Palustrine Emergent, Wetland B was recorded as Palustrine Forested, and Wetland A was recorded as Palustrine Scrub-Shrub.

Two ephemeral streams (Eightmile Canyon and Sixmile Canyon) and one perennial stream (Willow Creek) were encountered within the Energy Site Facility and transmission line ROW.

We recommend a 100-foot buffer from construction of new structures for all wetland and stream features based on Morrow County's required stream buffers.

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If impacts are to occur to any of the wetland or stream features, further analysis may be required, including functional assessments.

### **1.10 Disclaimer**

This report documents the investigation, best professional judgment and conclusions of the investigator. It is correct and complete to the best of my knowledge. It should be considered a Preliminary Jurisdictional Determination of wetlands and other waters and used at your own risk unless it has been reviewed and approved in writing by the Oregon Department of State Lands in accordance with OAR 141-090-0005 through 141-090-0055.

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## 2.0 References

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# A. Data Sheets





FEATURE ID: Willow CR

STREAM DATA

STATE OR  
 STREAM AND WASH DATA

photo 1231-1236

County: <u>Bellman</u>	Stream Name: <u>Willow</u>
Date: <u>10/1/09</u>	Facility:
Observers: <u>LM &amp; FB</u>	Map No.:
	Milepost:

Traditional Navigable Water (TNW) or Tributary (non-TNW) <u>Tributary</u>	BOTTOM CHARACTERISTICS	
Perceptible Flow <input checked="" type="checkbox"/> yes <input type="checkbox"/> no	Substrate Type	Probed Stream Depth (if water present)
Stream Flow Direction: <u>N</u>	<input type="checkbox"/> Bedrock	<input type="checkbox"/> 0-6"
Width (ft) (water's edge to water's edge) <u>10</u>	<input checked="" type="checkbox"/> Gravel	<input checked="" type="checkbox"/> 7-12"
Width (ft) (bank to bank) <u>35</u>	<input checked="" type="checkbox"/> Sand	<input checked="" type="checkbox"/> 13-24"
(above OHWM)	<input checked="" type="checkbox"/> Silt	<input type="checkbox"/> 25-36"
(use OHWM Criteria below)	<input type="checkbox"/> Clay	<input type="checkbox"/> 37"+
	<input type="checkbox"/> Other _____	

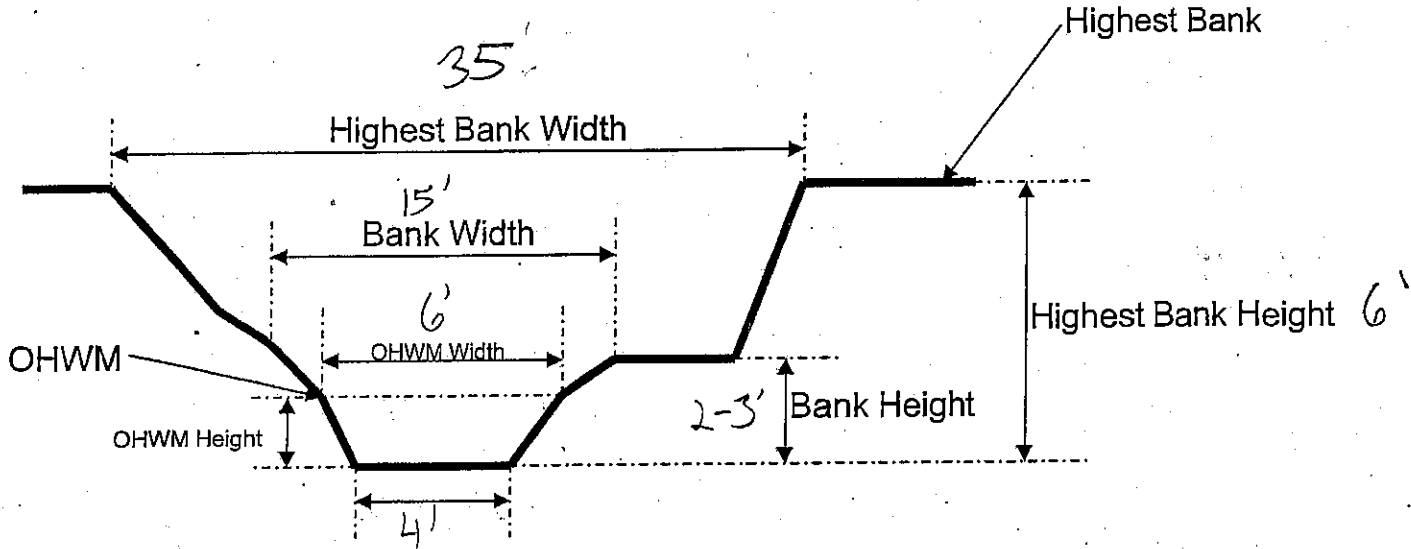
BANK HEIGHT AND SLOPE (above OHWM) <u>looking dn stream</u>	ASSOCIATED HABITAT	ASSOCIATED SPECIES
Left Bank* Height (ft): <u>2-3'</u>	Riparian Vegetation	Aquatic Organisms
Right Bank* Height (ft): <u>2-3'</u>	<input checked="" type="checkbox"/> yes	<input checked="" type="checkbox"/> yes
Slope: <input type="checkbox"/> 0-30°	<input type="checkbox"/> no	<input type="checkbox"/> no
<input type="checkbox"/> 31-45°	If yes, list: <u>Russian olive</u>	If yes, list: <u>Ranunculus tripartitus</u>
<input checked="" type="checkbox"/> 46-60°	<u>Red canary grass</u>	
<input type="checkbox"/> 61-90°	<u>Common Cockle burr, rough (Stramonium) FAC</u>	
Height (ft) (OHWM from stream bed) <u>2-3'</u>	Aquatic Vegetation	Riparian/Terrestrial Organisms
*Direction when facing downstream	<input checked="" type="checkbox"/> yes	<input type="checkbox"/> yes
	<input type="checkbox"/> no	<input type="checkbox"/> no
	If yes, list: <u>algae</u>	If yes, list:

NOTES for HIGH BANK for Construction (if present)	Associated /Adjacent Wetland	T&E Species
Width (ft) Highest Bank to Highest Bank: <u>35+</u>	<input type="checkbox"/> yes	<input type="checkbox"/> yes
Highest Left Bank Height*: <u>6</u>	<input type="checkbox"/> no	<input checked="" type="checkbox"/> no
Highest Left Bank Slope*: <u>45°</u>	If yes, list ID:	If yes, list ID:
Highest Right Bank Height*: <u>6</u>		
Highest Right Bank Slope*: <u>60°</u>		
*Direction when facing downstream		
Evidence of Erosion? <u>Y</u>	If yes, does it abut directly: _____	
Explain: <u>outside bend scour</u>		

OHWM Criteria - Original High Water Mark	Wetland Adjacency determination if it is not directly abutting to stream/tributary
<input type="checkbox"/> clear, natural line impressed on bank	<input type="checkbox"/> Discrete wetland hydrologic connection
<input type="checkbox"/> changes in character of soil	<input type="checkbox"/> Ecological connection
<input checked="" type="checkbox"/> shelving	<input type="checkbox"/> Separated by berm/barrier
<input type="checkbox"/> vegetation matted down, bent or absent	Explain:
<input type="checkbox"/> leaf litter disturbed or washed away	
<input type="checkbox"/> sediment deposition	Presence of run/pools/riffle?
<input type="checkbox"/> water staining	Explain:
<input type="checkbox"/> presence of litter and debris	
<input type="checkbox"/> destruction of terrestrial vegetation	Is the stream/tributary natural, manmade, or man-altered _____
<input type="checkbox"/> presence of wrack line	NOTES:
<input type="checkbox"/> sediment sorting	
<input checked="" type="checkbox"/> scour	
<input type="checkbox"/> abrupt change in plant community	
<input type="checkbox"/> other (list)	

NE4

SZ NE SE



\* Stream Bed Width (water's edge to water's edge)

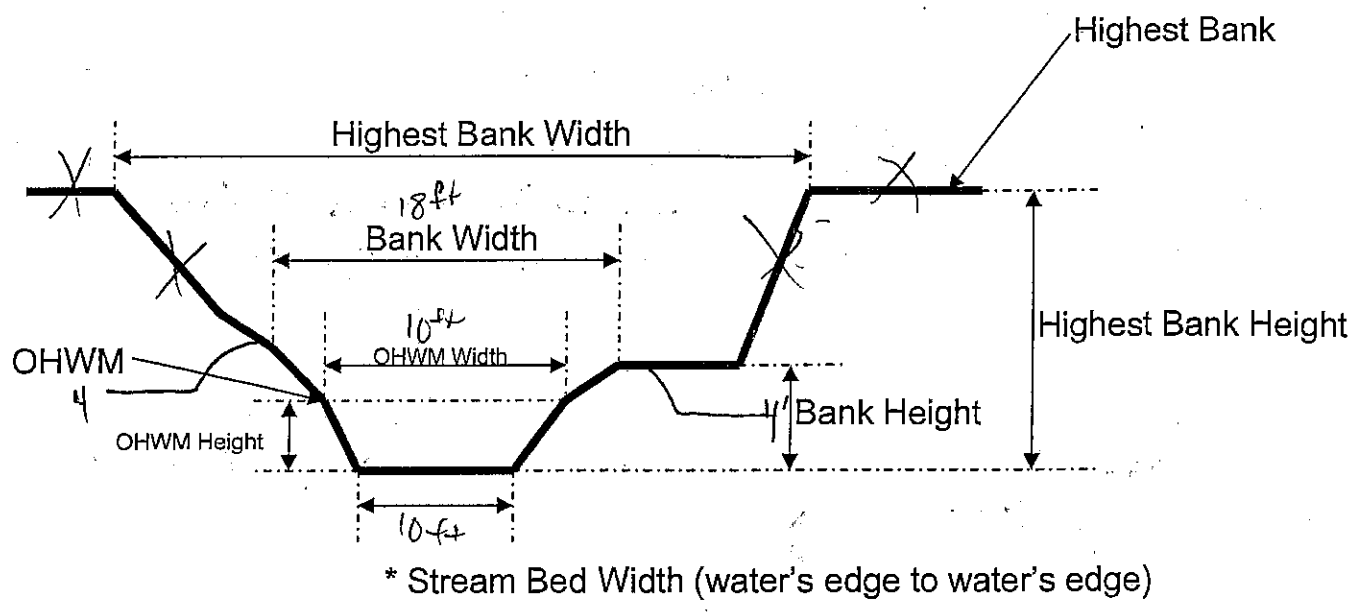
\*Stream bed width is variable

**DEFINITIONS:**

- Run:** A reach of stream characterized by fast flowing low turbulence water.
- Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
- Pool:** A reach of stream that is characterized by deep low velocity water and a smooth surface.

STATE <u>OR</u>	
STREAM AND WASH DATA	
County: <u>Morrow</u>	Stream Name: <u>Six Mile Canyon (drainage)</u>
Date: <u>10/1/09</u>	Facility: <u>CARTV Energy facility site</u>
Observers: <u>Lucas Meek</u>	Map No.: _____ Milepost: _____
Traditional Navigable Water (TNW) or Tributary (non-TNW)	BOTTOM CHARACTERISTICS
Perceptible Flow <input type="checkbox"/> yes <input checked="" type="checkbox"/> no	Substrate Type: _____ Probed Stream Depth (if water present)
Stream Flow Direction <u>NORTH</u>	<input type="checkbox"/> Bedrock <input checked="" type="checkbox"/> 0-6" <u>not present</u>
Width (ft) (water's edge to water's edge) <u>10 ft</u>	<input type="checkbox"/> Gravel <input type="checkbox"/> 7-12"
Width (ft) (bank to bank) <u>18 ft</u>	<input checked="" type="checkbox"/> Sand <input type="checkbox"/> 13-24"
(above OHWM)	<input checked="" type="checkbox"/> Silt <input type="checkbox"/> 25-36"
(use OHWM Criteria below)	<input type="checkbox"/> Clay <input type="checkbox"/> 37"+
<input type="checkbox"/> Other _____	
BANK HEIGHT AND SLOPE (above OHWM)	ASSOCIATED HABITAT
Left Bank* Right Bank* Height (ft): <u>4</u> Height (ft): <u>4</u>	Riparian Vegetation
Slope: <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	<input checked="" type="checkbox"/> yes
Slope: <input type="checkbox"/> 0-30° <input type="checkbox"/> 31-45° <input checked="" type="checkbox"/> 46-60° <input type="checkbox"/> 61-90°	<input type="checkbox"/> no
Height (ft) (OHWM from stream bed) <u>0</u>	If yes, list: <u>Senecio foetidus</u>
*Direction when facing downstream	<u>Solidago canadensis</u>
NOTES for HIGH BANK for Construction (if present)	<u>Cirsium arvense</u>
Width (ft) Highest Bank to Highest Bank: _____	Aquatic Vegetation
Highest Left Bank Height*: _____	<input type="checkbox"/> yes
Highest Left Bank Slope*: _____	<input checked="" type="checkbox"/> no
Highest Right Bank Height*: _____	If yes, list: _____
Highest Right Bank Slope*: _____	Riparian/Terrestrial Organisms
*Direction when facing downstream	<input type="checkbox"/> yes
Evidence of Erosion? _____	<input checked="" type="checkbox"/> no
Explain: _____	If yes, list: _____
	Associated /Adjacent Wetland
	<input checked="" type="checkbox"/> yes
	<input type="checkbox"/> no
	If yes, list ID: <u>wetlands A, J, H</u>
	T&E Species
	<input type="checkbox"/> yes
	<input checked="" type="checkbox"/> no
	If yes, list ID: _____
	If yes, does it abut directly: <u>Yes, H</u>
OHWM Criteria - Original High Water Mark	Wetland Adjacency determination if it is not directly abutting to stream/tributary
<input type="checkbox"/> clear, natural line impressed on bank	<input type="checkbox"/> Discrete wetland hydrologic connection
<input type="checkbox"/> changes in character of soil	<input type="checkbox"/> Ecological connection
<input type="checkbox"/> shelving	<input type="checkbox"/> Separated by berm/barrier
<input type="checkbox"/> vegetation matted down, bent or absent	Explain: _____
<input type="checkbox"/> leaf litter disturbed or washed away	Presence of run/pools/riffle? <u>NO</u>
<input type="checkbox"/> sediment deposition	Explain: <u>it appears to be a constructed drainage channel</u>
<input type="checkbox"/> water staining	Is the stream/tributary natural, manmade, or man-altered <u>Man-altered</u>
<input type="checkbox"/> presence of litter and debris	NOTES: <u>Looks like a ditch that was dug to drain the area below Carty reservoir.</u>
<input type="checkbox"/> destruction of terrestrial vegetation	
<input type="checkbox"/> presence of wrack line	
<input type="checkbox"/> sediment sorting	
<input type="checkbox"/> scour	
<input checked="" type="checkbox"/> abrupt change in plant community	
<input type="checkbox"/> other (list)	

*flow appears ephemeral, no surface water during May 5<sup>th</sup> field visit, although soil moist*



\*Stream bed width is variable

**DEFINITIONS:**

- Run:** A reach of stream characterized by fast flowing low turbulence water.
- Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
- Pool:** A reach of stream that is characterized by deep low velocity water and a smooth surface.

**Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)**

Project # / Name <u>Cartez Energy Facility / PGE</u>		Evaluator Attended <input type="checkbox"/> Orientation <input type="checkbox"/> Field Training <input type="checkbox"/>				
Address <u>Morrow County</u>		Date <u>10/1/09</u>				
Waterway Name <u>Six mile Canyon drainage</u>		Coordinates at downstream end Lat. <u>45°42'1.646" N</u> Long. <u>119°49'20.339" W</u>				
Reach Boundaries <u>Cartez Reservoir NE of Boardman</u>						
Precipitation w/in 48 hours (cm) <u>0</u>	Channel Gradient (%) <u>0-5</u>	Channel Width (m) <u>3</u>				
"Dry Channel"		"Wet Channel"				
Observed Hydrology: <input checked="" type="checkbox"/> Water Absent		<input type="checkbox"/> No surface flow but at least one pool present				
		<input type="checkbox"/> Surface flow present but not spatially continuous				
		<input type="checkbox"/> Continuous surface flow				
<input checked="" type="checkbox"/> Disturbed Site / Difficult Situation (Describe in "Notes")						
		Absent	Weak			
		Moderate	Strong			
Geomorphology	1. Continuous Bed and Bank	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	2. In-channel Structure / Organized Sequences	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	3. Soil texture or stream substrate sorting	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	4. Erosional Features	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	5. Depositional Features	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	6. Sinuosity	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	7. Headcuts And Grade Controls	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
<b>GEOMORPHOLOGY SUBTOTAL:</b>					<u>1 - 3</u>	
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	9. Springs And Seeps (Note Locations)	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3	
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	<input type="checkbox"/> 1.5	<input type="checkbox"/> 1	<input type="checkbox"/> 0.5	<input checked="" type="checkbox"/> 0	
	11. Debris Piles And Wrack Lines	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	12. Redoximorphic Features In Toe Of Bank	<input type="checkbox"/> Absent = 0	<input checked="" type="checkbox"/> Present = 1.5			
<b>HYDROLOGY SUBTOTAL:</b>					<u>5</u>	
Biology	13. Wetland Plants In / Near Streambed	<input type="checkbox"/> FAC 0.5	<input checked="" type="checkbox"/> FACW 0.75	<input type="checkbox"/> OBL 1.5	<input type="checkbox"/> SAV 2	<input type="checkbox"/> None
	14. Fibrous Roots / Rooted Plants In Thaliweg ▼	<input type="checkbox"/> 3	<input type="checkbox"/> 2	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 0	
	15. Streamer Mosses And Algal Mats	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	17. Macroinvertebrates	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	18. Amphibians	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	19. Fish	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	20. Lichen Line (Arid Regions and Alpine Areas Only)	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	21. Riparian Corridor (Arid Regions Only)	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	
	<b>BIOLOGY SUBTOTAL:</b>					<u>3.75</u>
<b>★ TOTAL SCORE:</b>					<u>9.75 - 11.75</u>	
Single Indicators: <input type="checkbox"/> Fish <input type="checkbox"/> Amphibians <input type="checkbox"/> Macroinvertebrates		<b>Flow Duration (select only one)</b>				
		Ephemeral <input checked="" type="checkbox"/> Total Score < 13				
		Intermittent <input type="checkbox"/> Total Score ≥ 13 or Single Indicator				
Note: Scoring scale is reversed for indicators marked with ▼.		Perennial <input type="checkbox"/> Total Score ≥ 25				

Notes (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

Difficult Situation:

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

Prolonged Abnormal Rainfall / Snowpack

Below Average

Above Average

Natural or Anthropogenic Disturbance

Other: \_\_\_\_\_

The channel was excavated/ditched

The NWI map shows this as a big wetland, but the channel is assumed to have lowered the water table, so now it is surrounded by upland. see below for more.

Describe and Explain any Indicators of Questionable Applicability:

Other Notes (sketch of site, description of photos, depth of observed groundwater, etc.)

NWI identifies it as intermittent stream, probably assigned prior to modifications by humans. The Cuddy reservoir seeps into the area, PGE has monitoring wells to examine seepage.

September precip 0.05 in in last 48 hrs (wunderground.com)



STATE OR

STREAM AND WASH DATA

GPS pt 100

County: <u>Gilliam</u>	Stream Name: <u>8 mile Canyon Cr</u>
Date: <u>9/14/09</u>	Facility: <u>Carty T-line</u>
Observers: <u>LM &amp; FG</u>	Map No.: _____ Milepost: _____

Traditional Navigable Water (TNW) or Tributary (non-TNW)

Perceptible Flow <input type="checkbox"/> yes <input checked="" type="checkbox"/> no Stream Flow Direction <u>NE</u> Width (ft) (water's edge to water's edge) <u>2-3 ft</u> Width (ft) (bank to bank) (above OHWM) <u>20-25"</u> (use OHWM Criteria below)	Substrate Type <input type="checkbox"/> Bedrock <input type="checkbox"/> Gravel <input checked="" type="checkbox"/> Sand <input checked="" type="checkbox"/> Silt <input type="checkbox"/> Clay <input checked="" type="checkbox"/> Other <u>hard pan silt</u>	Probed Stream Depth (if water present) <input type="checkbox"/> 0-6" <input type="checkbox"/> 7-12" <input type="checkbox"/> 13-24" <input type="checkbox"/> 25-36" <input type="checkbox"/> 37"+ <u>Dry</u>
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BANK HEIGHT AND SLOPE (above OHWM)      ASSOCIATED HABITAT      ASSOCIATED SPECIES

Left Bank* Height (ft): <u>4</u> Right Bank* Height (ft): <u>4</u> Slope: <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90° Slope: <input type="checkbox"/> 0-30° <input checked="" type="checkbox"/> 31-45° <input type="checkbox"/> 46-60° <input type="checkbox"/> 61-90° Height (ft) (OHWM from stream bed) <u>N/A</u> *Direction when facing downstream	Riparian Vegetation <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list:  Aquatic Vegetation <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list:	Aquatic Organisms <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list:  Riparian/Terrestrial Organisms <input type="checkbox"/> yes <input checked="" type="checkbox"/> no If yes, list:
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NOTES for HIGH BANK for Construction (if present)  
 Width (ft) Highest Bank to Highest Bank: N/A

Highest Left Bank Height\*: \_\_\_\_\_  
 Highest Left Bank Slope\*: \_\_\_\_\_  
 Highest Right Bank Height\*: \_\_\_\_\_  
 Highest Right Bank Slope\*: \_\_\_\_\_  
 \*Direction when facing downstream

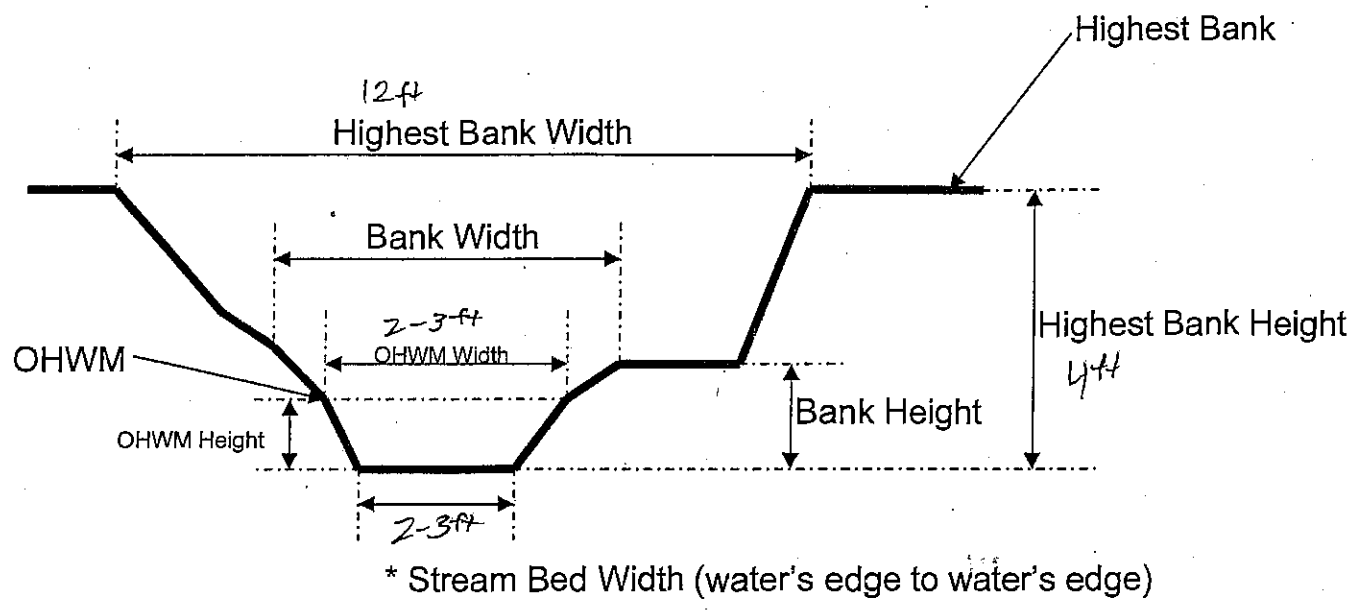
Evidence of Erosion? \_\_\_\_\_  
 Explain: \_\_\_\_\_

Associated /Adjacent Wetland  
 yes  
 no  
 If yes, list ID: \_\_\_\_\_

If yes, does it abut directly: \_\_\_\_\_

T&E Species  
 yes  
 no  
 If yes, list ID: \_\_\_\_\_

OHWM Criteria - Original High Water Mark <input type="checkbox"/> clear, natural line impressed on bank <input type="checkbox"/> changes in character of soil <input checked="" type="checkbox"/> shelving <input type="checkbox"/> vegetation matted down, bent or absent <input type="checkbox"/> leaf litter disturbed or washed away <input type="checkbox"/> sediment deposition <input type="checkbox"/> water staining <input type="checkbox"/> presence of litter and debris <input type="checkbox"/> destruction of terrestrial vegetation <input type="checkbox"/> presence of wrack line <input type="checkbox"/> sediment sorting <input type="checkbox"/> scour <input type="checkbox"/> abrupt change in plant community <input type="checkbox"/> other (list)	Wetland Adjacency determination if it is not directly abutting to stream/tributary <input type="checkbox"/> Discrete wetland hydrologic connection <input type="checkbox"/> Ecological connection <input type="checkbox"/> Separated by berm/barrier Explain:  Presence of run/pools/riffle? <u>no</u> Explain:  Is the stream/tributary natural, manmade, or man-altered <u>yes</u> NOTES: <u>channel crossed by a road</u>
--	--



\*Stream bed width is variable

**DEFINITIONS:**

- Run:** A reach of stream characterized by fast flowing low turbulence water.
- Riffle:** A reach of stream that is characterized by shallow, fast moving water broken by the presence of rocks and boulders.
- Pool:** A reach of stream that is characterized by deep low velocity water and a smooth surface.

**Oregon Streamflow Duration Field Assessment Form (Interim Version – March 2009)**

Project # / Name: <u>CARTY Energy Facility / PGE</u>		Evaluator: _____				
Address: <u>William Co</u>		Attended <input type="checkbox"/> Orientation <input type="checkbox"/> Field Training <input type="checkbox"/>				
Waterway Name: <u>Eight Mile Canyon</u>		Date: <u>9/14/09</u>				
Reach Boundaries: <u>Transmission Corridor</u>		Coordinates at downstream end (ddd.mm.ss)	Lat. <u>45° 42' 43.31"</u> N Long. <u>120° 2' 8.489"</u> W			
Precipitation w/in 48 hours (cm): <u>No</u>	Channel Gradient (%): <u>0-5</u>	Channel Width (m): <u>1 meter</u>				
"Dry Channel"		"Wet Channel"				
Observed Hydrology:	<input checked="" type="checkbox"/> Water Absent	<input type="checkbox"/> No surface flow but at least one pool present	<input type="checkbox"/> Surface flow present but not spatially continuous			
			<input type="checkbox"/> Continuous surface flow			
<input type="checkbox"/> Disturbed Site / Difficult Situation (Describe in "Notes")		Absent	Weak			
		Moderate	Strong			
Geomorphology	1. Continuous Bed and Bank	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input checked="" type="checkbox"/> 3	
	2. In-channel Structure / Organized Sequences	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	3. Soil texture or stream substrate sorting	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	4. Erosional Features	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	5. Depositional Features	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	6. Sinuosity	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	7. Headcuts And Grade Controls	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
<b>GEOMORPHOLOGY SUBTOTAL:</b>					<u>3.5</u>	
Hydrology	8. Groundwater (Wet) / Hyporheic (Dry)	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	9. Springs And Seeps (Note Locations)	<input type="checkbox"/> 0	<input checked="" type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	10. Evenly Disbursed Leaf Litter / Loose Debris ▼	<input checked="" type="checkbox"/> 1.5	<input type="checkbox"/> 1	<input type="checkbox"/> 0.5	<input type="checkbox"/> 0	
	11. Debris Piles And Wrack Lines	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	12. Redoximorphic Features In Toe Of Bank	<input type="checkbox"/> Absent = 0	<input type="checkbox"/> Present = 1.5			
<b>HYDROLOGY SUBTOTAL:</b>					<u>2.5 → 4</u>	
Biology	13. Wetland Plants In / Near Streambed	<input type="checkbox"/> FAC 0.5	<input type="checkbox"/> FACW 0.75	<input type="checkbox"/> OBL 1.5	<input type="checkbox"/> SAV 2	<input checked="" type="checkbox"/> None
	14. Fibrous Roots / Rooted Plants In Thaliweg ▼	<input type="checkbox"/> 3	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 1	<input type="checkbox"/> 0	
	15. Streamer Mosses And Algal Mats	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	16. Iron Oxidizing Bacteria, Fungus, Flocculent	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	17. Macroinvertebrates	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	18. Amphibians	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
	19. Fish	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 1	<input type="checkbox"/> 2	<input type="checkbox"/> 3	
	20. Lichen Line (Arid Regions and Alpine Areas Only)	<input checked="" type="checkbox"/> 0	<input type="checkbox"/> 0.5	<input type="checkbox"/> 1	<input type="checkbox"/> 1.5	
21. Riparian Corridor (Arid Regions Only)	<input type="checkbox"/> 0	<input type="checkbox"/> 1	<input checked="" type="checkbox"/> 2	<input type="checkbox"/> 3		
<b>BIOLOGY SUBTOTAL:</b>					<u>4</u>	
<b>★ TOTAL SCORE:</b>					<u>10 → 11.5</u>	
Single Indicators:		Flow Duration (select only one)				
<input type="checkbox"/> Fish		Ephemeral <input checked="" type="checkbox"/> Total Score < 13				
<input type="checkbox"/> Amphibians		Intermittent <input type="checkbox"/> Total Score ≥ 13 or Single Indicator				
<input type="checkbox"/> Macroinvertebrates		Perennial <input type="checkbox"/> Total Score ≥ 25				
Note: Scoring scale is reversed for indicators marked with ▼.						

Notes (explanation of any single indicator conclusions, description of disturbances or modifications that may interfere with indicators, etc.)

**Difficult Situation:**

Describe situation. For disturbed streams, note extent, type, and history of disturbance.

Prolonged Abnormal Rainfall / Snowpack

Below Average

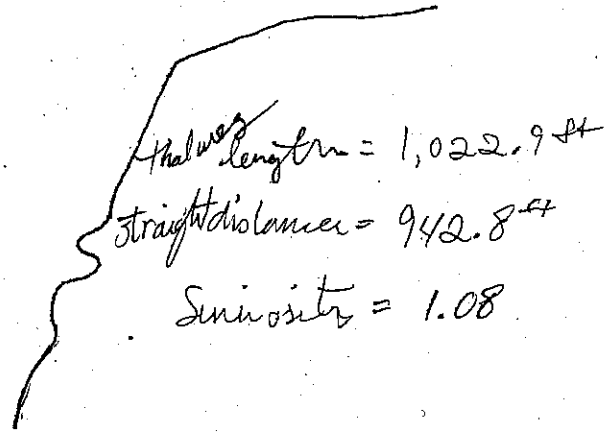
Above Average

Natural or Anthropogenic Disturbance

Other: \_\_\_\_\_

**Describe and Explain any Indicators of Questionable Applicability:**

Other Notes (sketch of site, description of photos, depth of observed groundwater, etc.)



Actual length = 1,022.9 ft  
straight distance = 942.8 ft  
Sinuosity = 1.08

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Morran Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: Wet-A1

Investigator(s): LM, TG Section, Township, Range: T3N R24E S33

Landform (hill/slope, terrace, etc.): Depression Local relief (concave, convex, none): Concave Slope (%): 1

Subregion (LRR): B Lat: 45° 42' 15.922" N Long: 119° 49' 2.894" W Datum: \_\_\_\_\_

Soil Map Unit Name: Royal Silt loam 0-3% slopes NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Vegetatively defined wetland approx 15' below roadbed. Wetland is dominated by Phragmites and Scirpus and surrounded by weedy species.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																												
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)  Total Number of Dominant Species Across All Strata: <u>1</u> (B)  Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)																												
2. _____																																
3. _____																																
4. _____																																
Total Cover: _____				<b>Prevalence Index worksheet:</b> <table style="width:100%; border-collapse: collapse;"> <tr> <td align="center" colspan="2">Total % Cover of:</td> <td align="center" colspan="2">Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center"><u>100</u></td> <td>x 1 =</td> <td align="center"><u>100</u></td> </tr> <tr> <td>FACW species</td> <td></td> <td>x 2 =</td> <td></td> </tr> <tr> <td>FAC species</td> <td></td> <td>x 3 =</td> <td></td> </tr> <tr> <td>FACU species</td> <td></td> <td>x 4 =</td> <td></td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 =</td> <td></td> </tr> <tr> <td>Column Totals:</td> <td></td> <td>(A)</td> <td>(B)</td> </tr> </table> Prevalence Index = B/A = <u>1</u>	Total % Cover of:		Multiply by:		OBL species	<u>100</u>	x 1 =	<u>100</u>	FACW species		x 2 =		FAC species		x 3 =		FACU species		x 4 =		UPL species		x 5 =		Column Totals:		(A)	(B)
Total % Cover of:		Multiply by:																														
OBL species	<u>100</u>	x 1 =	<u>100</u>																													
FACW species		x 2 =																														
FAC species		x 3 =																														
FACU species		x 4 =																														
UPL species		x 5 =																														
Column Totals:		(A)	(B)																													
<b>Sapling/Shrub Stratum</b>																																
1. _____																																
2. _____																																
3. _____																																
4. _____																																
5. _____																																
Total Cover: _____																																
<b>Herb Stratum</b>																																
1. <u>Scirpus acutus</u>	<u>100</u>	<u>Y</u>	<u>OBL</u>																													
2. _____																																
3. _____																																
4. _____																																
5. _____																																
6. _____																																
7. _____																																
8. _____																																
Total Cover: <u>100</u>																																
<b>Woody Vine Stratum</b>																																
1. _____																																
2. _____																																
Total Cover: _____																																
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>																																
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____																																
Remarks:																																

**SOIL**

Sampling Point: Wet-A1

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 3.5/4	100					organic	
2-4	2.5Y 6/3	100					clay	
4-20	10YR 3.5/2	92	2.5Y 6/3	3	D	M	silt loam	
	2.5Y 6/3	8			<del>D</del>	<del>M</del>		
			10YR 4/6	5	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                   | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)               | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)           | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)           | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)               | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input checked="" type="checkbox"/> Redox Dark Surface (F6) |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7)         |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)             |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)                  |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Redox Dark Surface indicator present.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)      |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)          |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

Surface water present during site visit in spring. Water stained leaves are Salix leaves, Salix sp. are within 30' of pit.   
 ~ 5/5/09 surface water = 0-2"

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: UPL-A-1

Investigator(s): LM, TG Section, Township, Range: T3N R24E S33

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): B Lat: 45°42'15.809"N Long: 119°49'2.796"W Datum: \_\_\_\_\_

Soil Map Unit Name: Royal silt loam 0-3% slope NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <del>(Frustr)</del> <u>Sphaerophysa salsola</u>	<u>15</u>	<u>N</u>	<u>UPL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Chenopodium hastatum album</u>	<u>80</u>	<u>Y</u>	<u>FAC</u>	____ Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Xanthium strumarium</u>	<u>5</u>	<u>N</u>	<u>FAC</u>	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input checked="" type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks: _____				

**SOIL**

Sampling Point: UPL-A1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 2/2	100					Organic	
2-8	10YR 4/3	100					Silt loam	
8-20	2.5Y 4/3	98	10YR 4/6	2	C	M	Silty loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: *no hydric soil indicators present*

**HYDROLOGY**

Wetland Hydrology Indicators:

<b>Primary Indicators (any one indicator is sufficient)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks: *no hydrology indicators*



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: Wet-A2

Investigator(s): TG, LM Section, Township, Range: T3N R24E S33

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): B Lat: 45° 42' 15.44" N Long: 119° 49' 5.079" W Datum: \_\_\_\_\_

Soil Map Unit Name: Royal Silt loam 0-3% slopes NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>wetland dominated by Phragmites and Scirpus, very definitive vegetative boundary</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
Total Cover: _____				
<u>Sapling/Shrub Stratum</u>				<b>Prevalence Index worksheet:</b>
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>100</u> x 1 = <u>100</u>
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = <u>1</u>
<u>Herb Stratum</u>				<b>Hydrophytic Vegetation Indicators:</b>
1. <u>Scirpus acutus</u>	<u>100</u>	<u>Y</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. _____				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				
<u>Woody Vine Stratum</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				<b>Hydrophytic Vegetation Present?</b> Yes <input checked="" type="checkbox"/> No _____
Remarks: _____				

**SOIL**

Sampling Point: Wet-A2

**Profile Description:** (Describe to the depth needed to document the Indicator or confirm the absence of Indicators.)

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/2	100					Organic	
3-6	2.5 Y 6/3	100					Clay	
6-20	10YR 3.5/2	95	10YR 4/6	5	C	M	Silty clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input checked="" type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators for Problematic Hydric Soils:

<sup>4</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (If present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input checked="" type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks: surface water present in spring visited on 5/5/09, saturation & surface water 0-2" observed

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy City/County: Morrow Sampling Date: 11/10/09  
 Applicant/Owner: PGE State: OR Sampling Point: UPL-A2  
 Investigator(s): TG, LM Section, Township, Range: T3N R24E S33  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): R Lat: 45°42'15.371"N Long: 119°49'5.129"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Regal silt loam 0-3% slopes NWI classification: N/A

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 \_\_\_\_\_  
 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No _____	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____ _____ _____	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>100</u> x 3 = <u>300</u> FACU species <u>10</u> x 4 = <u>40</u> UPL species _____ x 5 = _____ Column Totals: <u>110</u> (A) <u>340</u> (B) Prevalence Index = B/A = <u>3.1</u>
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: _____				
<b>Herb Stratum</b>				
1. <u>Chenopodium album</u>	<u>75</u>	<u>4</u>	<u>FAC</u>	
2. <u>Witch Sphaerophysa salicifolia</u>	<u>25</u>	<u>4</u>	<u>FAC</u>	
3. <u>Solidago canadensis</u>	<u>10</u>	<u>N</u>	<u>FACU</u>	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>110</u>				
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____				
Remarks: _____ _____ _____				

**SOIL**

Sampling Point: UPL-A2

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

Depth (Inches)	Matrix		Redox Features			Loc <sup>2</sup>	Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>			
<del>0-2</del>	10YR 4/3	5-2	100			Silt loam		
2-4	10YR 4/2	100				Silt loam		
4-20	10YR 4/3							

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

no hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Flowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

no hydrology indicators

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Cartis Energy Project City/County: Morrow Co Sampling Date: 10/1/09

Applicant/Owner: Portland General Electric State: OR Sampling Point: Wet B-1

Investigator(s): L. Meek Section, Township, Range: T03, R24E, S33

Landform (hill/slope, terrace, etc.): drainage depression Local relief (concave, convex, none): None/convex Slope (%): 1.5

Subregion (LRR): LRRB Lat: 45°41'49.285"N Long: 119°49'23.257"W Datum: \_\_\_\_\_

Soil Map Unit Name: Tawton fine sandy loam NWI classification: PEMIC

Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_

Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>Obvious vegetative and topographic boundary between wetland and upland.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.) Radius = 30ft	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:																									
1. <u>Salix lasioandra</u>	<u>5</u>	<u>N</u>	<u>FACW</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>5</u> (A)																									
2. <u>Elaeagnus angustifolia</u>	<u>50</u>	<u>Y</u>	<u>FAC</u>	Total Number of Dominant Species Across All Strata: <u>6</u> (B)																									
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>83%</u> (A/B)																									
4. _____																													
Total Cover: <u>55</u>																													
Sapling/Shrub Stratum r = 30 ft	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:																									
1. <u>Salix lasioandra</u>	<u>5</u>	<u>Y</u>	<u>FACW</u>	<table border="0" style="width:100%;"> <tr> <td colspan="2">Total % Cover of:</td> <td>Multiply by:</td> </tr> <tr> <td>OBL species</td> <td align="center"><u>65</u></td> <td>x 1 = <u>65</u></td> </tr> <tr> <td>FACW species</td> <td align="center"><u>20</u></td> <td>x 2 = <u>40</u></td> </tr> <tr> <td>FAC species</td> <td align="center"><u>55</u></td> <td>x 3 = <u>165</u></td> </tr> <tr> <td>FACU species</td> <td align="center"><u>30</u></td> <td>x 4 = <u>120</u></td> </tr> <tr> <td>UPL species</td> <td></td> <td>x 5 = _____</td> </tr> <tr> <td>Column Totals:</td> <td align="center"><u>170</u> (A)</td> <td align="center"><u>390</u> (B)</td> </tr> <tr> <td colspan="4">Prevalence Index = B/A = <u>2.3</u></td> </tr> </table>	Total % Cover of:		Multiply by:	OBL species	<u>65</u>	x 1 = <u>65</u>	FACW species	<u>20</u>	x 2 = <u>40</u>	FAC species	<u>55</u>	x 3 = <u>165</u>	FACU species	<u>30</u>	x 4 = <u>120</u>	UPL species		x 5 = _____	Column Totals:	<u>170</u> (A)	<u>390</u> (B)	Prevalence Index = B/A = <u>2.3</u>			
Total % Cover of:		Multiply by:																											
OBL species	<u>65</u>	x 1 = <u>65</u>																											
FACW species	<u>20</u>	x 2 = <u>40</u>																											
FAC species	<u>55</u>	x 3 = <u>165</u>																											
FACU species	<u>30</u>	x 4 = <u>120</u>																											
UPL species		x 5 = _____																											
Column Totals:	<u>170</u> (A)	<u>390</u> (B)																											
Prevalence Index = B/A = <u>2.3</u>																													
2. <u>Elaeagnus angustifolia</u>	<u>5</u>	<u>Y</u>	<u>FAC</u>																										
3. _____																													
4. _____																													
5. _____																													
Total Cover: <u>10</u>																													
Herb Stratum Plot = r = 5 ft	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:																									
1. <u>Scirpus acutus</u>	<u>35</u>	<u>Y</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)																									
2. <u>Solidago canadensis</u>	<u>30</u>	<u>Y</u>	<u>FACU</u>																										
3. <u>Senecio foetidus</u>	<u>10</u>	<u>N</u>	<u>FACW</u>																										
4. <u>Typha latifolia</u>	<u>30</u>	<u>Y</u>	<u>OBL</u>																										
5. _____																													
6. _____																													
7. _____																													
8. _____																													
Total Cover: <u>105</u>																													
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?																									
1. _____				Yes <u>X</u> No _____																									
2. _____																													
Total Cover: _____																													
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust _____																													
Remarks: <u>105 x .2 = 21</u>																													

**SOIL**

Sampling Point... **wet B-1**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	A horizon organic							
1-7"	2.5Y 4/2	100						mucky <sup>above</sup> sand w/ roots
7-15"	2.5Y 4/2	95	10YR 4/6	5	S	root channel	oxidization	Sandy loam
15-19"	2.5Y 4/2	80	10YR 4/6	20		fine fragment		Sandy loam
19-21"	2.5Y 4/2	75	7.5YR 4/3	25		many prominent	course	sandy loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input checked="" type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<b>Primary Indicators (any one indicator is sufficient)</b>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 14"

Wetland Hydrology Present? Yes  No

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

Remarks: Surface saturated & water table at 2" bgs during May 5<sup>th</sup> field visit, 2009.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Moraw Sampling Date: 11/11/09

Applicant/Owner: ACE State: OR Sampling Point: UPL-B1

Investigator(s): LM, TB Section, Township, Range: T3N R24E S8S

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 2

Subregion (LRR): B Lat: 45° 41' 49.12" N Long: 119° 49' 23.087" W Datum: \_\_\_\_\_

Soil Map Unit Name: Tawnton Fine Sandy Loam NWI classification: PEM1C

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland pit is ~1' higher than wetland pit in elevation. Pit is on slight hillslope that gains elevation to the southeast.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive (Elaeagnus angustifolia)</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>5</u> (B)
3. _____				
4. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>40%</u> (A/B)
Total Cover: <u>20</u>				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>15</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>40</u> x 3 = <u>120</u>
5. _____				FACU species <u>65</u> x 4 = <u>260</u>
Total Cover: <u>15</u>				UPL species <u>15</u> x 5 = <u>75</u>
				Column Totals: <u>120</u> (A) <u>455</u> (B)
				Prevalence Index = B/A = <u>3.79</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Solidago can. a. laevis</u>	<u>40</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Cirsium arvense</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>(catnip) Nepeta cataria</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. <u>unknown Asteraceae</u>	<u>15</u>	<u>N</u>	<u>-</u>	<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes _____ No <input checked="" type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>6</u>		% Cover of Biotic Crust <u>0</u>		
Remarks: <u>Russian olive at lower elevation</u>				

**SOIL**

Sampling Point: VPL-B1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 3/3	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (If present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: No hydric soil indicators

**HYDROLOGY**

<b>Wetland Hydrology Indicators:</b>	<b>Secondary Indicators (2 or more required)</b>
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>
Water Table Present?	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	
Saturation Present? (includes capillary fringe)	Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	

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

Remarks: No hydrology indicators



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_  
 Project/Site: \_\_\_\_\_ City/County: Morron Sampling Date: 11/11/09  
 Applicant/Owner: PWC State: OR Sampling Point: Wet-B2  
 Investigator(s): CM, Jr Section, Township, Range: T3N R24E S33  
 Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0  
 Subregion (LRR): B Lat: 45°41'50.554"N Long: 119°49'21.784"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Taunton Fine Sandy loam NWI classification: P2M1C

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 \_\_\_\_\_  
 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>wetland dominated by Scirpus acutus with scattered Russian olive, obvious vegetative and topographic transition to upland.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. <u>Russian olive (Elaeagnus angustifolia)</u>	<u>20</u>	<u>Y</u>	<u>FACU</u>	Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
Total Cover: <u>20</u>				<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species <u>50</u> x 1 = <u>50</u> FACW species _____ x 2 = _____ FAC species <u>20</u> x 3 = <u>60</u> FACU species <u>25</u> x 4 = <u>100</u> UPL species _____ x 5 = _____ Column Totals: <u>125</u> (A) <u>240</u> (B)  Prevalence Index = B/A = _____
Sapling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	<b>Hydrophytic Vegetation Indicators:</b> <input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. <u>Scirpus acutus</u>	<u>80</u>	<u>Y</u>	<u>OBL</u>	
2. <u>Solidago canadensis</u>	<u>25</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>105</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks: _____				

**SOIL**

Sampling Point: **Wet B-2**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5Y5/2	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

Soils considered hydric due to strong hydrophytic vegetation and presence of hydrology indicators

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

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-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Plowed Soils (C6)
- Other (Explain in Remarks)

- 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)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

Wetland had saturation during spring site visit

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carby Energy Project City/County: Morran Sampling Date: 11/11/09

Applicant/Owner: PGE State: OR Sampling Point: UPC-B2

Investigator(s): LM, PV Section, Township, Range: T3N R24E S33

Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0

Subregion (LRR): B Lat: 45°41'50.723"N Long: 119°49'21.87"W Datum: \_\_\_\_\_

Soil Map Unit Name: Mounton Fine Sandy loam NWI classification: PEM1C

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland at toe of slope, just north of upland pit the gradient is uphill</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>10</u>	<u>Y</u>	<u>OA</u>	Total % Cover of: _____ Multiply by:
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
Total Cover: <u>10</u>				UPL species _____ x 5 = _____
				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = _____
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Solidago canadensis</u>	<u>80</u>	<u>Y</u>	<u>FAW</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Catnip</u>	<u>20</u>	<u>N</u>		<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Cirsium arvense</u>	<u>10</u>	<u>N</u>	<u>FAW</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>110</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____				

**SOIL**

Sampling Point: UP-02

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5 Y 3/2	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)

- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

*No hydric soil indicator*

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

*No hydrology indicators*

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Castro Energy Project City/County: Morrow Co. Sampling Date: 5/5/09

Applicant/Owner: Portland General Electric State: OR Sampling Point: NET-C1

Investigator(s): Cam Fisher & Lucas Miele Section, Township, Range: 2N 23E 05NWNW & NENW

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): none, gully Slope (%): 0-5%

Subregion (LRR): LRRB Lat: 45°41'23.265"N Long: 119°58'14.084"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandy loam 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? 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Wetland dominated by Typha, surface water present throughout. Wetland very defined by topography and vegetation boundary</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>78</u> x 1 = <u>78</u>
3. _____				FACW species <u>4</u> x 2 = <u>8</u>
4. _____				FAC species <u>13</u> x 3 = <u>39</u>
5. _____				FACU species _____ x 4 = _____
				UPL species <u>4</u> x 5 = <u>20</u>
Total Cover: _____				Column Totals: <u>100</u> (A) <u>145</u> (B)
				Prevalence Index = B/A = <u>1.45</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Cattails (Typha latifolia)</u>	<u>90</u>	<u>Yes</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Polypogon monspeliensis</u>	<u>5</u>	<u>No</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Russian Thistle Salisola Kali</u>	<u>5</u>	<u>No</u>	<u>UPL</u>	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. <u>Chenopodium album</u>	<u>15</u>	<u>No</u>	<u>FAC</u>	____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>115</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>50% = 57.5</u> <u>20% = 23</u>				

SOIL

Sampling Point: **Wet C-1**

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-5	A Horizon	organic	larger	10YR	3/2			
5-14	2.5Y	3/2	90	7.5YR	4/6	10	Distinct common	medium sandy loam
14-18	G1	6/10Y	100				RC RM	Sandy clay

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)	Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)
<input type="checkbox"/> Sandy Gleyed Matrix (S4)	

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: clay  
 Depth (Inches): 14"

Hydric Soil Present? Yes  No

Remarks: Frogs, strong sulfurous odor

HYDROLOGY

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 1-3

Water Table Present? Yes  No  Depth (inches): 0

Saturation Present? Yes  No  Depth (inches): 0-2

Wetland Hydrology Present? Yes  No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: CARTX Energy Project City/County: MORROCO CO. Sampling Date: 5/5/09

Applicant/Owner: PORTLAND GENERAL ELECTRIC State: OR Sampling Point: UPL C-1

Investigator(s): LUCAS MEEK Section, Township, Range: 2N 23E 005S

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0.5%

Subregion (LRR): LRR B Lat: 45°41'23.431"N Long: 119°58'14.129"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandy loam NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>wplund pit on hill slope about 4" above wetland. Wetland is topographically and vegetatively defined.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33%</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>70</u> x 3 = <u>210</u>
5. _____				FACU species <u>20</u> x 4 = <u>80</u>
Total Cover: _____				UPL species <u>10</u> x 5 = <u>50</u>
				Column Totals: <u>100</u> (A) <u>340</u> (B)
				Prevalence Index = B/A = <u>3.4</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Chenopodium album</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Cirsium arvense</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	<input type="checkbox"/> Prevalence Index is $\leq 3.0^1$
3. _____				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: _____				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>10%</u> % Cover of Biotic Crust _____				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: _____				

**SOIL**

Sampling Point: **Up C-1**

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	2.5 Y 3/3	100					ORGANIC	
1-70	2.5 Y 3/3	100					SANDY LOAM	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

**Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)**

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
(Includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_  
 Project/Site: Cartis Energy Project City/County: MORROW Co Sampling Date: 11/11/09  
 Applicant/Owner: PORTLAND GENERAL ELECTRIC State: OR Sampling Point: Wet 62  
 Investigator(s): LUCAS MEER & TINA GREENAWALT Section, Township, Range: T2N R23E S005  
 Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): concave Slope (%): 0  
 Subregion (LRR): LRB Lat: 45°41'20.484"N Long: 119°58'18.223"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Sagehill fine Sandy loam NWI classification: N/A  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes X No \_\_\_\_\_ (If no, explain in Remarks.)  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes <u>/</u> No _____ Hydric Soil Present? Yes <u>/</u> No _____ Wetland Hydrology Present? Yes <u>/</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>Entire wetland dominated by Typha, surface water present throughout wetland. Very defined topographic and vegetated boundary</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (AB)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by:
2. _____				OBL species <u>60</u> x 1 = <u>60</u>
3. _____				FACW species <u>40</u> x 2 = <u>80</u>
4. _____				FAC-species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL-species _____ x 5 = _____
Total Cover: _____				Column Totals: <u>100</u> (A) <u>140</u> (B)
				Prevalence Index = B/A = <u>1.4</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Typha latifolia</u>	<u>60</u>	<u>Y</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≥3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: <u>0</u>				
% Bare Ground in Herb Stratum <u>0</u>	% Cover of Biotic Crust <u>0</u>			Hydrophytic Vegetation Present? Yes <u>X</u> No _____
Remarks: <u>passed both prevalence &amp; dominance test</u>				

**SOIL**

Sampling Point: Wet C2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5 Y	3/2	100					Sandy loam

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input checked="" type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

**Remarks:**  
Hydrogen sulfide odor smelled when digging pit

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes  No  Depth (inches): 4"

Water Table Present? Yes  No  Depth (inches): 0

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): 0

Wetland Hydrology Present? Yes  No

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

**Remarks:**  
surface water present during visit.

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: EARLY ENERGY PROJECT City/County: MUSKOGEE CO Sampling Date: 11/11/09  
 Applicant/Owner: PORTLAND GENERAL ELECTRIC State: OR Sampling Point: upland C-2  
 Investigator(s): LUCAS MEEK & TINA GREENAWALT Section, Township, Range: T2N R23E S005  
 Landform (hillslope, terrace, etc.): Hillslope to swale Local relief (concave, convex, none): concave Slope (%): 10%  
 Subregion (LRR): LRR B Lat: 45° 41' 20.367" N Long: 119° 58' 18.106" W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Sagehill Pine Sandy loam 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? 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland pit ~ 2ft higher than wet pit C-2</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
Total Cover: _____				
<u>Sapling/Shrub Stratum</u>				<u>Prevalence Index worksheet:</u>
1. <u>Chrysothamnus viscidiflorus</u>	<u>10</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>70</u> x 3 = <u>210</u>
5. _____				FACU species <u>5</u> x 4 = <u>20</u>
Total Cover: <u>10</u>				UPL species <u>25</u> x 5 = <u>125</u>
<u>Herb Stratum</u>				Column Totals: <u>100</u> (A) <u>555</u> (B)
1. <u>Achillea millefolium</u>	<u>5</u>	<u>N</u>	<u>FACU</u>	Prevalence Index = B/A = <u>5.55</u>
2. <u>Chenopodium album</u>	<u>60</u>	<u>Y</u>	<u>FAC</u>	
3. <u>Bromus tectorum</u>	<u>15</u>	<u>N</u>	<u>UPL</u>	
4. <u>Unknown Asteraceae</u>	<u>10</u>	<u>N</u>		
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>90</u>				
<u>Woody Vine Stratum</u>				<b>Hydrophytic Vegetation Indicators:</b>
1. _____				___ Dominance Test is >50%
2. _____				___ Prevalence Index is >3.0 <sup>1</sup>
Total Cover: _____				___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
<u>% Bare Ground in Herb Stratum</u> <u>10</u> <u>% Cover of Biotic Crust</u> _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
Remarks: _____				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
				<b>Hydrophytic Vegetation Present?</b> Yes _____ No <input checked="" type="checkbox"/>

**SOIL**

Sampling Point: Up C-2

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	2.5 Y3/3	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: no hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:

<u>Primary Indicators (any one indicator is sufficient)</u>	<u>Secondary Indicators (2 or more required)</u>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (Inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (Inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (Inches): \_\_\_\_\_

(Includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks: No wetland hydrology present

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: CARTY ENERGY PROJECT City/County: MORROW CO. Sampling Date: 9/30/09

Applicant/Owner: PORTLAND GENERAL ELECTRIC State: OR Sampling Point: WET D-1

Investigator(s): LUCAS MEEK Section, Township, Range: T3N R23E S31 SWSW

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): none Slope (%): 0-5%

Subregion (LRR): B Lat: 45° 41' 27.714" N Long: 119° 59' 46.949" W Datum: \_\_\_\_\_

Soil Map Unit Name: Sage hill fine sandy loam 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? 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>wetland has distinct topographic and vegetative boundary PEM wetland located in drainage valley bottom.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (AB)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by:
2. _____				OBL species <u>20</u> x 1 = <u>20</u>
3. _____				FACW species <u>40</u> x 2 = <u>80</u>
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: <u>110</u> (A) <u>150</u> (B)
				Prevalence Index = B/A = <u>1.5</u>
Herb Stratum <u>V = 5ft</u>				Hydrophytic Vegetation Indicators:
1. _____				<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Typha latifolia</u>	<u>70</u>	<u>Y</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Prevalence Index is >3.0 <sup>1</sup>
3. <u>Phalaris arundinacea</u>	<u>40</u>	<u>Y</u>	<u>FACW</u>	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>110</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum _____		% Cover of Biotic Crust _____		
Remarks: <u>upland pit is ~ 3ft higher in elevation from wet pit</u>				

**SOIL**

Sampling Point: WET D-1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-3	10YR 3/2	100					organic sandy loam	
3-8	10YR 3/2	90	7.5YR 4/6 10		C	m	sandy loam distinct, fine <sup>Common</sup>	
8-20"	2.5Y 4/2	70	7.5YR 4/6	30	C	m	sandy clay loam Prom, common, Med	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic-Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology indicators:

<u>Primary Indicators (any one indicator is sufficient)</u>	<u>Secondary Indicators (2 or more required)</u>
<input checked="" type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input checked="" type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
	<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): 2"

Wetland Hydrology Present? Yes  No

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

During May '09 visit surface water present to 2"

Remarks: on 4/10/09 observed surface water flow

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:

Project/Site: Carby Energy Project City/County: Morror Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: UPL-D1

Investigator(s): LM, TG Section, Township, Range: T3N R23E S31

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): none Slope (%): 10

Subregion (LRR): B Lat: 45°41'27.698"N Long: 119°59'46.842"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandy loam NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland pit is ~3' higher than wetland</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____				
Total Cover: _____				
Seedling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>20</u>	<u>Y</u>	<u>OPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species <u>3</u> x 2 = <u>6</u>
4. _____				FAC species <u>30</u> x 3 = <u>90</u>
5. _____				FACU species <u>70</u> x 4 = <u>280</u>
Total Cover: <u>20</u>				UPL species <u>20</u> x 5 = <u>100</u>
				Column Totals: <u>123</u> (A) <u>476</u> (B)
				Prevalence Index = B/A = _____
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Phalaris arundinacea</u>	<u>3</u>	<u>N</u>	<u>FACW</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Solidago canadensis</u>	<u>70</u>	<u>Y</u>	<u>FACU</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Chenopodium album</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>103</u>				
Woody Vine Stratum				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>P. arundinacea located at lower elevation on the hillslope</u>				

**SOIL**

Sampling Point: UPL-01

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-820	10YR 4/3	100	—				Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

*No hydric soil indicators present*

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

*No hydrology indicators present*



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:

Project/Site: Catty Energy Project City/County: Morrad Sampling Date: 11/10/09  
 Applicant/Owner: PGE State: OR Sampling Point: UPC-D2  
 Investigator(s): LM, TG Section, Township, Range: T3N R23E S31  
 Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): none Slope (%): 10-15  
 Subregion (LRR): B Lat: 45°41'27.819"N Long: 119°59'46.996"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Sagehill Pine Sandy Loam NWI classification: N/A

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 \_\_\_\_\_  
 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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland pit is approx. 31' higher in elevation than wetland. Pit located on hillslope full of weedy species and A. tridentata</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>33</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>50</u>	<u>4</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>40</u> x 3 = <u>120</u>
5. _____				FACU species <u>10</u> x 4 = <u>40</u>
Total Cover: <u>50</u>				UPL species <u>50</u> x 5 = <u>250</u>
				Column Totals: <u>100</u> (A) <u>410</u> (B)
				Prevalence Index = B/A = <u>4.1</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Solidago canadensis</u>	<u>10</u>	<u>4</u>	<u>FACW</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>Chenopodium album</u>	<u>40</u>	<u>4</u>	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>50</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				
1. _____				
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>50</u>		% Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: UP-02

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-26	164R 4/3	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: no hydric soil indicators present

**HYDROLOGY**

Wetland Hydrology Indicators:

<b>Primary Indicators (any one indicator is sufficient)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes _____ No <u>X</u>	Depth (Inches): _____	Wetland Hydrology Present? Yes _____ No <u>X</u>
Water Table Present? Yes _____ No <u>X</u>	Depth (Inches): _____	
Saturation Present? Yes _____ No <u>X</u>	Depth (Inches): _____	

(includes capillary fringe)

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

Remarks: no hydrology indicators present

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: Wet-02

Investigator(s): LM, TU Section, Township, Range: T3N R22E S31

Landform (hillslope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): B Lat: 45°41'28.118"N Long: 119°59'47.063"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sage hill fine sandy loam NWI classification: N/A

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 \_\_\_\_\_

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 <input type="checkbox"/>	No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Hydric Soil Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Wetland Hydrology Present?	Yes <input type="checkbox"/>	No <input type="checkbox"/>	
Remarks: <u>pit located in depressionnal swale, about 4-5' below top of bank of the adjacent hillslopes. PEM wetland topographically and vegetatively defined</u>			

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>95</u> x 1 = <u>95</u>
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species <u>10</u> x 4 = <u>40</u>
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: <u>105</u> (A) <u>135</u> (B)
				Prevalence Index = B/A = _____
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Typha latifolia</u>	<u>95</u>	<u>Y</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Solidago canadensis</u>	<u>10</u>	<u>N</u>	<u>FACW</u>	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>105</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		
Remarks:				

**SOIL**

Sampling Point: Wet-02

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type	Loc <sup>2</sup>		
0-2	10YR 3/2	100					Sandy loam	
2-20	2.5Y 4/2	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input checked="" type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No \_\_\_\_\_

Remarks: *Wetland in topographically defined, hydrology and hydrophytic vegetation present so soil is considered hydric*

**HYDROLOGY**

Wetland Hydrology indicators:

<b>Primary Indicators (any one indicator is sufficient)</b>	<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input checked="" type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
	<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes _____ No <input checked="" type="checkbox"/>	Depth (inches): _____	Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____
Water Table Present? Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>15</u>	
Saturation Present? (includes capillary fringe) Yes <input checked="" type="checkbox"/> No _____	Depth (inches): <u>11</u>	

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

Remarks: *Soil is moist, but not saturated. Surface water observed during May '09 field visit.*

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: UPL-03

Investigator(s): LM, TB Section, Township, Range: T3N R23E S31

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 10-15

Subregion (LRR): B Lat: 45°41'28.21"N Long: 119°59'47.16"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandy loam NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>upland pit located on hillslope approx. 4' above wetland.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>2</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>67</u> (A/B)
4. _____				
Total Cover: _____				
Seedling/Shrub Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by:
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>90</u> x 3 = <u>270</u>
5. _____				FACU species _____ x 4 = _____
Total Cover: <u>30</u>				UPL species <u>30</u> x 5 = <u>150</u>
				Column Totals: <u>120</u> (A) <u>420</u> (B)
				Prevalence Index = B/A = <u>3.5</u>
Herb Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Indicators:
1. <u>Chenopodium album</u>	<u>70</u>	<u>Y</u>	<u>FAC</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. <u>Kochia scoparia</u>	<u>20</u>	<u>Y</u>	<u>FAC</u>	____ Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>90</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
Woody Vine Stratum	Absolute % Cover	Dominant Species?	Indicator Status	Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

**SOIL**

Sampling Point: UPL-03

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 4/3	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

no hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:	Secondary Indicators (2 or more required)
<u>Primary Indicators (any one indicator is sufficient)</u>	
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)	<input type="checkbox"/> Shallow Aquitard (D3)
<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> FAC-Neutral Test (D5)
<input type="checkbox"/> Biotic Crust (B12)	
<input type="checkbox"/> Aquatic Invertebrates (B13)	
<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	
<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	
<input type="checkbox"/> Presence of Reduced Iron (C4)	
<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	
<input type="checkbox"/> Other (Explain in Remarks)	

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

no hydrology indicators

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:  

Project/Site: Carty ~~Energy~~ Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: Wet- D3

Investigator(s): LM, TB Section, Township, Range: T 2 N R 22 E S 1

Landform (hill/slope, terrace, etc.): Swale Local relief (concave, convex, none): Concave Slope (%): 0

Subregion (LRR): B Lat: 45° 41' 22.045" N Long: 119° 59' 54.573" W Datum:  

Soil Map Unit Name: Sagehill fine sandy loam NWI classification: N/A

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

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 <input checked="" type="checkbox"/> No <input type="checkbox"/> Hydric Soil Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Remarks: <u>pit located in swale with flowing water wetland is topographically and hydrologically defined</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____	_____	_____	_____	<b>Prevalence Index worksheet:</b> Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species <u>70</u> x 2 = <u>140</u> FAC species _____ x 3 = _____ FACU species <u>20</u> x 4 = <u>80</u> UPL species _____ x 5 = _____ Column Totals: <u>90</u> (A) <u>220</u> (B) Prevalence Index = B/A = <u>2.44</u>
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
Total Cover: _____				
<b>Herb Stratum</b>				
1. <u>Solidago canadensis</u>	<u>20</u>	<u>Y</u>	<u>FACW</u>	
2. <u>Polygonum monspeliense</u>	<u>70</u>	<u>Y</u>	<u>FACW</u>	
3. _____	_____	_____	_____	
4. _____	_____	_____	_____	
5. _____	_____	_____	_____	
6. _____	_____	_____	_____	
7. _____	_____	_____	_____	
8. _____	_____	_____	_____	
Total Cover: <u>90</u>				
<b>Woody Vine Stratum</b>				
1. _____	_____	_____	_____	
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust <u>0</u>				
Remarks: <u>Bare ground is open water</u>				

**SOIL**

Sampling Point: Net-D3

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-7	10YR 3/2	100						
7-10	10YR 4/3	100						
10-12	10YR 6/3	100						
12-15	<del>10YR 7/3</del>	<del>98</del>						
	10YR 4/3	98						
15-20	10YR 3/2	98	10YR 4/6	2	C	M		

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>9</sup>:

- |  |   |  |
|--|---|--|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)                |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)               |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)                  |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)             |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input checked="" type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |  |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |  |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |  |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |  |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |  |

<sup>9</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

wetland is located in swale with flowing water. Soils are considered hydric due to landscape position, hydrology, and hydrophytic vegetation.

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input checked="" type="checkbox"/> Surface Water (A1)             | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input checked="" type="checkbox"/> High Water Table (A2)          | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input checked="" type="checkbox"/> Saturation (A3)                | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input checked="" type="checkbox"/> Drainage Patterns (B10)        |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): 4"  
Water Table Present? Yes  No  Depth (inches): 0  
Saturation Present? Yes  No  Depth (inches): 0  
(includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

Flowing water in swale



**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: UP-04

Investigator(s): LM/TS Section, Township, Range: T2N R22E S1

Landform (hillslope, terrace, etc.): hillslope Local relief (concave, convex, none): convex Slope (%): 4-5

Subregion (LRR): B Lat: 45°41'22.061"N Long: 119°59'54.517"W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandy loam NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____	No <input checked="" type="checkbox"/>	
Hydric Soil Present?	Yes _____	No <input checked="" type="checkbox"/>				
Wetland Hydrology Present?	Yes _____	No <input checked="" type="checkbox"/>				
Remarks: <u>upland pit located approx 2' higher than wetland</u>						

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)	
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)	
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)	
4. _____					
Total Cover: _____					
Sapling/Shrub Stratum				Prevalence Index worksheet:	
1. _____				Total % Cover of: _____ Multiply by: _____	
2. _____				OBL species _____ x 1 = _____	
3. _____				FACW species _____ x 2 = _____	
4. _____				FAC species <u>20</u> x 3 = <u>60</u>	
5. _____				FACU species <u>60</u> x 4 = <u>240</u>	
Total Cover: _____				UPL species _____ x 5 = _____	
1. <u>Solidago canadensis</u>	<u>60</u>	<u>Y</u>	<u>FAW</u>	Column Totals: <u>80</u> (A) <u>300</u> (B)	
2. <u>Xanthium strumarium</u>	<u>20</u>	<u>Y</u>	<u>FAU</u>		
3. _____				Prevalence Index = B/A = <u>3.75</u>	
4. _____				<b>Hydrophytic Vegetation Indicators:</b> <input type="checkbox"/> Dominance Test is >50% <input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> <input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) <input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____					
6. _____					
7. _____					
8. _____					
Total Cover: <u>80</u>					
Woody Vine Stratum					<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____					
2. _____					
Total Cover: _____					
% Bare Ground in Herb Stratum <u>20</u>		% Cover of Biotic Crust <u>0</u>		Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	
Remarks:					

**SOIL**

Sampling Point: UPL-D4

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 7/3	100						

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks: No hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Flowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
Water Table Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
Saturation Present? (includes capillary fringe) Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks: No hydrology indicators present

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:

Project/Site: Carty Energy Project City/County: Morrov Sampling Date: 11/10/09

Applicant/Owner: PL&E State: OR Sampling Point: UPL-DS

Investigator(s): LM, TR Section, Township, Range: T2N R22E S1

Landform (hillslope, terrace, etc.): hill slope Local relief (concave, convex, none): None Slope (%): 5

Subregion (LRR): B Lat: 45°41'22.057" N Long: 119°59'54.656" W Datum: \_\_\_\_\_

Soil Map Unit Name: Sagehill fine sandey loam NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/> Hydric Soil Present? Yes _____ No <input checked="" type="checkbox"/> Wetland Hydrology Present? Yes _____ No <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland? Yes _____ No <input checked="" type="checkbox"/>
Remarks: <u>Upland pit approx 2' higher in elevation than wetland, on hillslope of weedy species</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>50</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>30</u> x 3 = <u>90</u>
5. _____				FACU species <u>70</u> x 4 = <u>280</u>
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: <u>100</u> (A) <u>370</u> (B)
				Prevalence Index = B/A = <u>3.7</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Solidago canadensis</u>	<u>70</u>	<u>4</u>	<u>FACW</u>	<input type="checkbox"/> Dominance Test is >50%
2. <u>umbellifer (str)</u> <u>Kochia scoparia</u>	<u>30</u>	<u>4</u>	<u>FAC</u>	<input type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				<input type="checkbox"/> Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				<input type="checkbox"/> Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes _____ No <input checked="" type="checkbox"/>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>				
Remarks:				

**SOIL**

Sampling Point: OPC - DS

Profile Description: (Describe to the depth needed to document the indicator or confirm the absence of indicators.)							
Depth (inches)	Matrix		Redox Features			Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>		
0-20	10YR 4/3	100				Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

no hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

no hydrology indicators

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_  
 Project/Site: Cactus Energy Project City/County: Morrow Co. Sampling Date: 9/30/09  
 Applicant/Owner: Potlatch General Electric State: OR Sampling Point: WT H-1  
 Investigator(s): Laura Meade Section, Township, Range: T3N R24E S33 NWSE  
 Landform (hillslope, terrace, etc.): drainage basin Local relief (concave, convex, none): None Slope (%): 0-5%  
 Subregion (LRR): LRRB Lat: 45° 41' 45.37" N Long: 119° 49' 09.50" W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Royal silt loam NWI classification: Freshwater Emergent  
 Are climatic / hydrologic conditions on the site typical for this time of year? Yes \_\_\_\_\_ No \_\_\_\_\_ (If no, explain in Remarks.) PEM1c  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ significantly disturbed? Are "Normal Circumstances" present? Yes X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present?	Yes <u>X</u> No _____	Is the Sampled Area within a Wetland?	Yes <u>X</u> No _____
Hydric Soil Present?	Yes <u>X</u> No _____		
Wetland Hydrology Present?	Yes <u>X</u> No _____		
Remarks: <u>wetland is topographically and vegetatively well defined, located in a ditch surrounded by upland vegetation</u>			

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC:	<u>2</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata:	<u>3</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>66%</u> (A/B)
4. _____	_____	_____	_____	Total Cover: _____	
<u>Sapling/Shrub Stratum</u>				<b>Prevalence Index worksheet:</b>	
1. _____	_____	_____	_____	Total % Cover of:	Multiply by:
2. _____	_____	_____	_____	OBL species <u>70</u>	x 1 = <u>70</u>
3. _____	_____	_____	_____	FACW species <u>40</u>	x 2 = <u>80</u>
4. _____	_____	_____	_____	FAC species _____	x 3 = _____
5. _____	_____	_____	_____	FACU species <u>40</u>	x 4 = <u>160</u>
Total Cover: _____				UPL species _____	x 5 = _____
<u>Herb Stratum</u>				Column Totals: <u>150</u> (A)	<u>310</u> (B)
1. <u>Typha latifolia</u>	<u>70</u>	<u>Y</u>	<u>OBL</u>	Prevalence Index = B/A = <u>2.06</u>	
2. <u>Juncus hydrophilus</u>	<u>40%</u>	<u>Y</u>	<u>FACW</u>	Hydrophytic Vegetation Indicators:	
3. <u>Solidago canadensis</u>	<u>40%</u>	<u>Y</u>	<u>FACU</u>	<input checked="" type="checkbox"/> Dominance Test is >50%	
4. _____	_____	_____	_____	<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>	
5. _____	_____	_____	_____	____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet).	
6. _____	_____	_____	_____	____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
7. _____	_____	_____	_____	Total Cover: <u>150</u>	
8. _____	_____	_____	_____	Total Cover: _____	
<u>Woody Vine Stratum</u>				Indicators of hydric soil and wetland hydrology must be present.	
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____	
2. _____	_____	_____	_____	Total Cover: _____	
% Bare Ground in Herb Stratum _____ % Cover of Biotic Crust _____				Remarks: <u>50 = 75</u> <u>20 = 30</u>	

SOIL

Sampling Point: Wet #1

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2.5"	organic	A	Horizon					
2.5-9"	10YR 3/2	90	7.5 YR 3/4	10	Saint common	medium	sandy loam	
6-10"	more distinct mottling in some clay w/ sand/gravel layers of 10" oxidized root channels							
11-16"	10YR 4/3	70	7.5 Y 3/4	30	Distinct	many coarse	sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_

Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks: Ditch appears man made, water that used to contribute to NW wetland area now channeled, surrounded by upland veg. probably occurred when early reservoir was installed.

HYDROLOGY

Wetland Hydrology Indicators:

Primary Indicators (any one indicator is sufficient)		Secondary Indicators (2 or more required)
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input checked="" type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input checked="" type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_

(includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

wet to surface @ April visit '09

Remarks: upland soil pit 3-4 ft higher in top than wetland pit

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID:   
 Project/Site: CARTY Energy Facility City/County: Marion Co Sampling Date: 9/30/09  
 Applicant/Owner: PG&E State: \_\_\_\_\_ Sampling Point: up H-1  
 Investigator(s): LUCAS MEIK Section, Township, Range: T3N R24E S33  
 Landform (hillslope, terrace, etc.): depression lowland Local relief (concave, convex, none): flat Slope (%): 0  
 Subregion (LRR): B Lat: 45°41'43.954"N Long: 119°49'19.816"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Royal silt loam NWI classification: N/A

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 X No \_\_\_\_\_  
 Are Vegetation \_\_\_\_\_, Soil \_\_\_\_\_, or Hydrology \_\_\_\_\_ naturally problematic? (If needed, explain any answers in Remarks.)

**SUMMARY OF FINDINGS – Attach site map showing sampling point locations, transects, important features, etc.**

Hydrophytic Vegetation Present? Yes _____ No <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____ _____ _____	

**VEGETATION**

Tree Stratum (Use scientific names.) Plot #:	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>3</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>0</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum Plot #:				Prevalence Index worksheet:
1. <u>Artemisia tridentata</u>	<u>25</u>	<u>Y</u>	<u>UPL</u>	Total % Cover of: _____ Multiply by: _____
2. _____				OBL species _____ x 1 = _____
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species <u>15</u> x 3 = <u>45</u>
5. _____				FACU species _____ x 4 = _____
Total Cover: _____				UPL species <u>90</u> x 5 = <u>450</u>
				Column Totals: <u>105</u> (A) <u>495</u> (B)
				Prevalence Index = B/A = <u>4.7</u>
Herb Stratum Plot #:				Hydrophytic Vegetation Indicators:
1. <u>Salicoida Kali</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	___ Dominance Test is >50%
2. <u>Bromus tectorum</u>	<u>35</u>	<u>Y</u>	<u>UPL</u>	___ Prevalence Index is ≤3.0 <sup>1</sup>
3. <u>Chenopodium album</u>	<u>15</u>	<u>N</u>	<u>FAC</u>	___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>80</u>				
Woody Vine Stratum Plot #:				Hydrophytic Vegetation Present?
1. _____				Yes _____ No <u>X</u>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>20</u>		% Cover of Biotic Crust _____		
Remarks: _____ _____ _____				

**SOIL**

Sampling Point: UP 41

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	10YR 2 3/3	100					Organic	
1-4"	10YR 4/3	100					Sandy loam	
4-20	10YR 4/3	100					Sandy loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- Histosol (A1)
- Histic Epipedon (A2)
- Black Histic (A3)
- Hydrogen Sulfide (A4)
- Stratified Layers (A5) (LRR C)
- 1 cm Muck (A9) (LRR D)
- Depleted Below Dark Surface (A11)
- Thick Dark Surface (A12)
- Sandy Mucky Mineral (S1)
- Sandy Gleyed Matrix (S4)
- Sandy Redox (S5)
- Stripped Matrix (S6)
- Loamy Mucky Mineral (F1)
- Loamy Gleyed Matrix (F2)
- Depleted Matrix (F3)
- Redox Dark Surface (F6)
- Depleted Dark Surface (F7)
- Redox Depressions (F8)
- Vernal Pools (F9)

- 1 cm Muck (A9) (LRR C)
- 2 cm Muck (A10) (LRR B)
- Reduced Vertic (F18)
- Red Parent Material (TF2)
- Other (Explain in Remarks)

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No X

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

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-Stained Leaves (B9)
- Salt Crust (B11)
- Biotic Crust (B12)
- Aquatic Invertebrates (B13)
- Hydrogen Sulfide Odor (C1)
- Oxidized Rhizospheres along Living Roots (C3)
- Presence of Reduced Iron (C4)
- Recent Iron Reduction in Flowed Soils (C6)
- Other (Explain in Remarks)

- 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)

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No X Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No \_\_\_\_\_ Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No X

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

Remarks:



**WETLAND DETERMINATION DATA FORM - Arid West Region**

Feature ID: \_\_\_\_\_  
 Project/Site: Coastal Energy Facility City/County: Morrow Co Sampling Date: 9/30/09  
 Applicant/Owner: Portland General Electric State: OR Sampling Point: Wet H-2  
 Investigator(s): Lucas Muek Section, Township, Range: T3N R24E S33  
 Landform (hillslope, terrace, etc.): drainage lowland Local relief (concave, convex, none): none Slope (%): 0-5%  
 Subregion (LRR): B Lat: 45°41'46.82"N Long: 119°49'09.29"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Reynold silt loam NWI classification: PEU1C

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 \_\_\_\_\_  
 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 <u>X</u> No _____ Hydric Soil Present? Yes <u>X</u> No _____ Wetland Hydrology Present? Yes <u>X</u> No _____	Is the Sampled Area within a Wetland? Yes <u>X</u> No _____
Remarks: <u>wetland vegetation and topographically well defined. upland soil pit approx. 3ft higher in elevation from wet pit.</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____	_____	_____	_____	Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____	_____	_____	_____	Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____	_____	_____	_____	Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100%</u> (A/B)
4. _____	_____	_____	_____	
Total Cover: _____				
<b>Sapling/Shrub Stratum</b>				<b>Prevalence Index worksheet:</b>
1. _____	_____	_____	_____	Total % Cover of: _____ Multiply by: _____
2. _____	_____	_____	_____	OBL species <u>95</u> x 1 = <u>95</u>
3. _____	_____	_____	_____	FACW species _____ x 2 = _____
4. _____	_____	_____	_____	FAC species _____ x 3 = _____
5. _____	_____	_____	_____	FACU species _____ x 4 = _____
6. _____	_____	_____	_____	UPL species _____ x 5 = _____
7. _____	_____	_____	_____	Column Totals: _____ (A) _____ (B)
8. _____	_____	_____	_____	Prevalence Index = B/A = <u>100</u>
Total Cover: <u>95</u>				<b>Hydrophytic Vegetation Indicators:</b>
<b>Herb Stratum</b> 1. <u>Scirpus acutus</u> <u>95</u> <u>Y</u> <u>OBL</u> 2. _____ 3. _____ 4. _____ 5. _____ 6. _____ 7. _____ 8. _____ Total Cover: _____				<input checked="" type="checkbox"/> Dominance Test is >50% <input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
<b>Woody Vine Stratum</b>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
1. _____	_____	_____	_____	Hydrophytic Vegetation Present? Yes <u>X</u> No _____
2. _____	_____	_____	_____	
Total Cover: _____				
% Bare Ground in Herb Stratum <u>5%</u> % Cover of Biotic Crust _____				
Remarks:				

**SOIL**

Sampling Point: Wet H2

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

Depth (inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-1	<u>A Horizon</u>							
1-4"	<u>2.5Y 3/2</u>	<u>78</u>	<u>2.5Y 5/2</u>	<u>22</u>	<u>distinct manny</u>		<u>sandy clay loam</u>	
4-12"	<u>2.5Y 4/2</u>	<u>74</u>	<u>10YR 4/6</u>	<u>26</u>	<u>distinct manny fine (streaking)</u>		<u>sandy clay loam</u>	
12-18"	<u>2.5Y 4/1</u>	<u>70</u>	<u>10YR 4/6</u>	<u>30</u>	<u>dist manny fine</u>		<u>sandy clay</u>	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)		Indicators for Problematic Hydric Soils <sup>3</sup> :
<input type="checkbox"/> Histosol (A1)	<input checked="" type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input checked="" type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):  
 Type: \_\_\_\_\_  
 Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:		Secondary Indicators (2 or more required)
Primary Indicators (any one indicator is sufficient)		
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input checked="" type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input checked="" type="checkbox"/> FAC-Neutral Test (D5)

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_

Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_

Saturation Present? (includes capillary fringe) Yes  No  Depth (inches): \_\_\_\_\_

Wetland Hydrology Present? Yes  No

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

Remarks: Saturated to surface in April & visit early May

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: CARTY ENERGY FACILITY City/County: MORROW CO Sampling Date: 9/30/09

Applicant/Owner: PG&E State: \_\_\_\_\_ Sampling Point: UP H-2

Investigator(s): LUAS MEEK Section, Township, Range: T3N R24E S33

Landform (hillslope, terrace, etc.): depression lowland Local relief (concave, convex, none): flat Slope (%): 0

Subregion (LRR): B Lat: 45°41'46.86"N Long: 119°49'8.979"W Datum: \_\_\_\_\_

Soil Map Unit Name: Royal Silt loam NWI classification: N/A

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 \_\_\_\_\_

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 <u>X</u> Hydric Soil Present? Yes _____ No <u>X</u> Wetland Hydrology Present? Yes _____ No <u>X</u>	Is the Sampled Area within a Wetland? Yes _____ No <u>X</u>
Remarks: _____	

**VEGETATION**

Tree Stratum (Use scientific names.) Plot r= _____	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>4</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>25%</u> (A/B)
4. _____				
Total Cover: _____				
Sepling/Shrub Stratum Plot r= <u>30ft</u>				
1. <u>Artemisia tridentata</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	Prevalence Index worksheet: Total % Cover of: _____ Multiply by: OBL species _____ x 1 = _____ FACW species _____ x 2 = _____ FAC species <u>20</u> x 3 = <u>60</u> FACU species _____ x 4 = _____ UPL species <u>100</u> x 5 = <u>500</u> Column Totals: <u>120</u> (A) <u>560</u> (B)  Prevalence Index = B/A = <u>4.67</u>
2. _____				
3. _____				
4. _____				
5. _____				
Total Cover: <u>30</u>				
Herb Stratum Plot r= <u>5ft</u>				
1. <u>Chenopodium album</u>	<u>30</u>	<u>Y</u>	<u>FAC</u>	Hydrophytic Vegetation Indicators: _____ Dominance Test is >50% _____ Prevalence Index is ≤3.0 <sup>1</sup> _____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet) _____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)  <sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.
2. <u>Salsola kali</u>	<u>30</u>	<u>Y</u>	<u>UPL</u>	
3. <u>Bromus tectorum</u>	<u>40</u>	<u>Y</u>	<u>UPL</u>	
4. _____				
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>90</u>				
Woody/Vine Stratum Plot r= _____				
1. _____				Hydrophytic Vegetation Present? Yes _____ No <u>X</u>
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>10</u> % Cover of Biotic Crust _____				
Remarks: _____				

**SOIL**

Sampling Point: MP HZ

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-9	10YR 4/3	100					Sandy loam	
9-12	10YR 3/4	100					Sandy loam	
13-14	10YR 4/2	100					Sandy clay loam	
14-20	10YR 4/3	90	7.5YR 4/6	10	c	m	Sandy loam D, c, f	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

**Hydric Soil Indicators:** (Applicable to all LRRs, unless otherwise noted.)

<input type="checkbox"/> Histosol (A1)	<input type="checkbox"/> Sandy Redox (S5)	<input type="checkbox"/> 1 cm Muck (A9) (LRR C)
<input type="checkbox"/> Histic Epipedon (A2)	<input type="checkbox"/> Stripped Matrix (S6)	<input type="checkbox"/> 2 cm Muck (A10) (LRR B)
<input type="checkbox"/> Black Histic (A3)	<input type="checkbox"/> Loamy Mucky Mineral (F1)	<input type="checkbox"/> Reduced Vertic (F18)
<input type="checkbox"/> Hydrogen Sulfide (A4)	<input type="checkbox"/> Loamy Gleyed Matrix (F2)	<input type="checkbox"/> Red Parent Material (TF2)
<input type="checkbox"/> Stratified Layers (A5) (LRR C)	<input type="checkbox"/> Depleted Matrix (F3)	<input type="checkbox"/> Other (Explain in Remarks)
<input type="checkbox"/> 1 cm Muck (A9) (LRR D)	<input type="checkbox"/> Redox Dark Surface (F6)	
<input type="checkbox"/> Depleted Below Dark Surface (A11)	<input type="checkbox"/> Depleted Dark Surface (F7)	
<input type="checkbox"/> Thick Dark Surface (A12)	<input type="checkbox"/> Redox Depressions (F8)	
<input type="checkbox"/> Sandy Mucky Mineral (S1)	<input type="checkbox"/> Vernal Pools (F9)	
<input type="checkbox"/> Sandy Gleyed Matrix (S4)		

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

**Restrictive Layer (if present):**

Type: \_\_\_\_\_

Depth (Inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks: upland pit ~ 3 1/2 feet higher than wet soil pit

**HYDROLOGY**

**Wetland Hydrology Indicators:**

<b>Primary Indicators (any one indicator is sufficient)</b>		<b>Secondary Indicators (2 or more required)</b>
<input type="checkbox"/> Surface Water (A1)	<input type="checkbox"/> Salt Crust (B11)	<input type="checkbox"/> Water Marks (B1) (Riverine)
<input type="checkbox"/> High Water Table (A2)	<input type="checkbox"/> Biotic Crust (B12)	<input type="checkbox"/> Sediment Deposits (B2) (Riverine)
<input type="checkbox"/> Saturation (A3)	<input type="checkbox"/> Aquatic Invertebrates (B13)	<input type="checkbox"/> Drift Deposits (B3) (Riverine)
<input type="checkbox"/> Water Marks (B1) (Nonriverine)	<input type="checkbox"/> Hydrogen Sulfide Odor (C1)	<input type="checkbox"/> Drainage Patterns (B10)
<input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)	<input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3)	<input type="checkbox"/> Dry-Season Water Table (C2)
<input type="checkbox"/> Drift Deposits (B3) (Nonriverine)	<input type="checkbox"/> Presence of Reduced Iron (C4)	<input type="checkbox"/> Thin Muck Surface (C7)
<input type="checkbox"/> Surface Soil Cracks (B6)	<input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)	<input type="checkbox"/> Crayfish Burrows (C8)
<input type="checkbox"/> Inundation Visible on Aerial Imagery (B7)	<input type="checkbox"/> Other (Explain in Remarks)	<input type="checkbox"/> Saturation Visible on Aerial Imagery (C9)
<input type="checkbox"/> Water-Stained Leaves (B9)		<input type="checkbox"/> Shallow Aquitard (D3)
		<input type="checkbox"/> FAC-Neutral Test (D5)

**Field Observations:**

Surface Water Present? Yes \_\_\_\_\_ No  Depth (Inches): \_\_\_\_\_

Water Table Present? Yes \_\_\_\_\_ No  Depth (Inches): \_\_\_\_\_

Saturation Present? Yes \_\_\_\_\_ No  Depth (Inches): \_\_\_\_\_  
(includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_  
 Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09  
 Applicant/Owner: PGE State: OR Sampling Point: wet-J1  
 Investigator(s): LM, Jr Section, Township, Range: T3N R24E S33  
 Landform (hillslope, terrace, etc.): Flat Local relief (concave, convex, none): None Slope (%): 0  
 Subregion (LRR): B Lat: 45°42'14.841"N Long: 119°49'18.095"W Datum: \_\_\_\_\_  
 Soil Map Unit Name: Royal silt loam NWI classification: NCA

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 \_\_\_\_\_  
 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 <input checked="" type="checkbox"/> No _____ Hydric Soil Present? Yes <input checked="" type="checkbox"/> No _____ Wetland Hydrology Present? Yes <input checked="" type="checkbox"/> No _____	Is the Sampled Area within a Wetland? Yes <input checked="" type="checkbox"/> No _____
Remarks: <u>Small wetlands dominated by Scirpus acutus and surrounded by weedy species</u>	

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC: <u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata: <u>1</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC: <u>100</u> (A/B)
4. _____				
Total Cover: _____				
Sapling/Shrub Stratum				Prevalence Index worksheet:
1. _____				Total % Cover of: _____ Multiply by: _____
2. _____				OBL species <u>100</u> x 1 = <u>100</u>
3. _____				FACW species _____ x 2 = _____
4. _____				FAC species _____ x 3 = _____
5. _____				FACU species _____ x 4 = _____
				UPL species _____ x 5 = _____
Total Cover: _____				Column Totals: _____ (A) _____ (B)
				Prevalence Index = B/A = <u>1</u>
Herb Stratum				Hydrophytic Vegetation Indicators:
1. <u>Scirpus acutus</u>	<u>100</u>	<u>4</u>	<u>OBL</u>	<input checked="" type="checkbox"/> Dominance Test is >50%
2. _____				<input checked="" type="checkbox"/> Prevalence Index is ≤3.0 <sup>1</sup>
3. _____				____ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)
4. _____				____ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)
5. _____				
6. _____				
7. _____				
8. _____				
Total Cover: <u>100</u>				
Woody Vine Stratum				Hydrophytic Vegetation Present?
1. _____				Yes <input checked="" type="checkbox"/> No _____
2. _____				
Total Cover: _____				
% Bare Ground in Herb Stratum <u>0</u>		% Cover of Biotic Crust <u>0</u>		

Remarks: \_\_\_\_\_

**SOIL**

Sampling Point: wet-J1

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-20	10YR 4/2	95	10YR 4/6	5	C	M	Silty Clay loam	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |  |   |
|--|--|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)                | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)            | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)        | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)        | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input checked="" type="checkbox"/> Depleted Matrix (F3) | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)         |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7)      |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)          |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)               |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |  |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes  No

Remarks:

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input checked="" type="checkbox"/> Water-Stained Leaves (B9)      |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input checked="" type="checkbox"/> FAC-Neutral Test (D5)          |

Field Observations:

Surface Water Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes  No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes  No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes  No

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

Remarks:

Water stained leaves from nearby Salix sp. (~30' away)

**WETLAND DETERMINATION DATA FORM – Arid West Region**

Feature ID: \_\_\_\_\_

Project/Site: Carty Energy Project City/County: Morrow Sampling Date: 11/10/09

Applicant/Owner: PGE State: OR Sampling Point: UPL-51

Investigator(s): LM, & TG Section, Township, Range: T3N R24E S3Z

Landform (hillslope, terrace, etc.): flat Local relief (concave, convex, none): none Slope (%): 0

Subregion (LRR): B Lat: 45° 42' 14.851" N Long: 119° 49' 7.952" W Datum: \_\_\_\_\_

Soil Map Unit Name: Royal Silt loam 0-3% slopes NWI classification: N/A

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 \_\_\_\_\_

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 <input checked="" type="checkbox"/>	Is the Sampled Area within a Wetland?	Yes _____ No <input checked="" type="checkbox"/>
Hydric Soil Present?	Yes _____ No <input checked="" type="checkbox"/>		
Wetland Hydrology Present?	Yes _____ No <input checked="" type="checkbox"/>		
Remarks:			

**VEGETATION**

Tree Stratum (Use scientific names.)	Absolute % Cover	Dominant Species?	Indicator Status	Dominance Test worksheet:	
1. _____				Number of Dominant Species That Are OBL, FACW, or FAC:	<u>1</u> (A)
2. _____				Total Number of Dominant Species Across All Strata:	<u>2</u> (B)
3. _____				Percent of Dominant Species That Are OBL, FACW, or FAC:	<u>50</u> (A/B)
4. _____				Prevalence Index worksheet:	
Total Cover: _____				Total % Cover of:	Multiply by:
OBL species _____				x 1 = _____	
FACW species _____				x 2 = _____	
FAC species <u>60</u>				x 3 = <u>180</u>	
FACU species _____				x 4 = _____	
UPL species <u>40</u>				x 5 = <u>200</u>	
Column Totals: <u>100</u>				(A)	<u>380</u> (B)
Prevalence Index = B/A = <u>3.8</u>				Hydrophytic Vegetation Indicators:	
1. _____				___ Dominance Test is >50%	
2. _____				___ Prevalence Index is ≤3.0 <sup>1</sup>	
3. _____				___ Morphological Adaptations <sup>1</sup> (Provide supporting data in Remarks or on a separate sheet)	
4. _____				___ Problematic Hydrophytic Vegetation <sup>1</sup> (Explain)	
5. _____				___	
6. _____				___	
7. _____				___	
8. _____				___	
Total Cover: <u>100</u>				<sup>1</sup> Indicators of hydric soil and wetland hydrology must be present.	
Woody Vine Stratum				Hydrophytic Vegetation Present? Yes _____ No <input checked="" type="checkbox"/>	
1. _____					
2. _____					
Total Cover: _____					
% Bare Ground in Herb Stratum <u>0</u> % Cover of Biotic Crust <u>0</u>					
Remarks:					

**SOIL**

Sampling Point: UPL-J1

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

Depth (Inches)	Matrix		Redox Features				Texture	Remarks
	Color (moist)	%	Color (moist)	%	Type <sup>1</sup>	Loc <sup>2</sup>		
0-2	10YR 3/2	100					Silty clay loam	
2-4	2.5Y 6/3	100					ll	
4- <del>20</del> 11	2Y 3.5/3	100					ll	
							ly	
11-25	2Y 3.5/3	100					Sand	

<sup>1</sup>Type: C=Concentration, D=Depletion, RM=Reduced Matrix. <sup>2</sup>Location: PL=Pore Lining, RC=Root Channel, M=Matrix.

Hydric Soil Indicators: (Applicable to all LRRs, unless otherwise noted.)

Indicators for Problematic Hydric Soils<sup>3</sup>:

- |  |   |   |
|--|---|---|
| <input type="checkbox"/> Histosol (A1)                     | <input type="checkbox"/> Sandy Redox (S5)           | <input type="checkbox"/> 1 cm Muck (A9) (LRR C)     |
| <input type="checkbox"/> Histic Epipedon (A2)              | <input type="checkbox"/> Stripped Matrix (S6)       | <input type="checkbox"/> 2 cm Muck (A10) (LRR B)    |
| <input type="checkbox"/> Black Histic (A3)                 | <input type="checkbox"/> Loamy Mucky Mineral (F1)   | <input type="checkbox"/> Reduced Vertic (F18)       |
| <input type="checkbox"/> Hydrogen Sulfide (A4)             | <input type="checkbox"/> Loamy Gleyed Matrix (F2)   | <input type="checkbox"/> Red Parent Material (TF2)  |
| <input type="checkbox"/> Stratified Layers (A5) (LRR C)    | <input type="checkbox"/> Depleted Matrix (F3)       | <input type="checkbox"/> Other (Explain in Remarks) |
| <input type="checkbox"/> 1 cm Muck (A9) (LRR D)            | <input type="checkbox"/> Redox Dark Surface (F6)    |   |
| <input type="checkbox"/> Depleted Below Dark Surface (A11) | <input type="checkbox"/> Depleted Dark Surface (F7) |   |
| <input type="checkbox"/> Thick Dark Surface (A12)          | <input type="checkbox"/> Redox Depressions (F8)     |   |
| <input type="checkbox"/> Sandy Mucky Mineral (S1)          | <input type="checkbox"/> Vernal Pools (F9)          |   |
| <input type="checkbox"/> Sandy Gleyed Matrix (S4)          |   |   |

<sup>3</sup>Indicators of hydrophytic vegetation and wetland hydrology must be present.

Restrictive Layer (if present):

Type: \_\_\_\_\_  
Depth (inches): \_\_\_\_\_

Hydric Soil Present? Yes \_\_\_\_\_ No

Remarks:

no hydric soil indicators

**HYDROLOGY**

Wetland Hydrology Indicators:

Secondary Indicators (2 or more required)

Primary Indicators (any one indicator is sufficient)

- |  |  |  |
|--|--|--|
| <input type="checkbox"/> Surface Water (A1)                        | <input type="checkbox"/> Salt Crust (B11)                              | <input type="checkbox"/> Water Marks (B1) (Riverine)               |
| <input type="checkbox"/> High Water Table (A2)                     | <input type="checkbox"/> Biotic Crust (B12)                            | <input type="checkbox"/> Sediment Deposits (B2) (Riverine)         |
| <input type="checkbox"/> Saturation (A3)                           | <input type="checkbox"/> Aquatic Invertebrates (B13)                   | <input type="checkbox"/> Drift Deposits (B3) (Riverine)            |
| <input type="checkbox"/> Water Marks (B1) (Nonriverine)            | <input type="checkbox"/> Hydrogen Sulfide Odor (C1)                    | <input type="checkbox"/> Drainage Patterns (B10)                   |
| <input type="checkbox"/> Sediment Deposits (B2) (Nonriverine)      | <input type="checkbox"/> Oxidized Rhizospheres along Living Roots (C3) | <input type="checkbox"/> Dry-Season Water Table (C2)               |
| <input type="checkbox"/> Drift Deposits (B3) (Nonriverine)         | <input type="checkbox"/> Presence of Reduced Iron (C4)                 | <input type="checkbox"/> Thin Muck Surface (C7)                    |
| <input type="checkbox"/> Surface Soil Cracks (B6)                  | <input type="checkbox"/> Recent Iron Reduction in Plowed Soils (C6)    | <input type="checkbox"/> Crayfish Burrows (C8)                     |
| <input type="checkbox"/> Inundation Visible on Aerial Imagery (B7) | <input type="checkbox"/> Other (Explain in Remarks)                    | <input type="checkbox"/> Saturation Visible on Aerial Imagery (C9) |
| <input type="checkbox"/> Water-Stained Leaves (B9)                 |  | <input type="checkbox"/> Shallow Aquitard (D3)                     |
|  |  | <input type="checkbox"/> FAC-Neutral Test (D5)                     |

Field Observations:

Surface Water Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Water Table Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 Saturation Present? Yes \_\_\_\_\_ No  Depth (inches): \_\_\_\_\_  
 (includes capillary fringe)

Wetland Hydrology Present? Yes \_\_\_\_\_ No

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

Remarks:

no hydrology indicators



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## **B. Maps**

NOTE: Figures have been updated; see supplement at the end of this document



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## **C. Photo Log**



**PHOTOGRAPHIC LOG: A-1**

**Date:** 11/10/09

**Direction of Photo:**  
Northeast

**Description:** View of wetland A wet pit A-1, looking towards road.



**PHOTOGRAPHIC LOG: A-2**

**Date:** 11/10/09

**Direction of Photo:**  
Northwest

**Description:** View toward the center area of Wetland A; photo taken south of wet pit A-1.





**PHOTOGRAPHIC LOG: A-3**

**Date:** 11/10/09

**Direction of Photo:**  
South

**Description:** View of the south edge of Wetland A as it transitions to upland near wet pit A-1.



**PHOTOGRAPHIC LOG: A-4**

**Date:** 5/5/09

**Direction of Photo:**  
Northwest

**Description:** View of wetland A from roadway. Wetland shows surface water.







**PHOTOGRAPHIC LOG: B-1**

**Date:** 11/10/09

**Direction of Photo:**  
North

**Description:** View of Wetland B wet pit 1 located near the southeast boarder.





## PHOTOGRAPHIC LOG: B-2

**Date:** 11/10/09

**Direction of Photo:** South

**Description:** View of Wetland B near wet pit B-1 showing transition to upland.



## PHOTOGRAPHIC LOG: B-3

**Date:** 11/10/09

**Direction of Photo:** Northeast

**Description:** View of perimeter northeast of Wetland B showing upland vegetation and topography. Typha latifolia on right edge of photo with Elaeagnus angustifolia and Salix lasiandra.







**PHOTOGRAPHIC LOG: B-4**

**Date:** 11/10/09

**Direction of Photo:**  
Northeast

**Description:** View of Wetland B wet pit B-2 in foreground showing transition to upland vegetation and topography.



**PHOTOGRAPHIC LOG: B-5**

**Date:** 11/10/09

**Direction of Photo:** South

**Description:** View of southwest perimeter of Wetland B showing upland vegetation and topography.





**PHOTOGRAPHIC LOG: B-6**

**Date:** 11/10/09

**Direction of Photo:**  
Southwest

**Description:** View of southwest perimeter of Wetland B showing upland vegetation and topography up to road.



**PHOTOGRAPHIC LOG: C-1**

**Date:** 11/10/09

**Direction of Photo:**  
Southwest

**Description:** View of west boundary of Wetland C showing wetpit C-1 (at shovel) and distinct vegetated and topographic boundary.







**PHOTOGRAPHIC LOG: C-2**

**Date:** 11/10/09

**Direction of Photo:**  
Northeast

**Description:** View of west boundary of Wetland C northeast of upland pit C-1 showing defined vegetative and topography change. *Typha latifolia* on right edge of photo.



**PHOTOGRAPHIC LOG: C-3**

**Date:** 11/10/09

**Direction of Photo:**  
Northeast

**Description:** View of Wetland C wet pit C-2 (at shovel).





**PHOTOGRAPHIC LOG: C-4**

**Date:** 11/10/09

**Direction of Photo:**  
Northeast

**Description:** View of eastern edge of Wetland C showing distinct boundary from *Typha latifolia* and *Phularis arundinacea* on left to upland on right.



**PHOTOGRAPHIC LOG: C-5**

**Date:** 11/10/09

**Direction of Photo:**  
Southwest

**Description:** View of southern boundary of Wetland C from between soil points C-2 showing distinct vegetated and topographic border. *Typha latifolia* and *Phularis arundinacea* on right.







**PHOTOGRAPHIC LOG: C-6**

**Date:** 11/10/09

**Direction of Photo:**  
Southwest

**Description:** View of Wetland C from north of the project boundary. Distinct vegetated and topographic border is apparent.



**PHOTOGRAPHIC LOG: C-7**

**Date:** 11/11/09

**Direction of Photo:**  
Southwest

**Description:** View of ephemeral drainage and upland vegetation southwest of Wetland C.





**PHOTOGRAPHIC LOG: D-1**

**Date:** 11/10/09

**Direction of Photo:**  
Southwest

**Description:** View of Wetland D from near upland soil pit D-1 showing distinct vegetated and topographic border. *Typha latifolia* and *Phularis arundinacea* in wetland area.



**PHOTOGRAPHIC LOG: D-2**

**Date:** 11/10/09

**Direction of Photo:** West

**Description:** View of wet soil pit D-1 (bottom right of image), upland pit taken on adjacent bank in upper left of image.







**PHOTOGRAPHIC LOG: D-3**

**Date:** 11/10/09

**Direction of Photo:** West

**Description:** View of wet pit D-2 (at shovel) in northwest area of Wetland D. Upland pit D-3 taken on adjacent bank shown in background.



**PHOTOGRAPHIC LOG: D-4**

**Date:** 11/10/09

**Direction of Photo:** Northeast

**Description:** View of area northeast of Wetland D from near wet pit D-2.







**PHOTOGRAPHIC LOG: D-5**

**Date:** 11/10/09

**Direction of Photo:** East

**Description:** View of south boundary of Wetland D from upland soil point D-5 toward wet pit D-3 (shovel) and upland pit D-4.



**PHOTOGRAPHIC LOG: D-6**

**Date:** 11/10/09

**Direction of Photo:** North

**Description:** View of southwestern area of Wetland D from near upland soil point D-6.





**PHOTOGRAPHIC LOG: D-7**

**Date:** 11/10/09

**Direction of Photo:** South

**Description:** View of Wetland D area south of wet pit D-3.



**PHOTOGRAPHIC LOG: H1-1**

**Date:** 11/11/09

**Direction of Photo:** South

**Description:** View of Wetland H1 from the north end. Wetland dominated by *Typha latifolia* in well defined channel with approximately 4 foot high banks, surrounding area dominated by upland vegetation.







### PHOTOGRAPHIC LOG: H1-2

**Date:** 11/11/09

**Direction of Photo:**  
Southwest

**Description:** View of Wetland H1 from the north end. Wetland dominated by *Typha latifolia* in well defined channel with approximately 4 foot high banks, surrounding area dominated by upland vegetation.



### PHOTOGRAPHIC LOG: H1-3

**Date:** 11/11/09

**Direction of Photo:**  
Northwest

**Description:** View of drainage area north of Wetland H1. Upland and facultative upland vegetation dominates the area.







**PHOTOGRAPHIC LOG: H2-1**

**Date:** 11/11/09

**Direction of Photo:**  
Northeast

**Description:** View of Wetland H2 from the south near upland pit H-2. Distinct topographic and vegetative boundary.



**PHOTOGRAPHIC LOG: H2-2**

**Date:** 11/11/09

**Direction of Photo:** North

**Description:** View of west edge of Wetland H2 from the south end.





**PHOTOGRAPHIC LOG: J-1**

**Date:** 11/10/09

**Direction of Photo:** West

**Description:** View of Wetland J from the eastern boarder toward wet soil pit J-1. Wetland dominated by *Scirpus acutus* in a well vegetatively defined area.



**PHOTOGRAPHIC LOG: J-2**

**Date:** 11/10/09

**Direction of Photo:** East

**Description:** View of distinct boundary from wetland J vegetation to upland. Shovel demarks wet soil pit J-1, upland soil pit taken near where person stands.







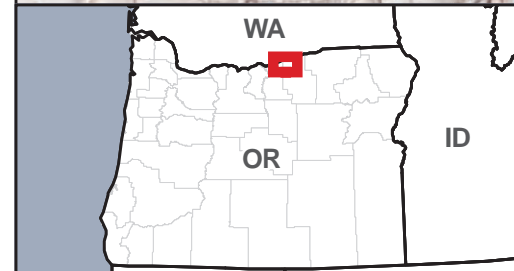
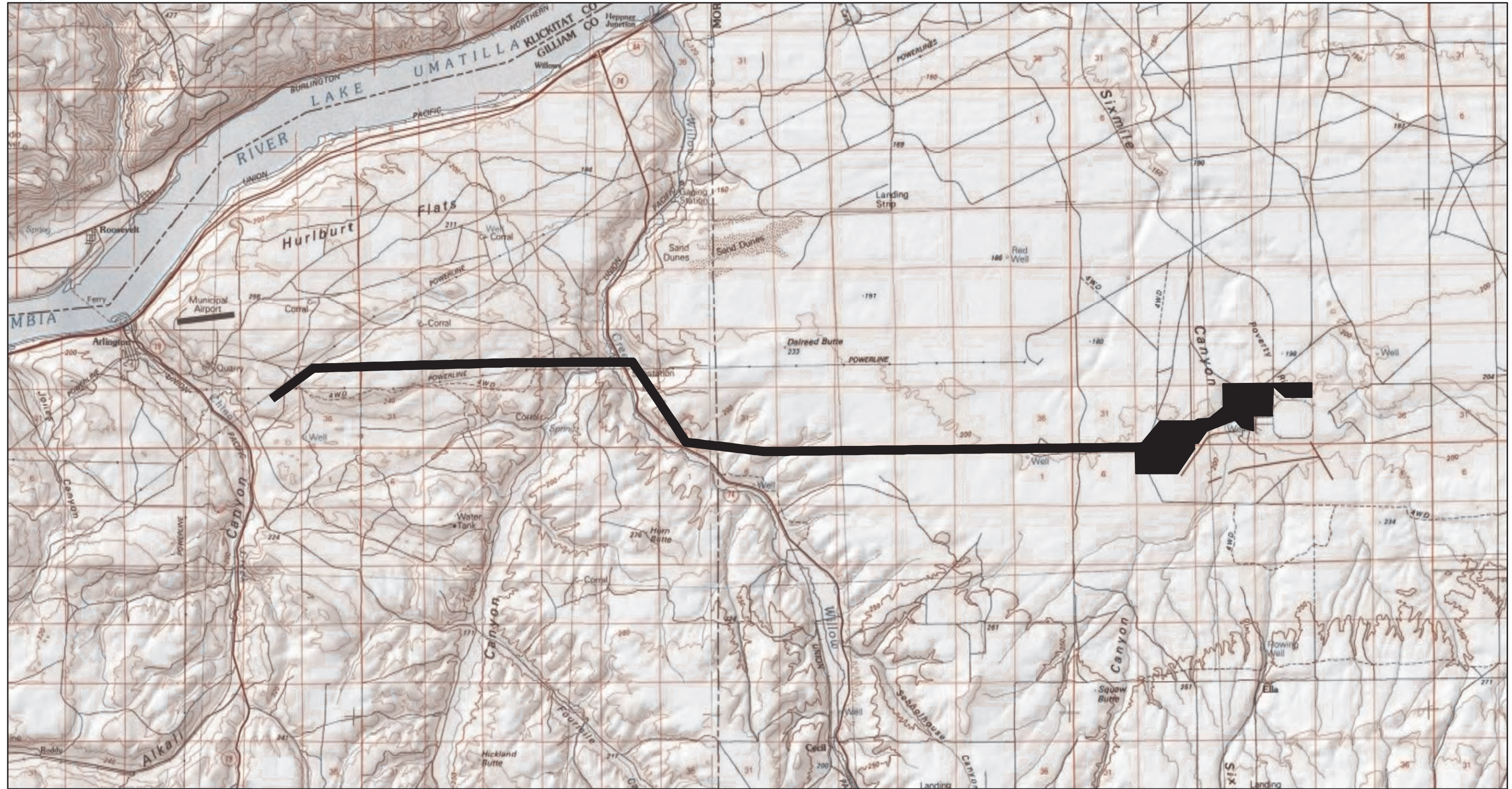
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# Exhibit J Supplement

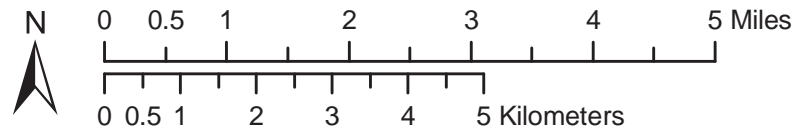
This supplement contains figures that have been updated for the February 2011 ASC submittal. Figure 1 shows the general project location. Figures 2a and 2b show wetland features in relation to tax lot data. Figures 3a through 3e provide National Wetlands Inventory data for all areas within the Site Boundary. Figures 4a through 4e depict soil data in relation to wetland features. Figures 5a through 5e depict aerial imagery of the area encompassing the Site Boundary. Figures 6a through 6e depict wetland delineation information. Figure 7 provides geographical reference to photographic documentation of delineated wetlands.







■ Site Boundary



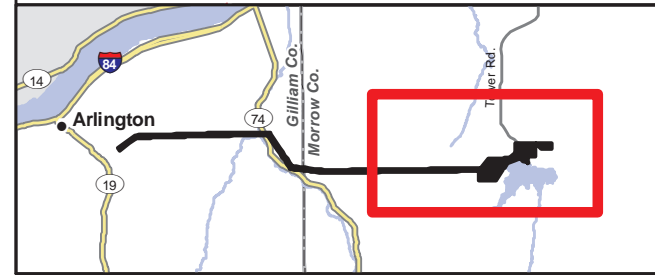
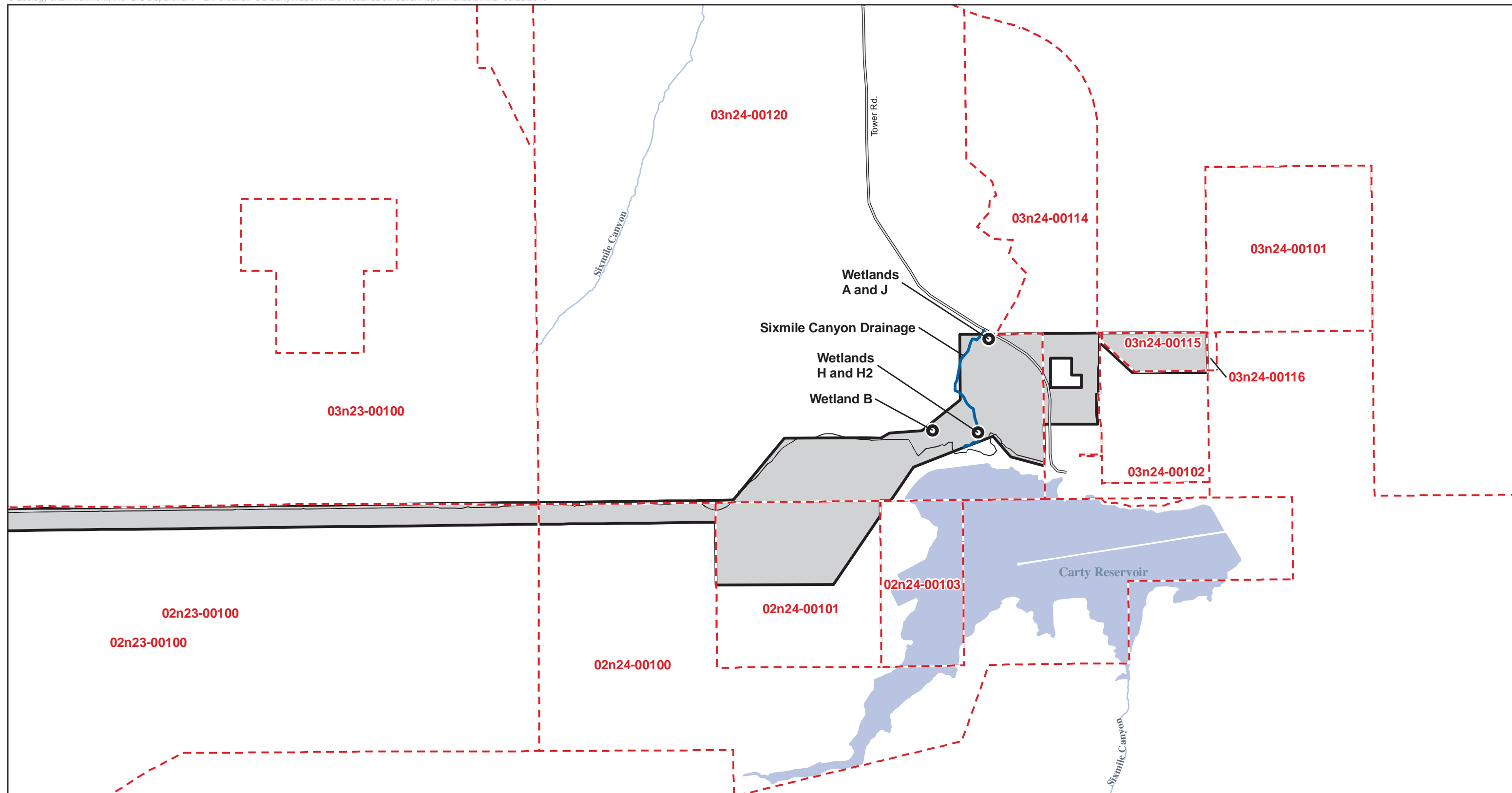
**Figure 1**  
**Project Location**  
**PGE Carty Generating Station**  
**Application for Site Certificate**











**Legend**

- Site Boundary
- Access Road Corridor
- Field Delineated Wetland Location
- Stream Feature
- Intersecting Tax Lot Boundary

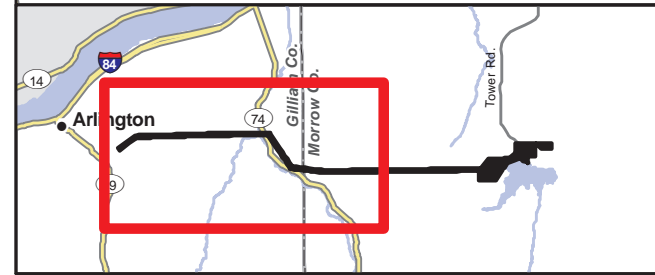
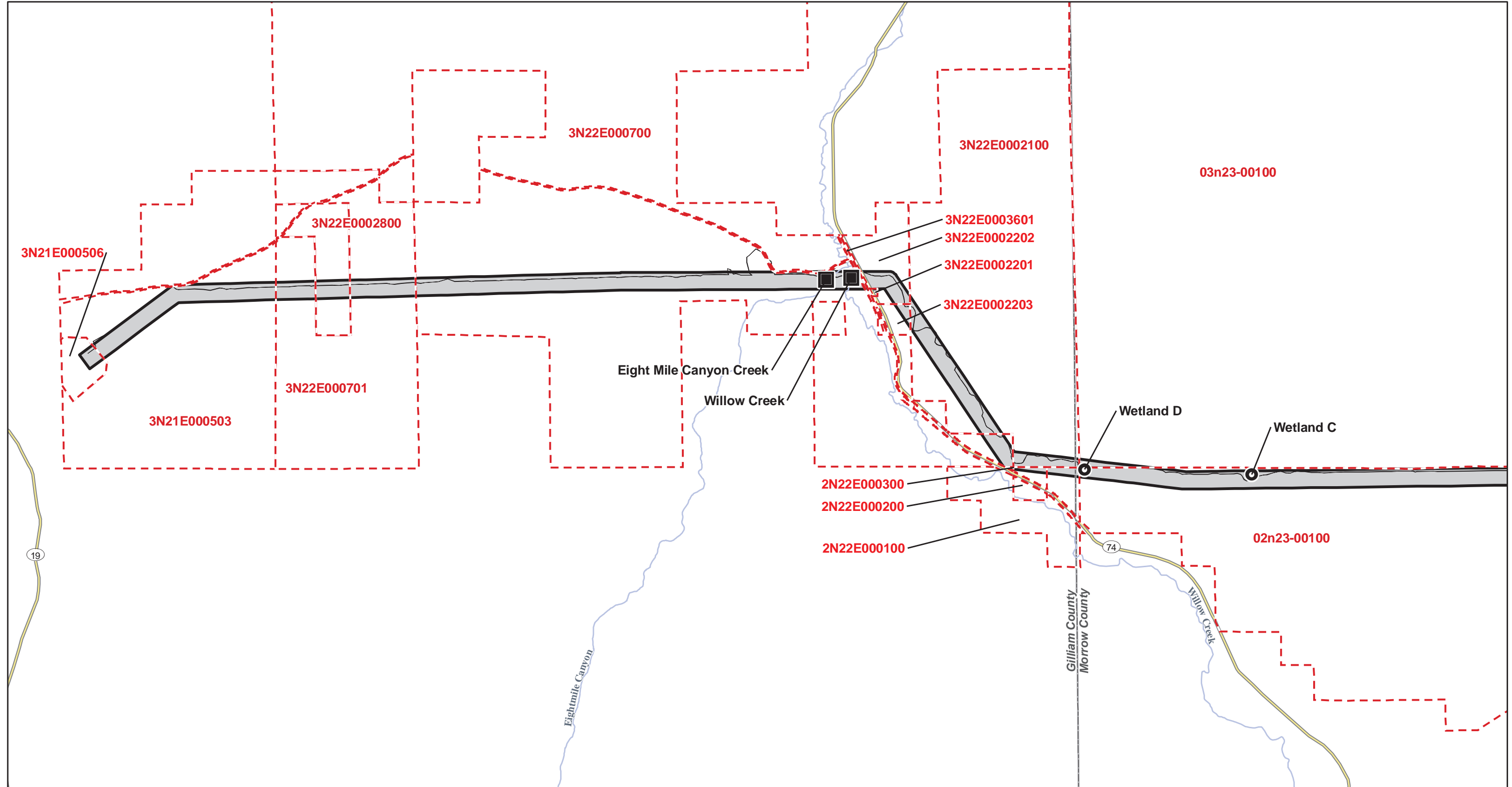
Map Tax Lot # Labeled

Scale: 0 to 2 Miles / 0 to 2 Kilometers

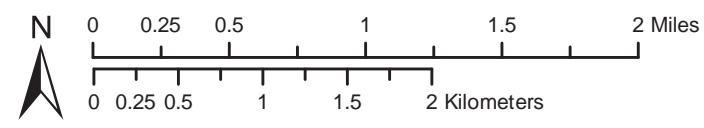
**Figure 2a**  
**Tax Lots**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010







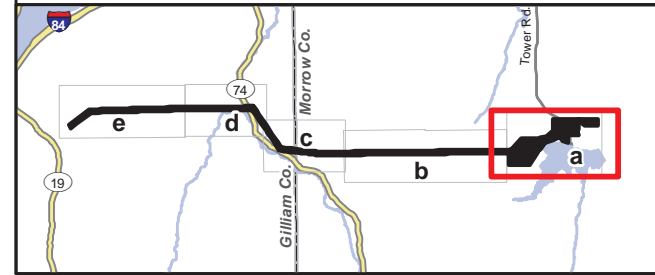
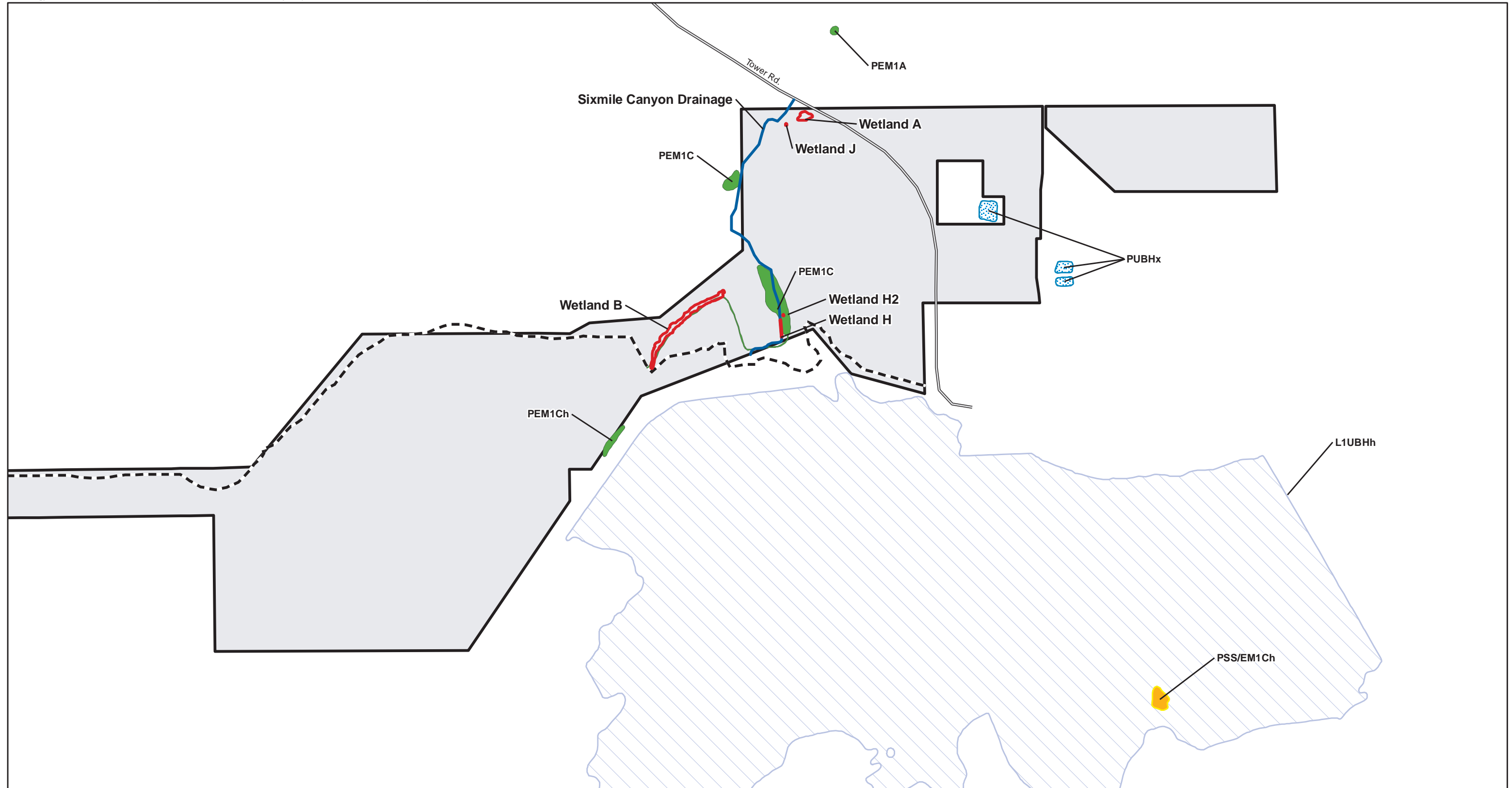
Site Boundary  
 Access Road Corridor  
 Field Delineated Wetland Location  
 Stream Feature  
 Intersecting Tax Lot Boundary  
 Map Tax Lot # Labeled



**Figure 2b**  
**Tax Lots**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010





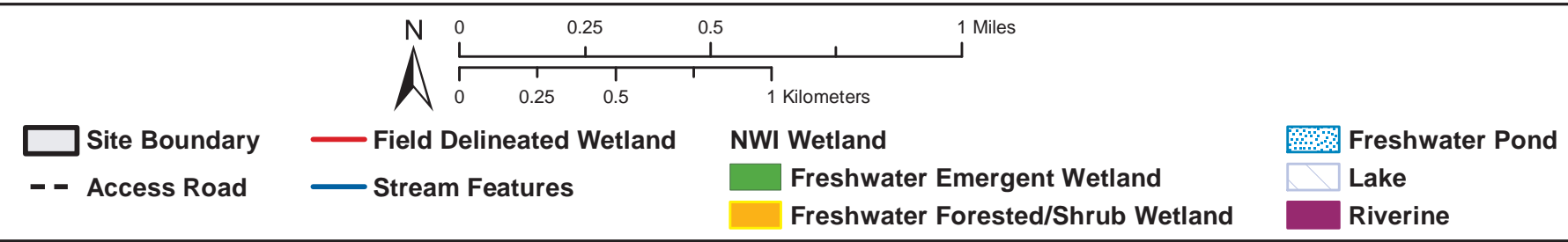
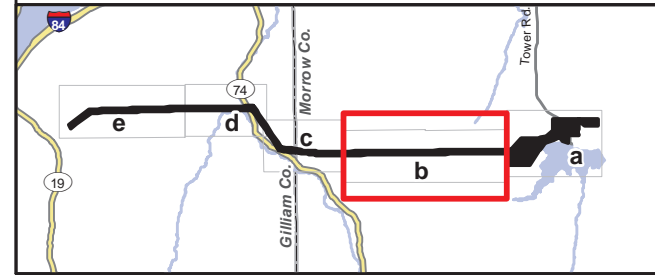
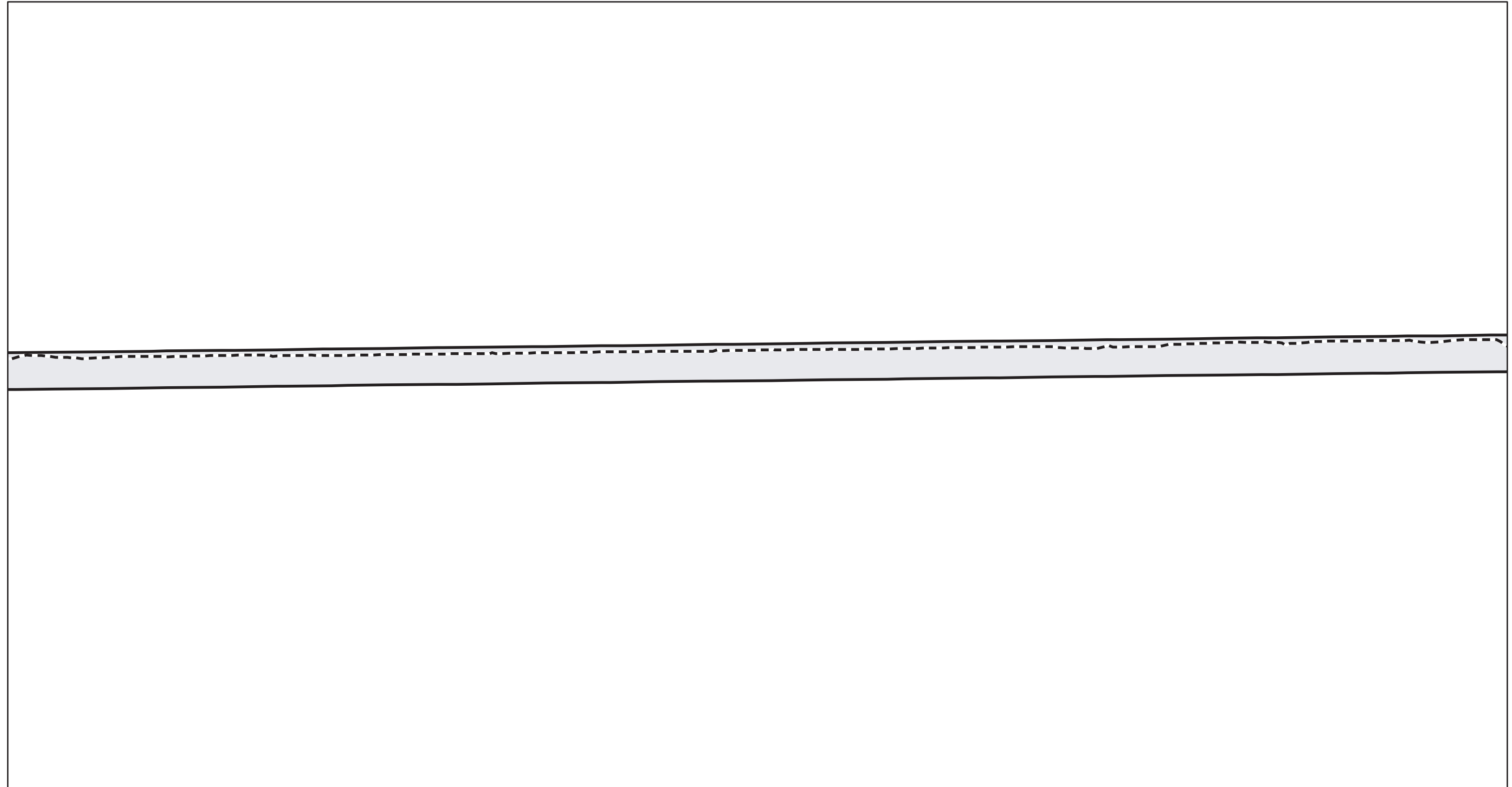


<p>Site Boundary</p> <p>Access Road</p>	<p>Field Delineated Wetland</p> <p>Stream Features</p>	<p>NWI Wetland</p> <p>Freshwater Emergent Wetland</p> <p>Freshwater Forested/Shrub Wetland</p>	<p>Freshwater Pond</p> <p>Lake</p> <p>Riverine</p>

**Figure 3a**  
**National Wetlands Inventory**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010





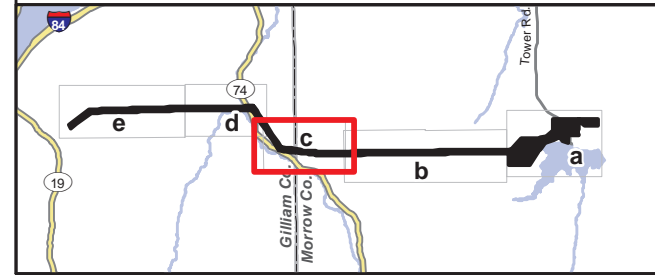
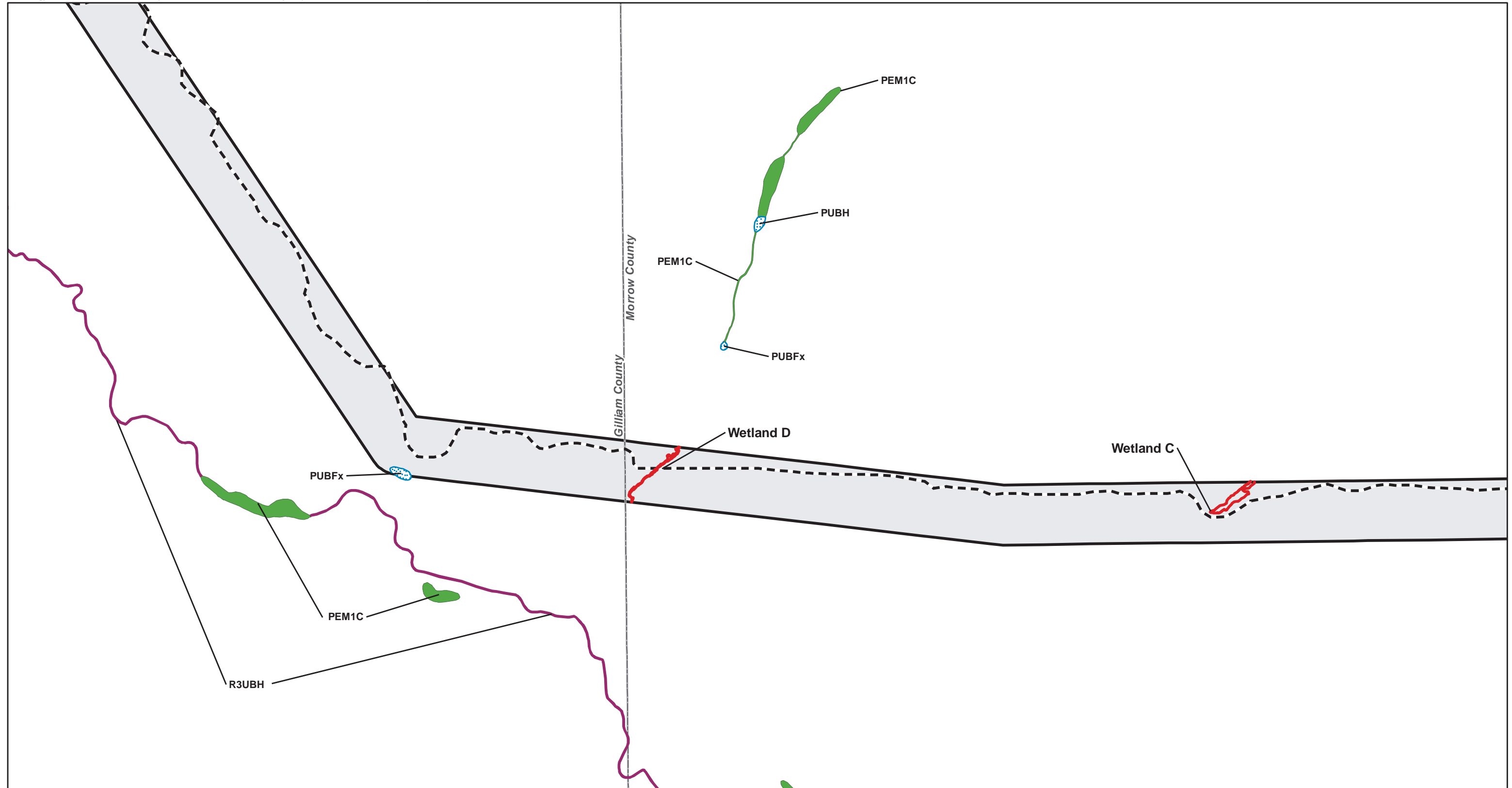


**Figure 3b**  
**National Wetlands Inventory**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010







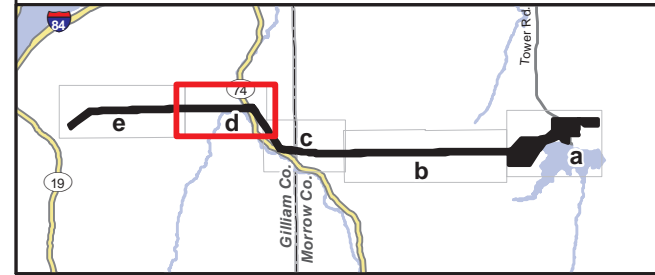
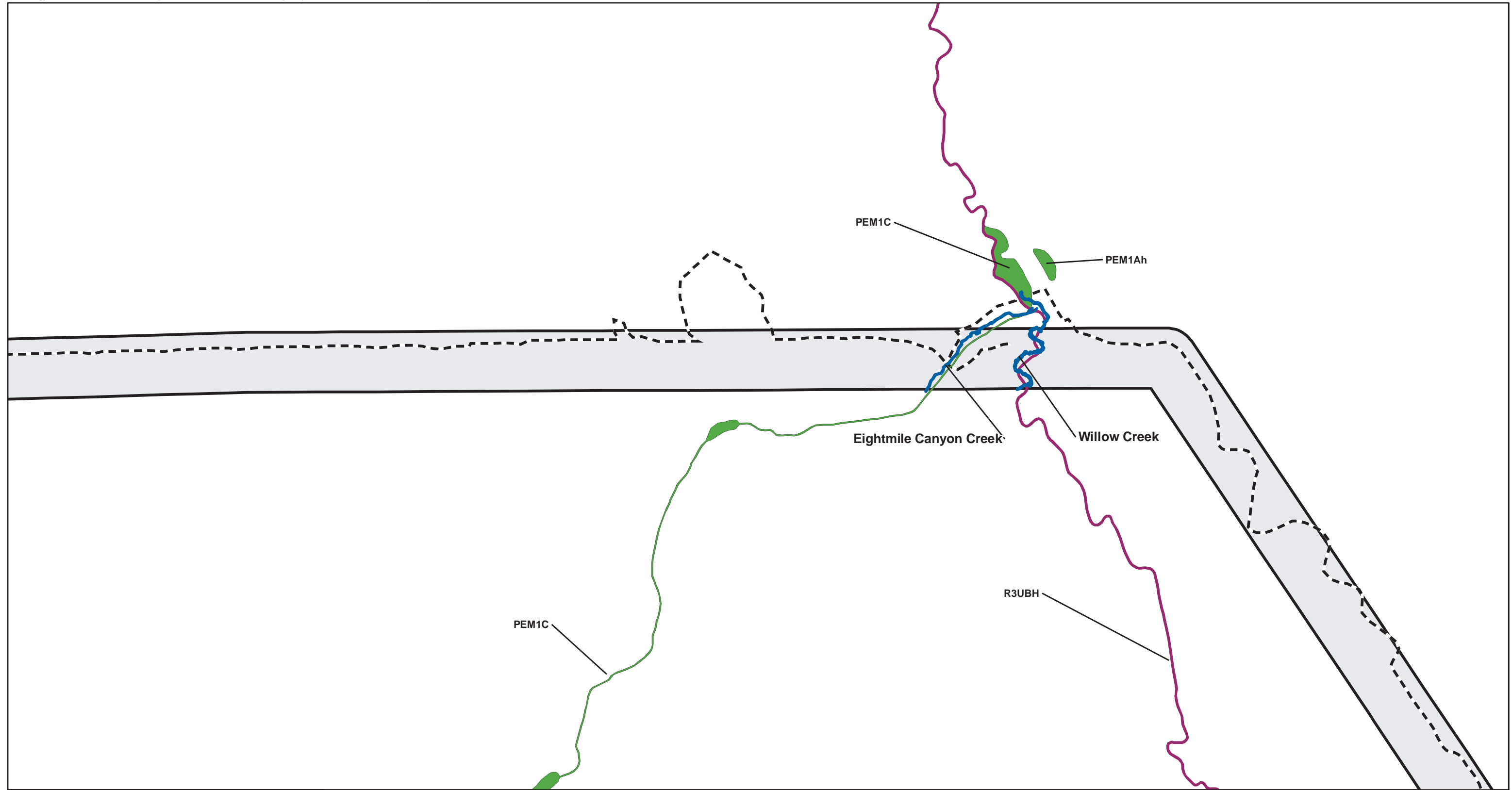


Site Boundary Access Road	Field Delineated Wetland Stream Features	<b>NWI Wetland</b> Freshwater Emergent Wetland Freshwater Forested/Shrub Wetland	Freshwater Pond Lake Riverine

**Figure 3c**  
**National Wetlands Inventory**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010





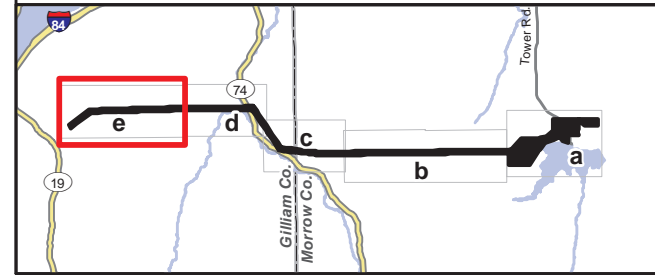
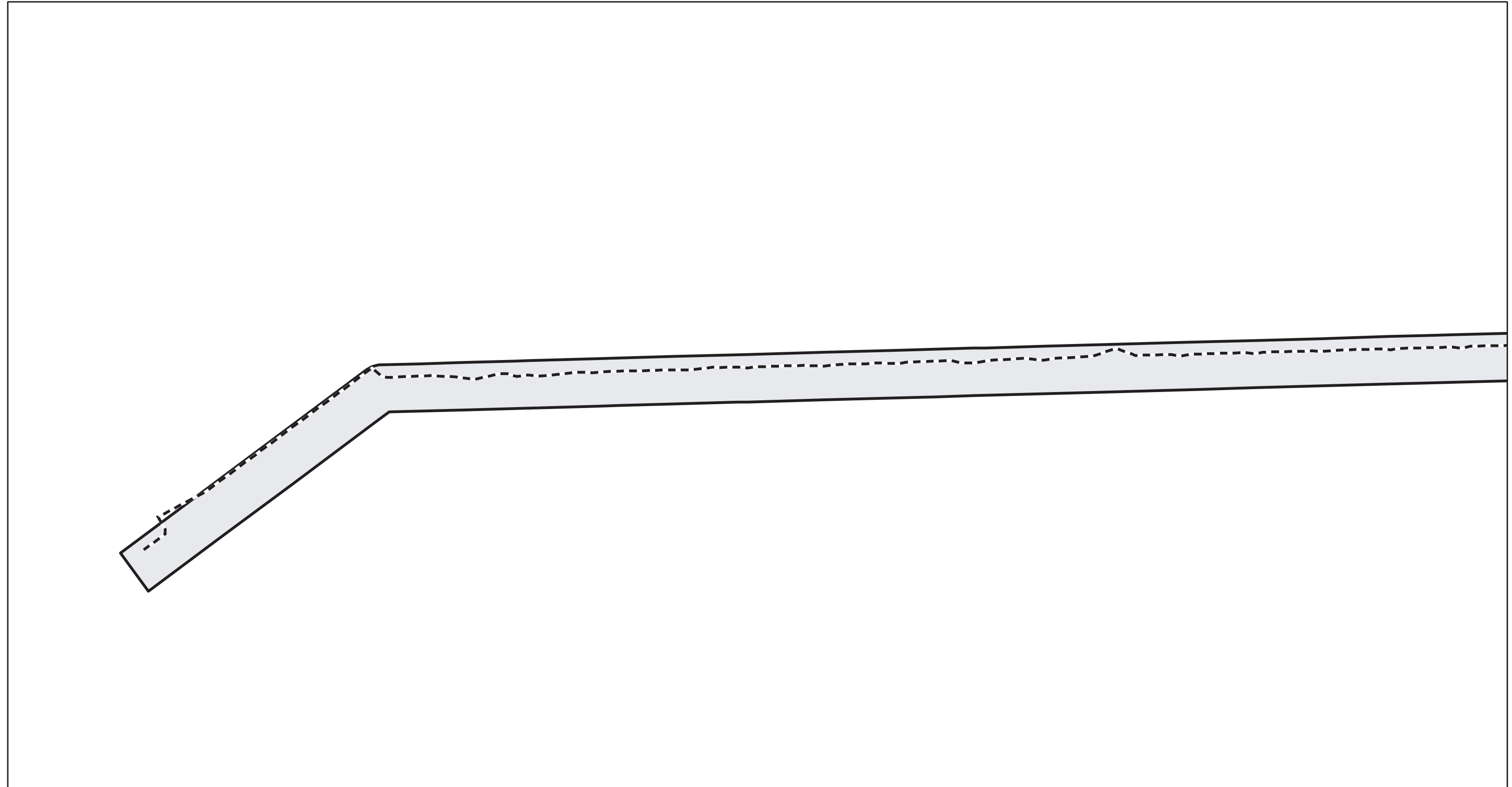


Site Boundary Access Road	Field Delineated Wetland Stream Features	<b>NWI Wetland</b> Freshwater Emergent Wetland Freshwater Forested/Shrub Wetland	Freshwater Pond Lake Riverine

**Figure 3d**  
**National Wetlands Inventory**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010







**Site Boundary** (Gray shaded area)  
**Access Road** (Dashed black line)

**Field Delineated Wetland** (Red line)  
**Stream Features** (Blue line)

**NWI Wetland**  
Freshwater Emergent Wetland (Green)  
Freshwater Forested/Shrub Wetland (Yellow)

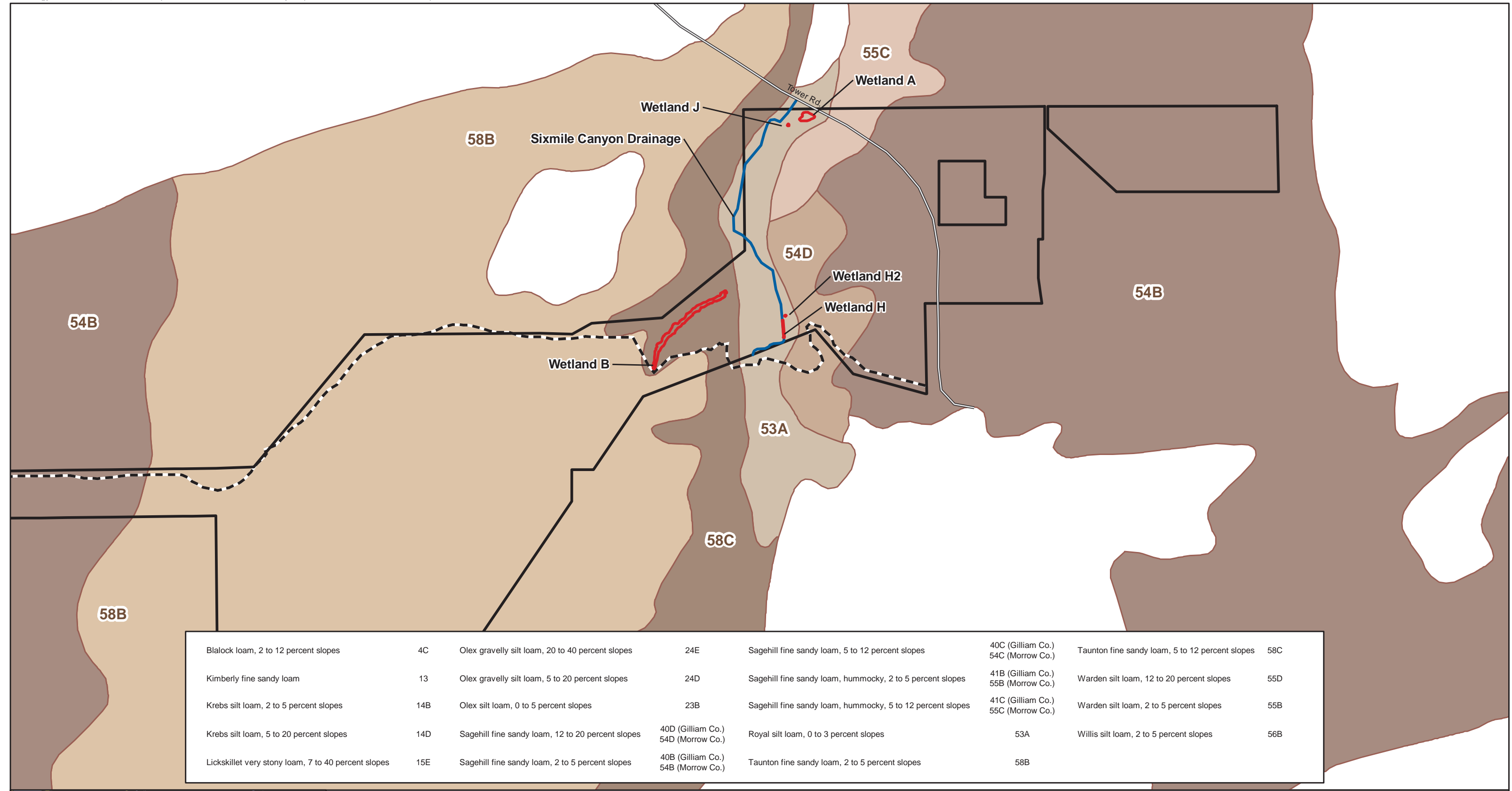
Freshwater Pond (Blue hatched)  
Lake (White with blue outline)  
Riverine (Purple)

Scale: 0 to 1 Miles / 0 to 1 Kilometers  
North arrow pointing up.

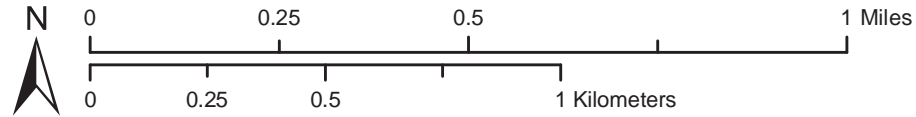
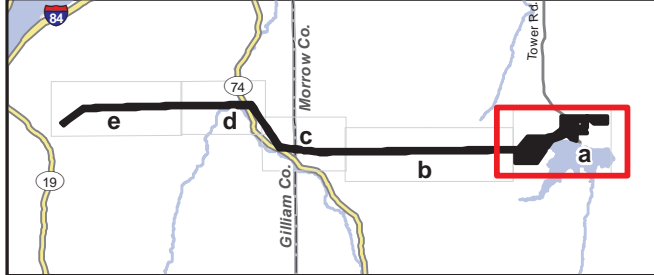
**Figure 3e**  
**National Wetlands Inventory**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010







Blalock loam, 2 to 12 percent slopes	4C	Olex gravelly silt loam, 20 to 40 percent slopes	24E	Sagehill fine sandy loam, 5 to 12 percent slopes	40C (Gilliam Co.) 54C (Morrow Co.)	Taunton fine sandy loam, 5 to 12 percent slopes	58C
Kimberly fine sandy loam	13	Olex gravelly silt loam, 5 to 20 percent slopes	24D	Sagehill fine sandy loam, hummocky, 2 to 5 percent slopes	41B (Gilliam Co.) 55B (Morrow Co.)	Warden silt loam, 12 to 20 percent slopes	55D
Krebs silt loam, 2 to 5 percent slopes	14B	Olex silt loam, 0 to 5 percent slopes	23B	Sagehill fine sandy loam, hummocky, 5 to 12 percent slopes	41C (Gilliam Co.) 55C (Morrow Co.)	Warden silt loam, 2 to 5 percent slopes	55B
Krebs silt loam, 5 to 20 percent slopes	14D	Sagehill fine sandy loam, 12 to 20 percent slopes	40D (Gilliam Co.) 54D (Morrow Co.)	Royal silt loam, 0 to 3 percent slopes	53A	Willis silt loam, 2 to 5 percent slopes	56B
Lickskillet very stony loam, 7 to 40 percent slopes	15E	Sagehill fine sandy loam, 2 to 5 percent slopes	40B (Gilliam Co.) 54B (Morrow Co.)	Taunton fine sandy loam, 2 to 5 percent slopes	58B		



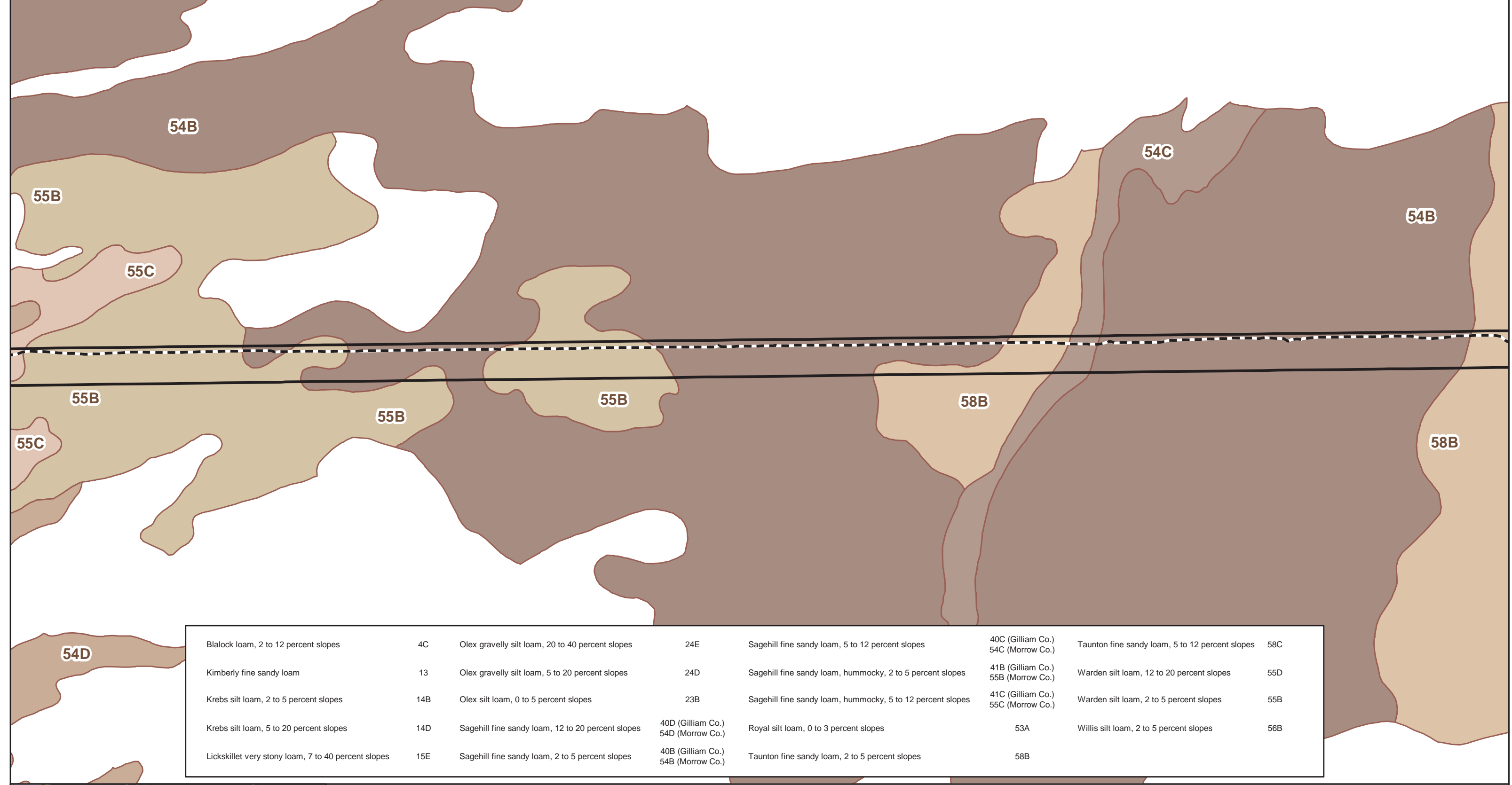
Site Boundary    
 - - - Access Road    
 — Field Delineated Wetland    
 — Stream Features

**Figure 4a**  
**SSURGO Soils Intersecting Site Boundary**  
**PGE Carty Generating Station**  
**Application for Site Certificate**

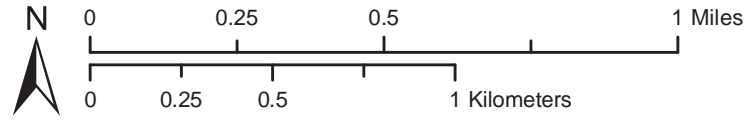
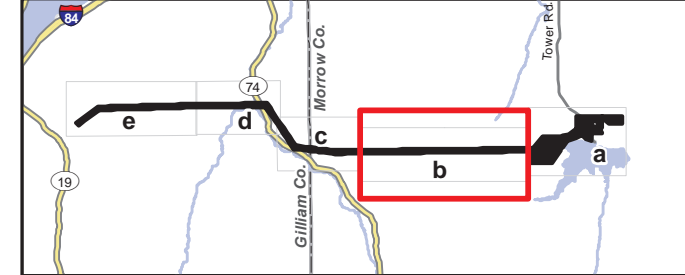








Blalock loam, 2 to 12 percent slopes	4C	Olex gravelly silt loam, 20 to 40 percent slopes	24E	Sagehill fine sandy loam, 5 to 12 percent slopes	40C (Gilliam Co.) 54C (Morrow Co.)	Taunton fine sandy loam, 5 to 12 percent slopes	58C
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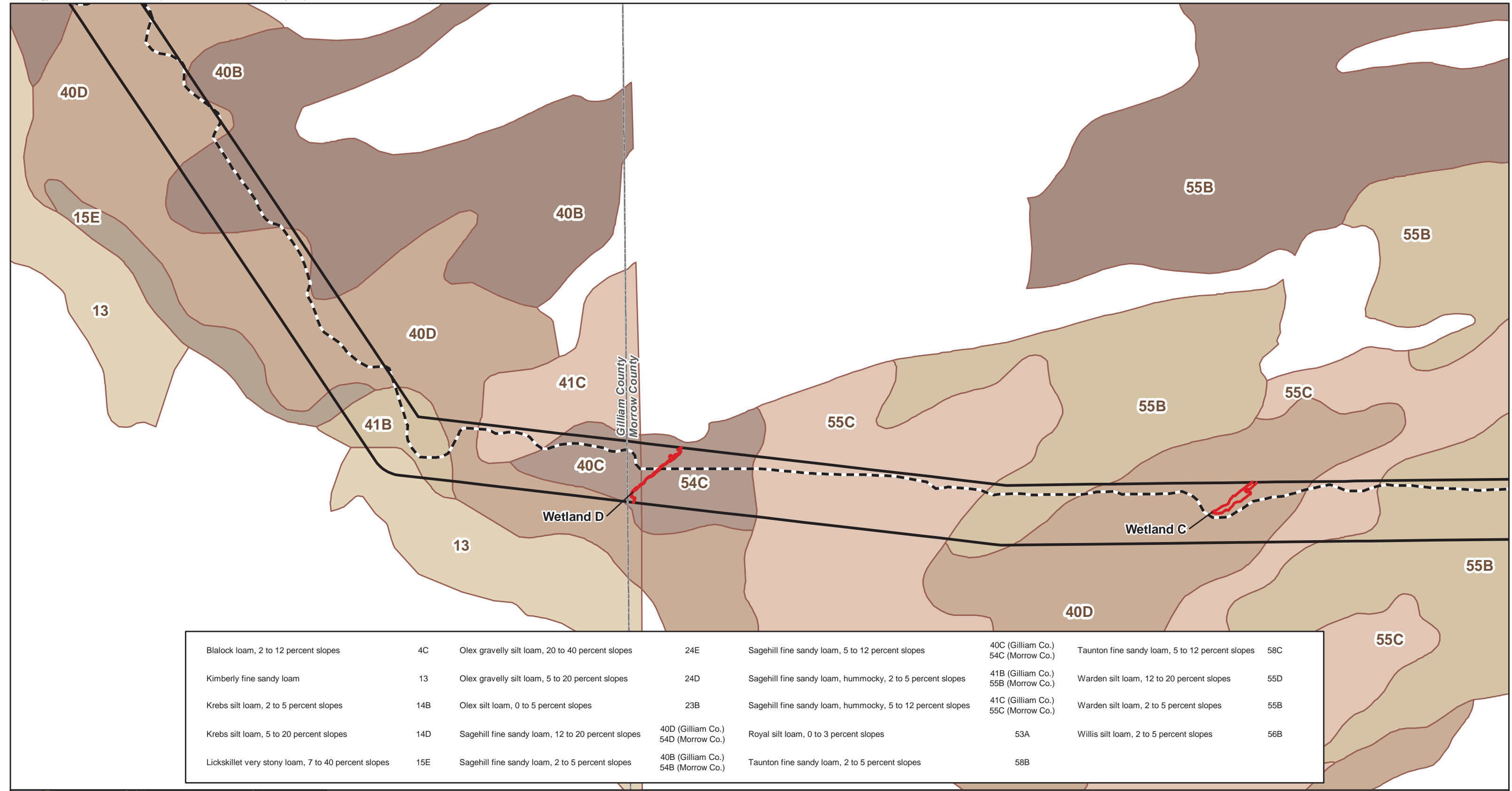


Site Boundary    
 - - - Access Road    
 — Field Delineated Wetland    
 — Stream Features

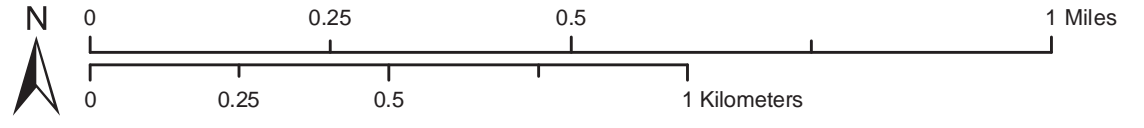
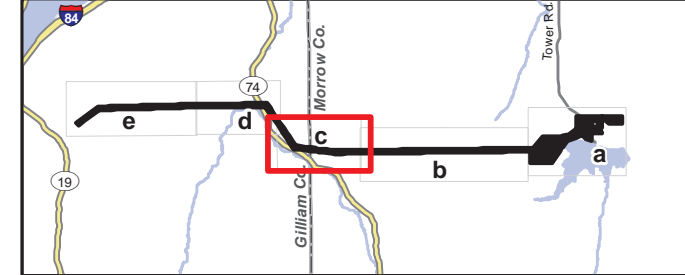
**Figure 4b**  
**SSURGO Soils Intersecting Site Boundary**  
**PGE Carty Generating Station**  
**Application for Site Certificate**







Blalock loam, 2 to 12 percent slopes	4C	Olex gravelly silt loam, 20 to 40 percent slopes	24E	Sagehill fine sandy loam, 5 to 12 percent slopes	40C (Gilliam Co.) 54C (Morrow Co.)	Taunton fine sandy loam, 5 to 12 percent slopes	58C
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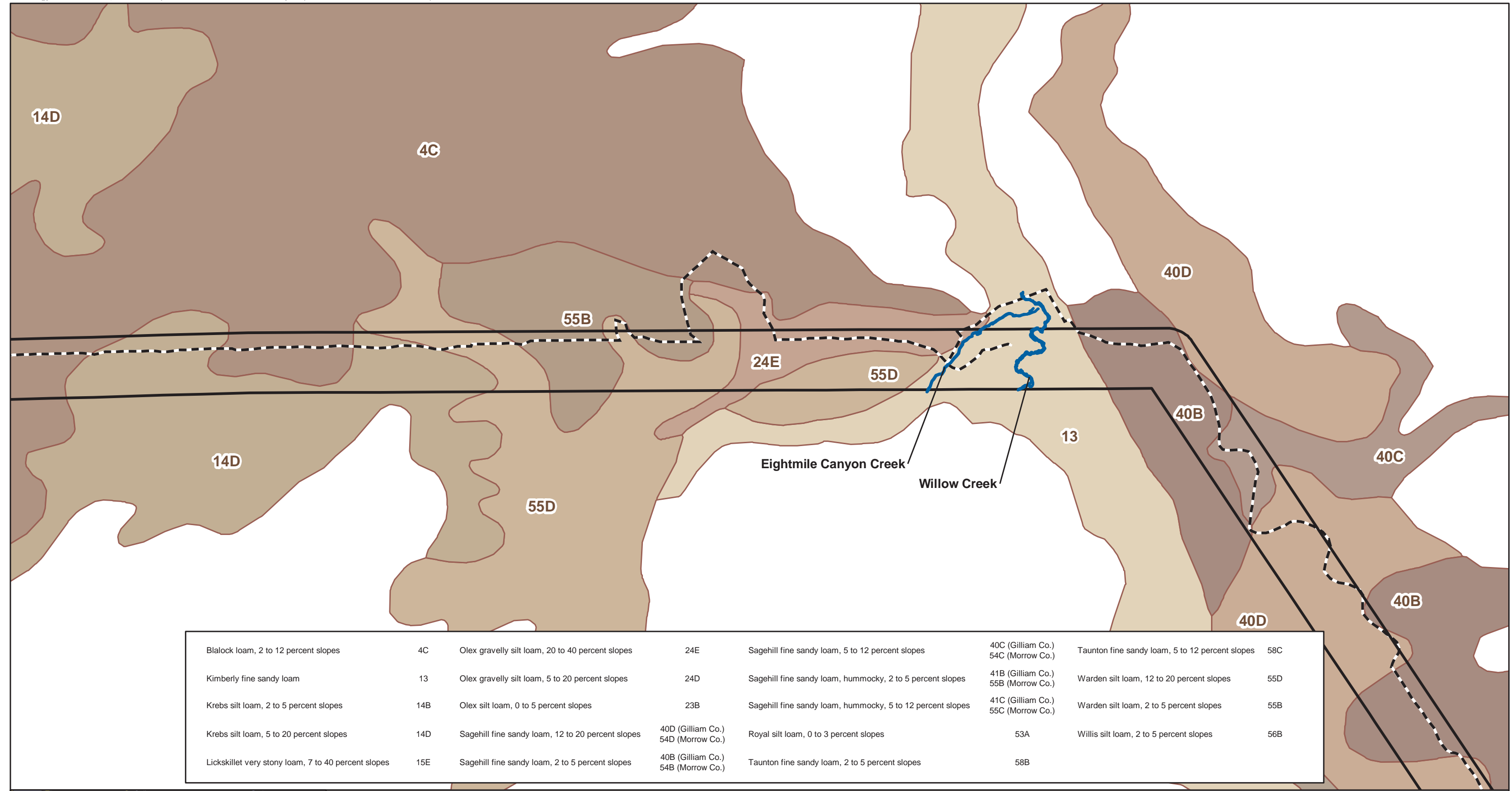


Site Boundary   
  Access Road   
  Field Delineated Wetland   
  Stream Features

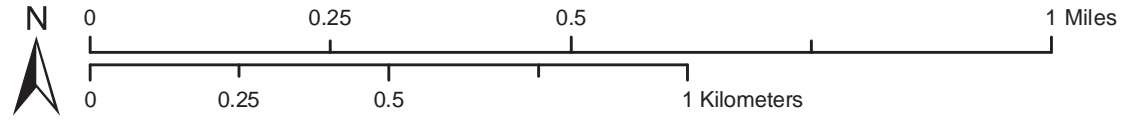
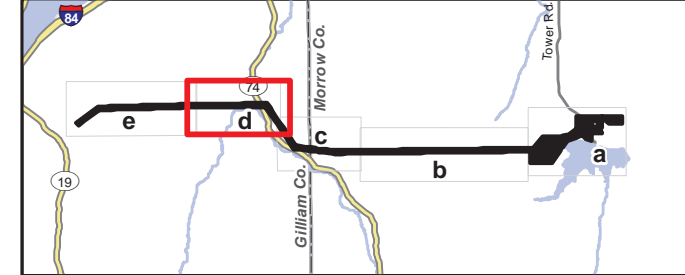
**Figure 4c**  
**SSURGO Soils Intersecting Site Boundary**  
**PGE Carty Generating Station**  
**Application for Site Certificate**







Blalock loam, 2 to 12 percent slopes	4C	Olex gravelly silt loam, 20 to 40 percent slopes	24E	Sagehill fine sandy loam, 5 to 12 percent slopes	40C (Gilliam Co.) 54C (Morrow Co.)	Taunton fine sandy loam, 5 to 12 percent slopes	58C
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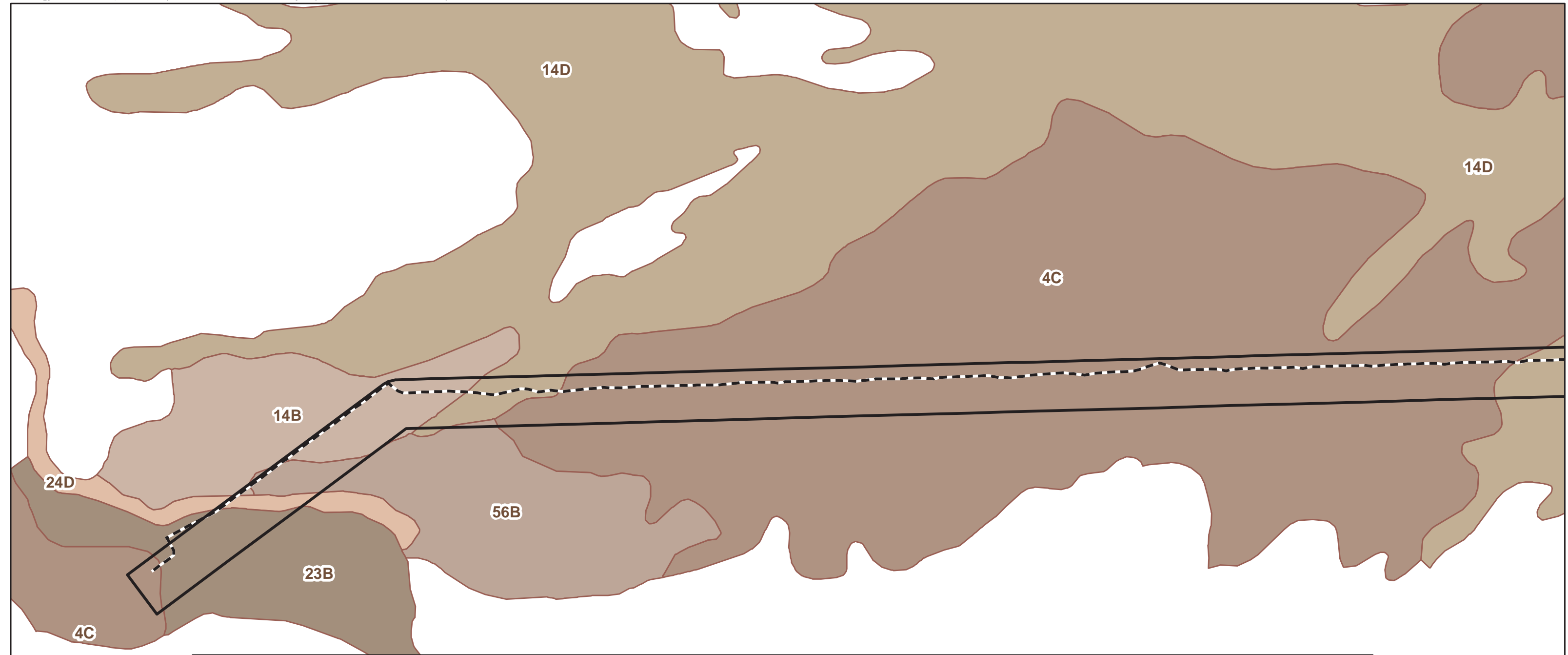


Site Boundary    
 - - - Access Road    
 — Field Delineated Wetland    
 — Stream Features

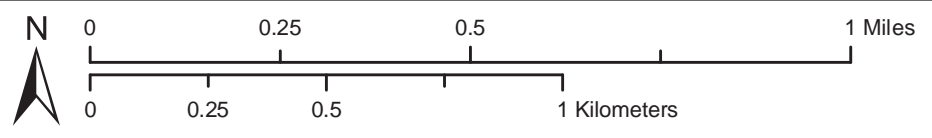
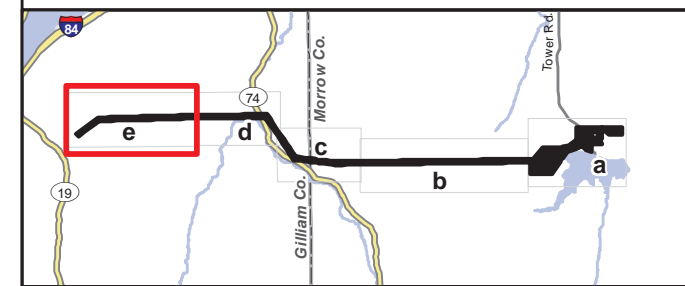
**Figure 4d**  
**SSURGO Soils Intersecting Site Boundary**  
**PGE Carty Generating Station**  
**Application for Site Certificate**







Blalock loam, 2 to 12 percent slopes	4C	Olex gravelly silt loam, 20 to 40 percent slopes	24E	Sagehill fine sandy loam, 5 to 12 percent slopes	40C (Gilliam Co.) 54C (Morrow Co.)	Taunton fine sandy loam, 5 to 12 percent slopes	58C
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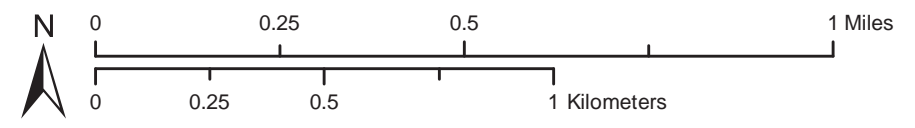
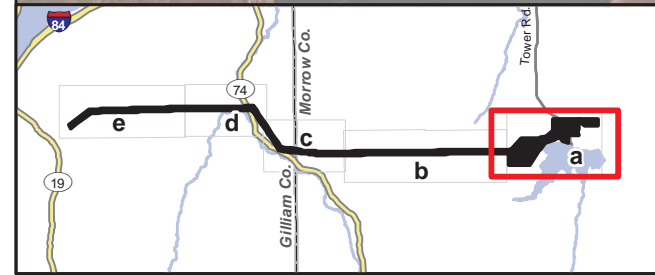
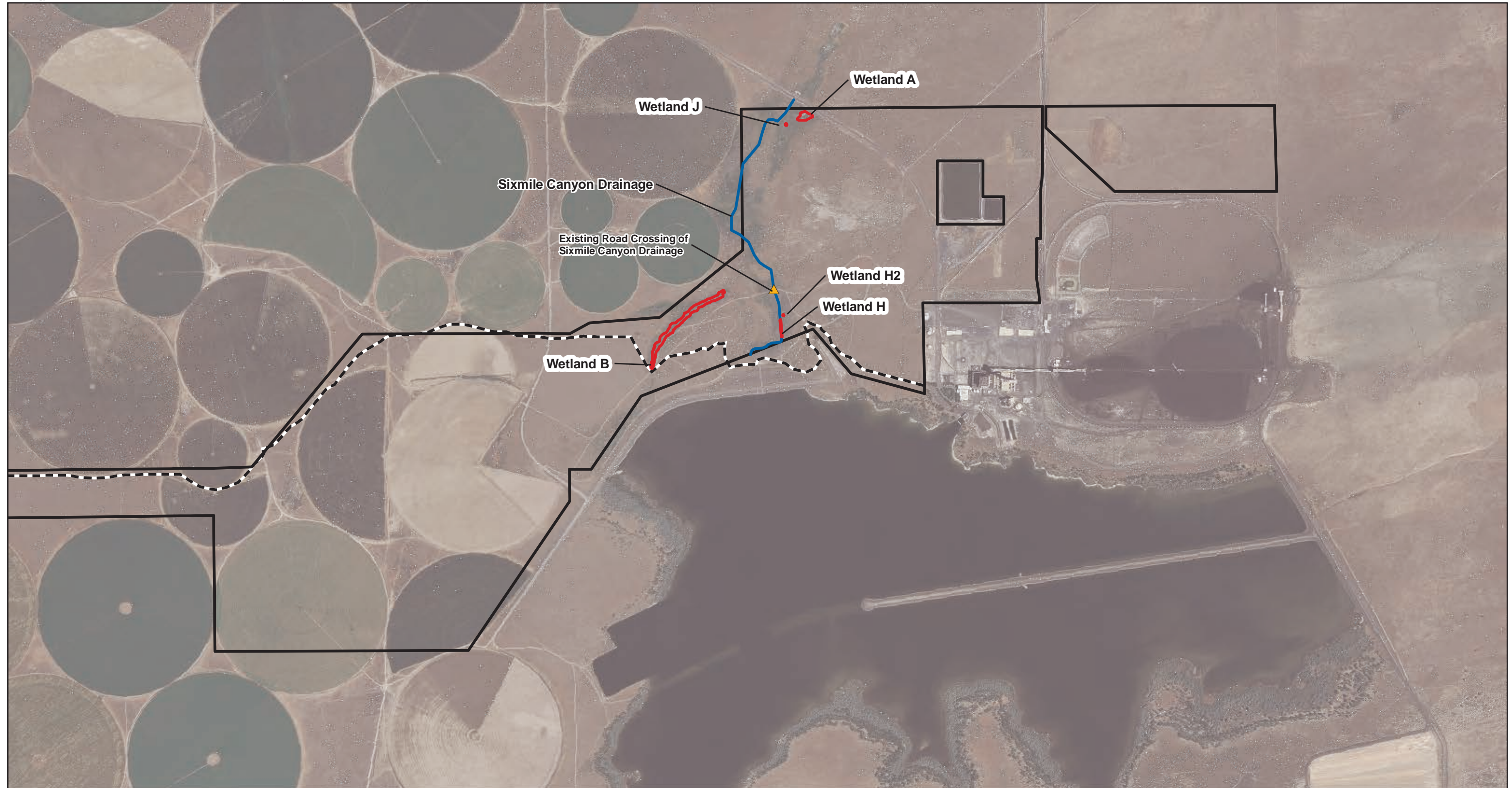
Site Boundary    
 - - - Access Road    
 — Field Delineated Wetland    
 — Stream Features

**Figure 4e**  
**SSURGO Soils Intersecting Site Boundary**  
**PGE Carty Generating Station**  
**Application for Site Certificate**









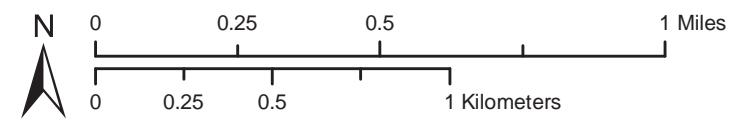
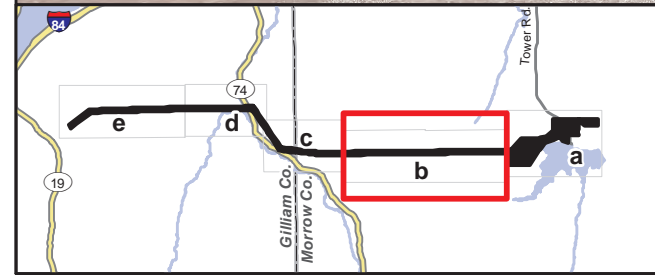
- Site Boundary
- Access Road
- Field Delineated Wetland
- Stream Features

**Figure 5a**  
**Aerial Imagery (2009 NAIP)**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010









 Site Boundary     Access Road     Field Delineated Wetland     Stream Features

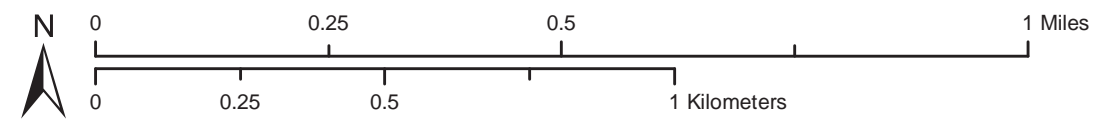
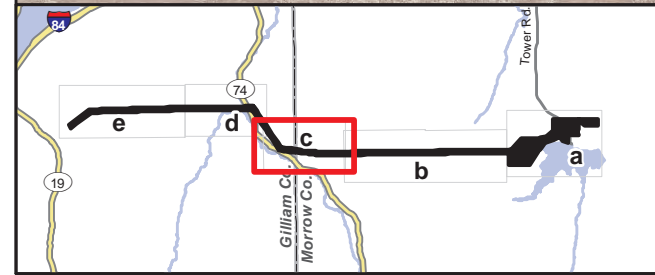
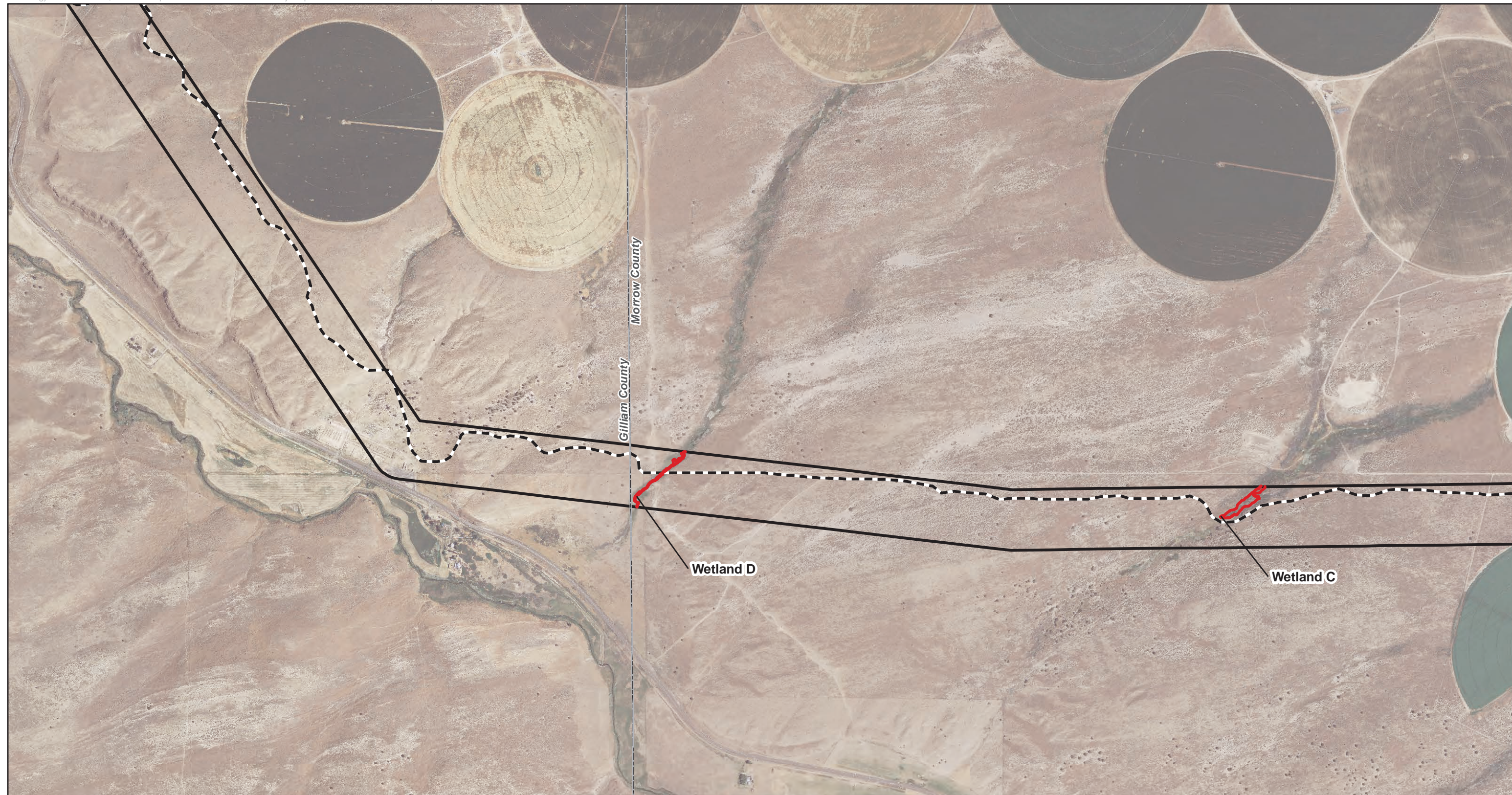
**Figure 5b**  
**Aerial Imagery (2009 NAIP)**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010











- Site Boundary
- Access Road
- Field Delineated Wetland
- Stream Features

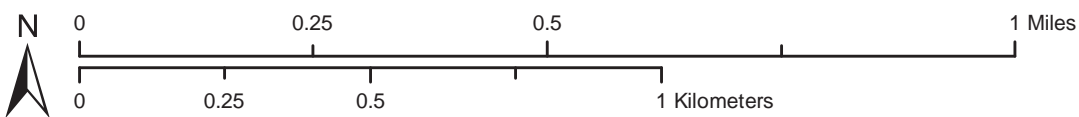
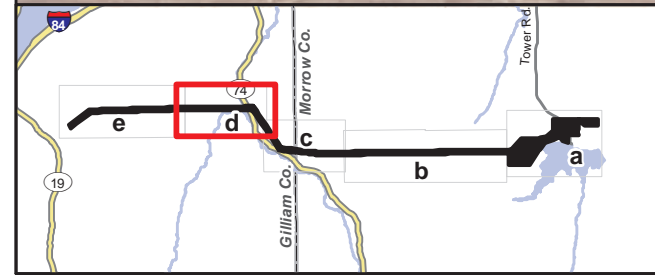
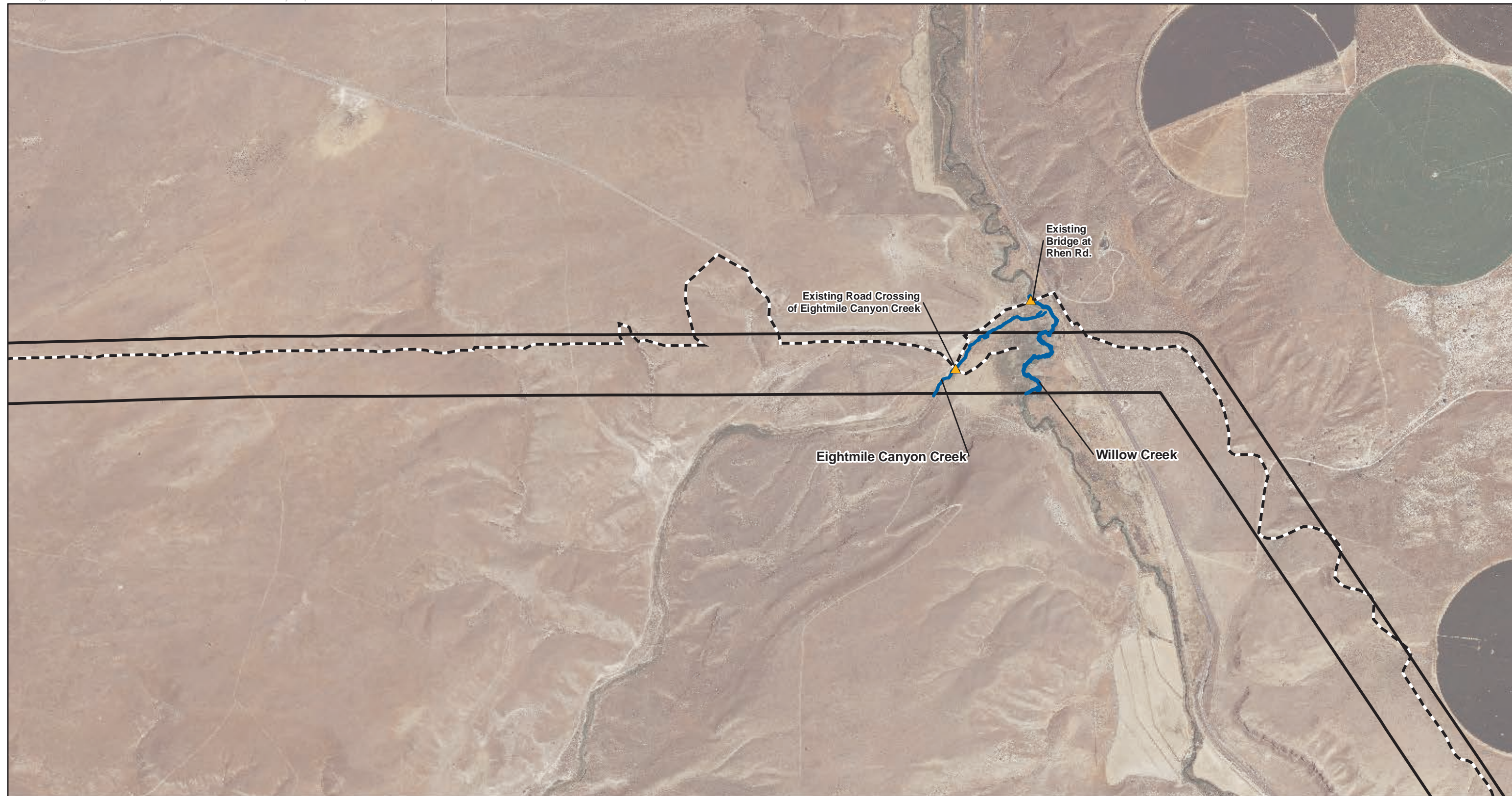
**Figure 5c**  
**Aerial Imagery (2009 NAIP)**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010











- Site Boundary
- Access Road
- Field Delineated Wetland
- Stream Features

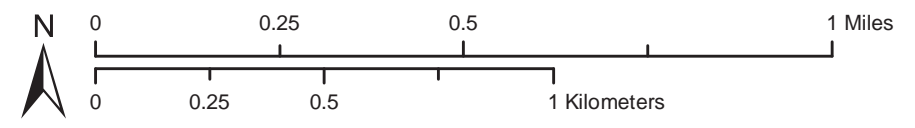
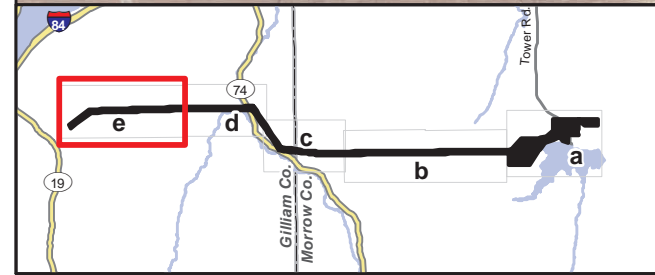
**Figure 5d**  
**Aerial Imagery (2009 NAIP)**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010











- Site Boundary
- Access Road
- Field Delineated Wetland
- Stream Features

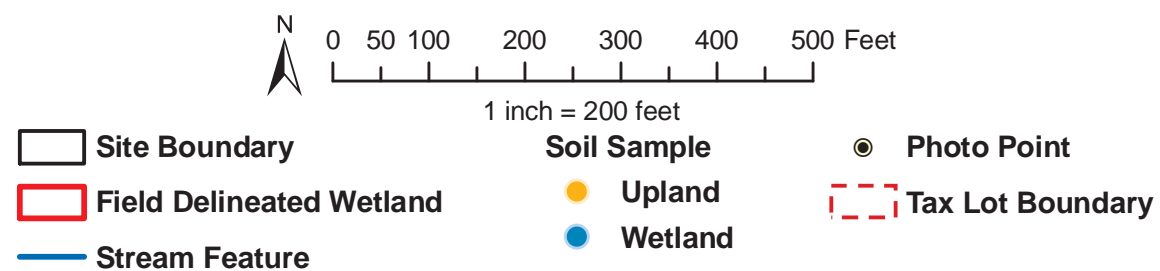
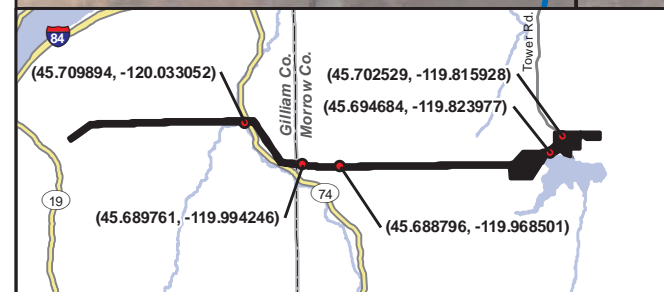
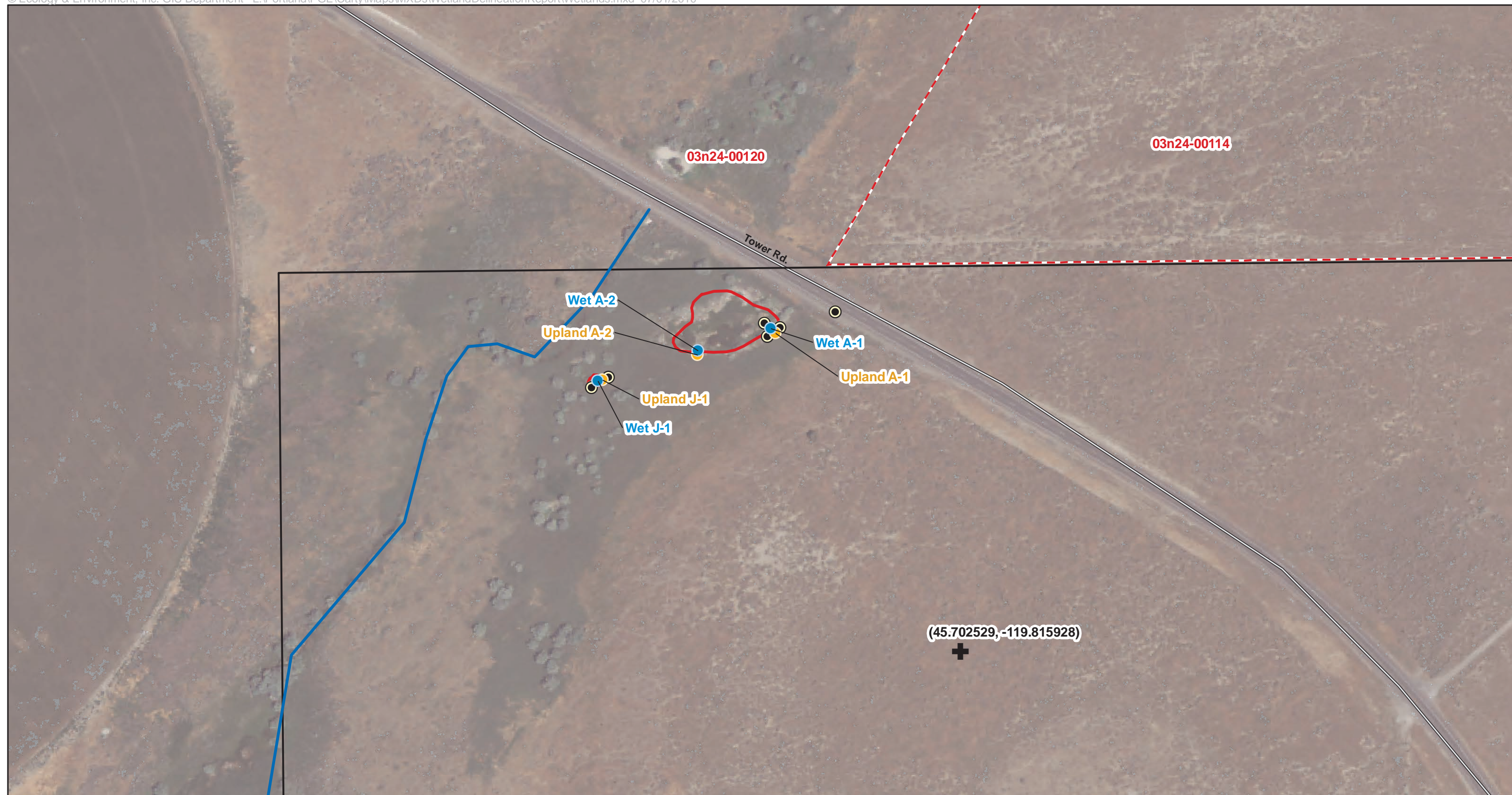
**Figure 5e**  
**Aerial Imagery (2009 NAIP)**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
Revision 1 Wetland Delineation Report July 2010











**Figure 6a**  
**Wetland Delineation Map, Wetlands A and J**  
**PGE Carty Generating Station**  
**Application for Site Certificate**

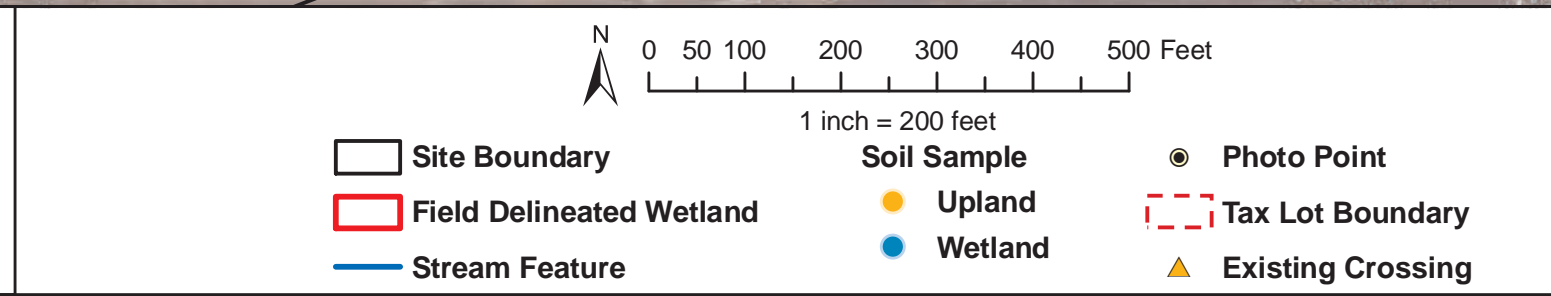
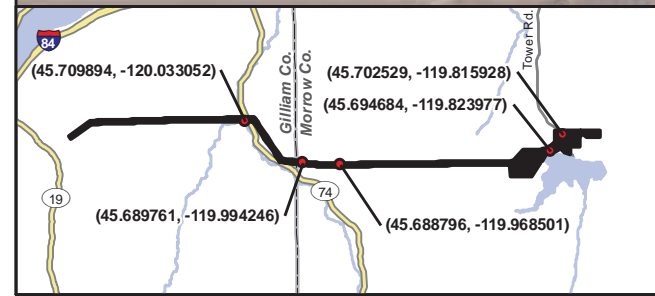
Revision 1 Wetland Delineation Report July 2010

Wetland location information obtained by GPS (Trimble XH) with sub meter accuracy.









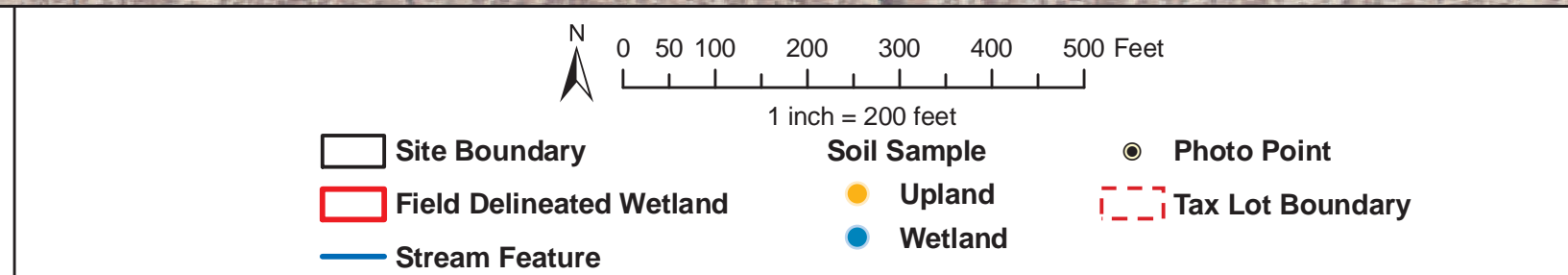
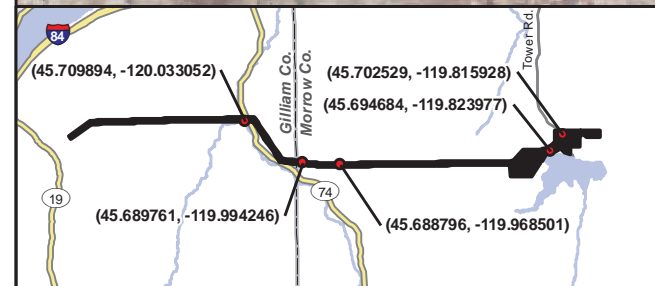
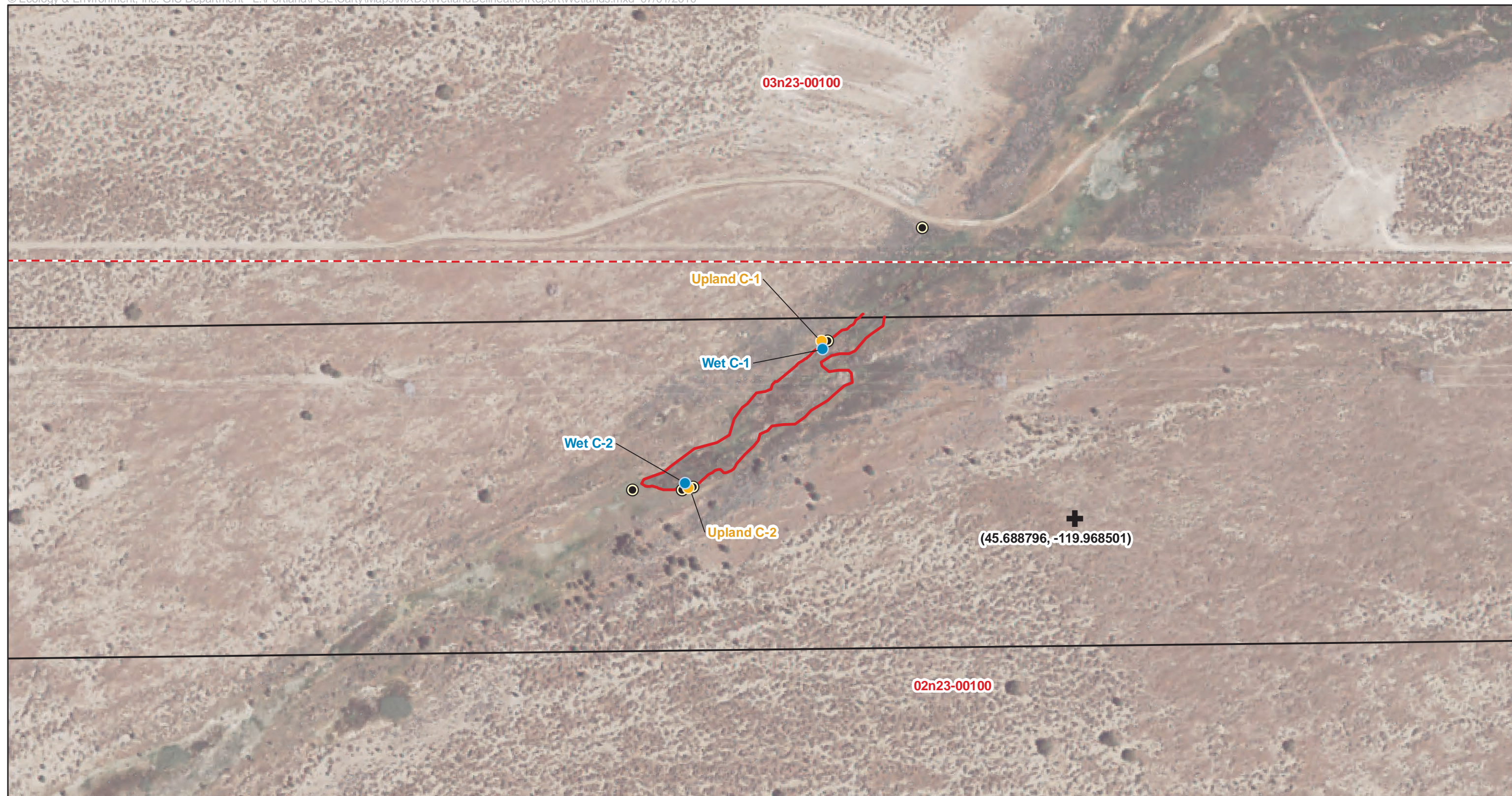
**Figure 6b**  
**Wetland Delineation Map, Wetlands B, H, and H2**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010

Wetland location information obtained by GPS (Trimble XH) with sub meter accuracy.









**Figure 6c**  
**Wetland Delineation Map, Wetland C**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010

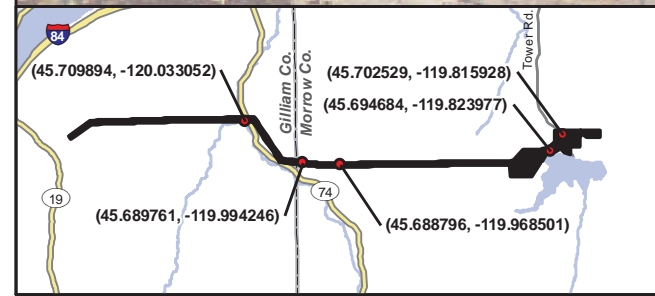
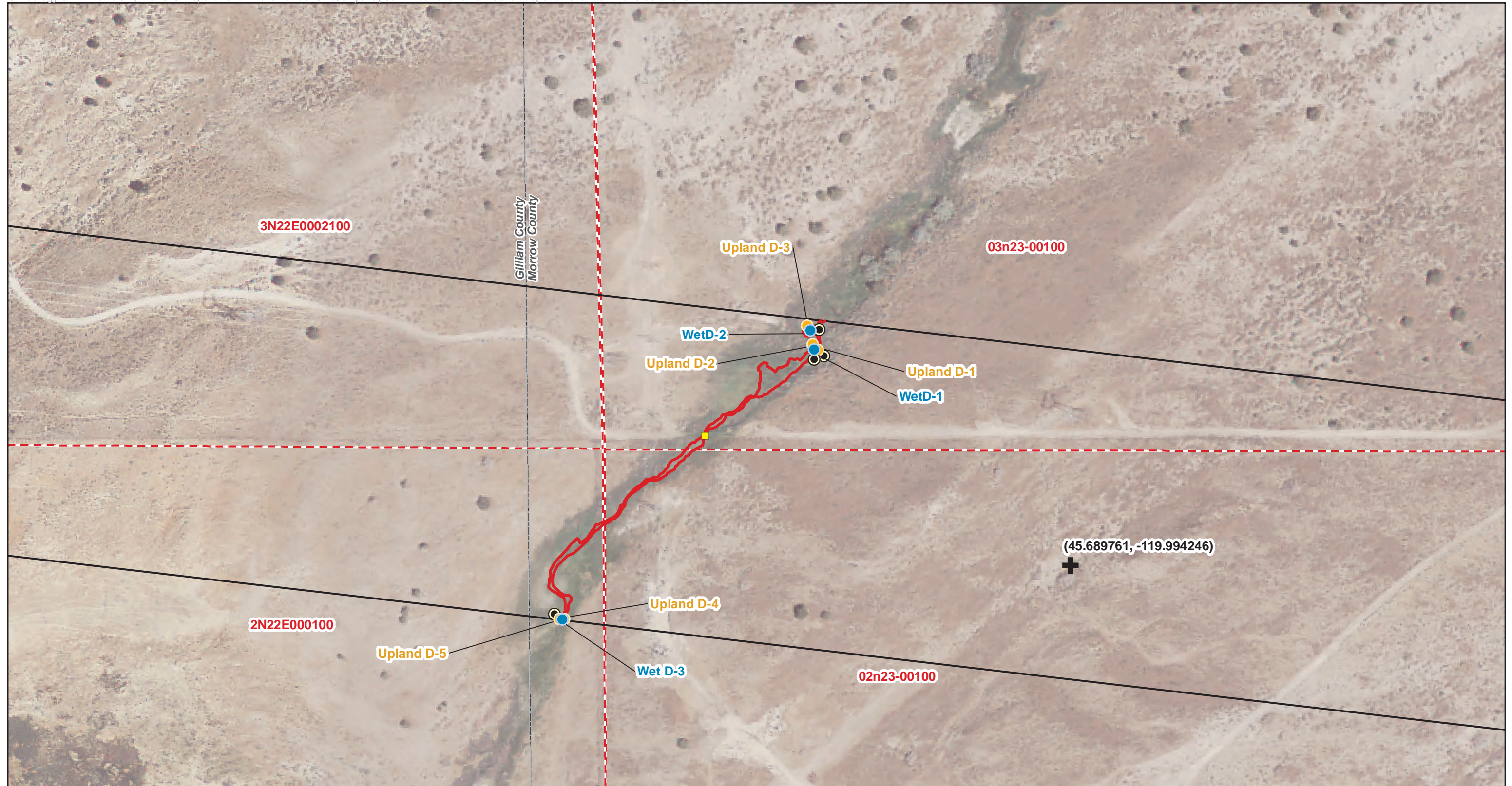
Wetland location information obtained by GPS (Trimble XH) with sub meter accuracy.











N  
0 50 100 200 300 400 500 Feet  
1 inch = 200 feet

Site Boundary	Upland	Photo Point
Field Delineated Wetland	Wetland	Tax Lot Boundary
Stream Feature	Culvert	

**Figure 6d**  
**Wetland Delineation Map, Wetland D**  
**PGE Carty Generating Station**  
**Application for Site Certificate**  
 Revision 1 Wetland Delineation Report July 2010

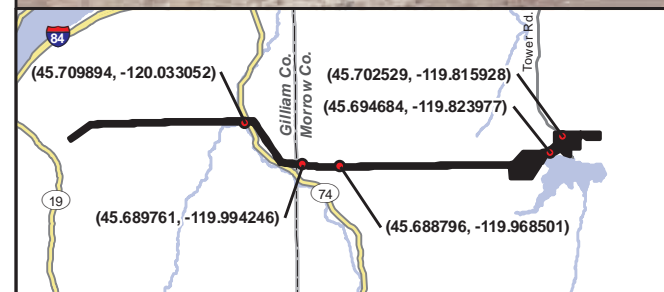
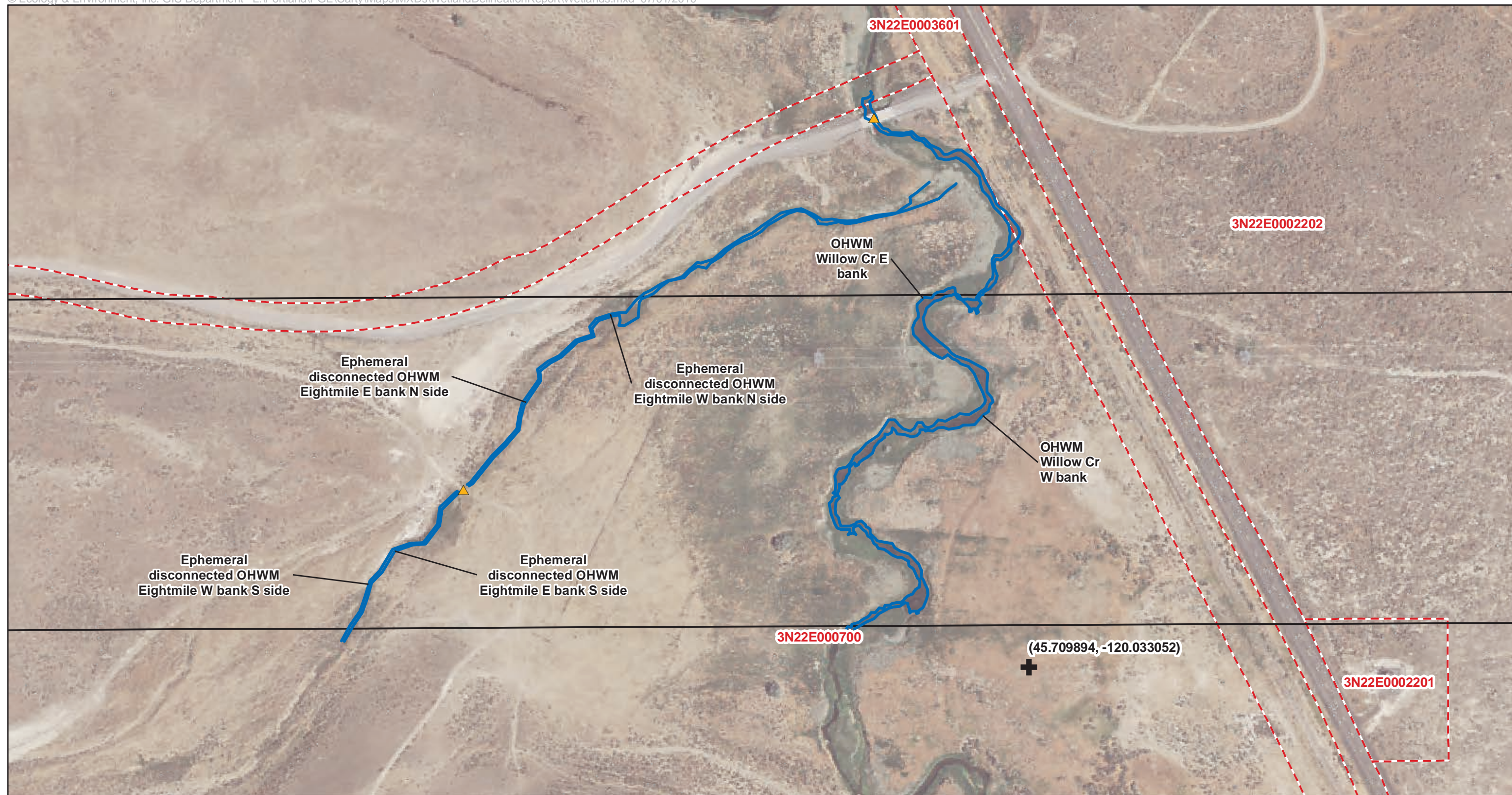
Wetland location information obtained by GPS (Trimble XH) with sub meter accuracy.











N  
0 50 100 200 300 400 500 Feet  
1 inch = 200 feet

Site Boundary	Upland	Photo Point
Field Delineated Wetland	Wetland	Tax Lot Boundary
Stream Feature		Existing Crossing

Wetland location information obtained by GPS (Trimble XH) with sub meter accuracy.

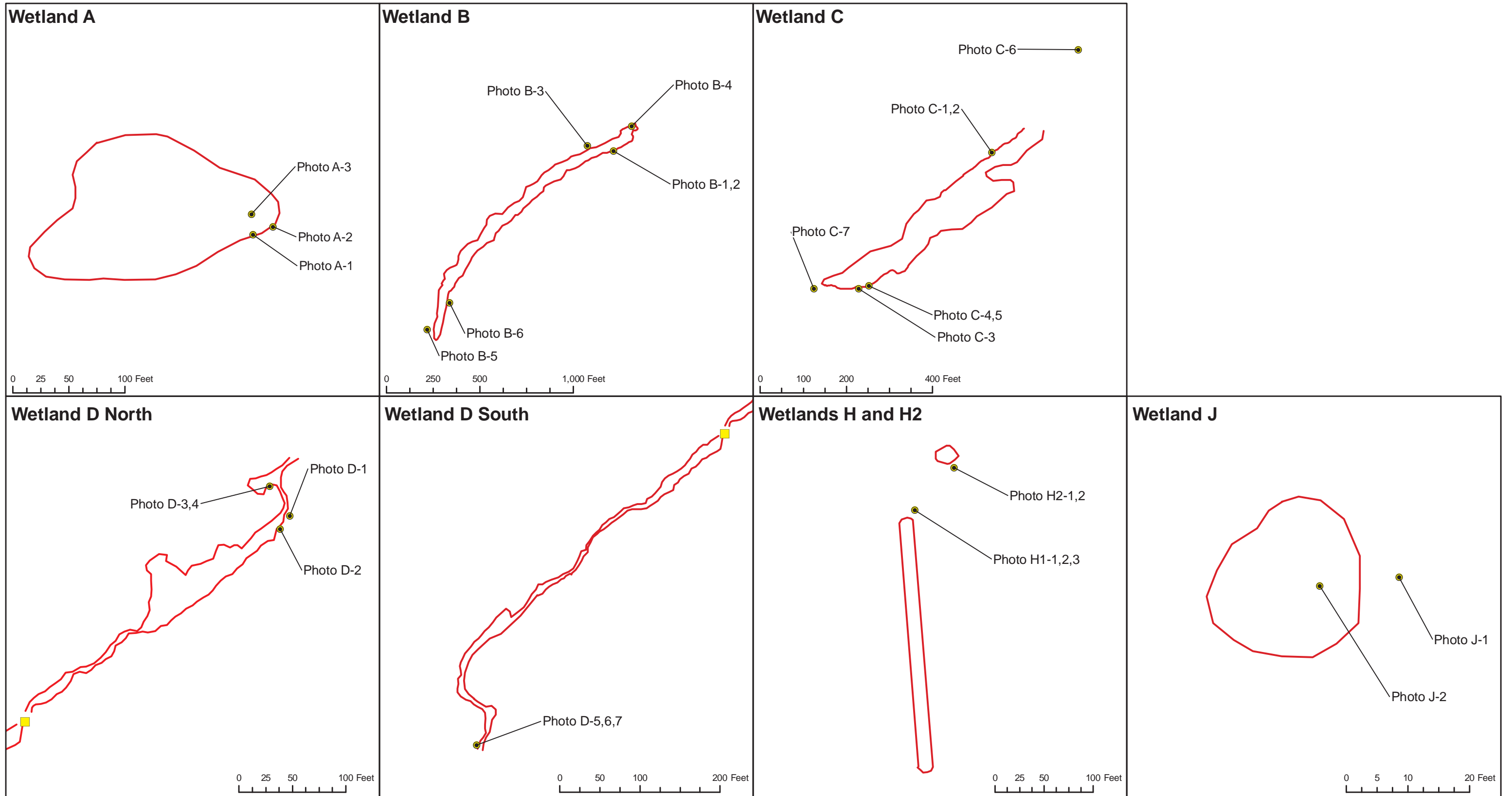
**Figure 6e**  
**Wetland Delineation Map, Stream Feature OHWMs**  
**PGE Carty Generating Station**  
**Application for Site Certificate**

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— Field Delineated Wetland    ● Photo Point    ■ Culvert

**Figure 7**  
**Wetland Photo Points**  
**PGE Carty Generating Station**  
**Application for Site Certificate**

Revision 1 Wetland Delineation Report July 2010







# EXHIBIT K

## LAND USE (STATEWIDE PLANNING GOALS)

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

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## K.1 INTRODUCTION

**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, 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: OAR 345-022-0030(3) further provides that, as used in the rule, the term “applicable substantive criteria” refers to “criteria from the affected local government’s acknowledged comprehensive plan and land use ordinances that are required by the statewide planning goals and that are in effect on the date the applicant submits the application.”

## K.2 SUMMARY

This exhibit identifies the applicable federal, state, Morrow County, and Gilliam County land use regulations and standards and demonstrates how the proposed Project<sup>1</sup> meets them. Pursuant to ORS 469.504(1)(b)(A) and OAR 345-022-0030(3), the land use regulations relevant to the application are those in effect on the date that the applicant submitted the Application for a Site Certificate (ASC). Following issuance of the Site Certificate by the Energy Facility Siting Council (EFSC), and upon the submittal of proper applications and fees, the local jurisdictions issue their respective permits in accordance with the Site Certificate. Local jurisdictions would retain enforcement authority over their permits.

Portland General Electric Company (PGE) is seeking authorization to construct a new natural gas-fired energy facility, the Carty Generating Station, and related or supporting facilities, including transmission facilities.

The “Energy Facility Site” area refers to approximately 90 acres of the Site near the Carty Reservoir that would include fenced areas enclosing proposed buildings and structures, and fenced areas containing evaporation ponds. An approximately 15-acre fenced switchyard, the Grassland Switchyard, is located west of the Energy Facility Site and is also included in the acreage of the Energy Facility Site. The plant would be accessed from the private portion of

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<sup>1</sup> In this exhibit, “Project” refers to the Carty Generating Station, plus all related or supporting facilities, such as the associated transmission line.

Tower Road. A paved loop road approximately 24 feet wide would be provided for normal truck and vehicle traffic and would connect with Tower Road. The loop road would be approximately 24 feet wide and 2,400 feet in length and would have spur roads leading to individual buildings and areas of the site that require access.

The transmission line portion of the Project is composed of several components. These components include:

- Connection of the Carty Generating Station to the new Grassland Switchyard;
- The new Grassland Switchyard;
- Connection of the existing 500-kilovolt (kV) Boardman -to-Slatt line to the new Grassland Switchyard, which provides the Carty Generating Station with access to the existing line; and
- New 500-kV transmission line from the new Grassland Switchyard along the Boardman to Slatt right-of-way.

ORS 215.275 provides the exclusive criteria for approval of the transmission line and new Grassland Switchyard. ORS 215.275 is addressed in Section K.7.2 of this application.<sup>2</sup>

### **Land Use Analysis Area**

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

Response: For both Morrow and Gilliam counties, the comprehensive plan designation is the same as the zoning map designation. Maps showing the comprehensive plan and zoning designations of the analysis area and property adjacent to the analysis area are provided in Figures K-1 and K-2 of this exhibit.

The land use analysis area is defined by OAR 345-001-0010(57): *“The study area for land use exhibit is all the area within the site boundary and the area within the following distances from the site boundary: (c) for land use impacts and impacts to fish and wildlife habitat, one-half mile.”*

The land use analysis area is identified on Figures K-1 and K-2.

Table K-1, Land Area/Zoning Description divides the analysis areas into the following categories:

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<sup>2</sup> Although there are significant locational advantages associated with the proposed energy facility site, the resources available at that site are not “unique” as required under the first factor.

- Permanent areas: For the purposes of this analysis, the permanent areas include the building footprints, parking areas, and new evaporation pond(s)—both inside and outside of the fenced area of the site.
- Temporary areas include those areas temporarily impacted by the Project.
- Note: The transmission line and Grassland Switchyard are addressed and evaluated under ORS 215.275 as “utility facilities necessary for public service” and are not included in this table, as acreage amounts are not directly relevant to the criteria in ORS 215.275.

**Table K-1 Land Area/Zoning Description**

Land Areas	Morrow County	
	EFU	MG
Permanent Areas	65.9	11.4
Temporary areas	24.3	9.8
<b>TOTAL</b>	<b>90.2</b>	<b>21.2</b>

Last updated January 11, 2011

### **K.3 LOCAL LAND USE APPROVAL**

**OAR 345-021-0010(1)(k)(B)** *If the applicant elects to obtain local land use approvals:*

- (i) *Identify the affected local government(s) from which land use approvals will be sought;*
- (ii) *Describe the land use approvals required in order to satisfy the Council’s land use standard;*
- (iii) *Describe the status of the applicant’s application for each land use approval; and*
- (iv) *Provide an estimate of time for issuance of local land use approvals.*

Response: This rule is not applicable, as the applicant elects to utilize the “Path B” route to compliance, by which EFSC, with the recommendations of Special Advisory Groups, makes the decision of compliance with the statewide planning goals and local “applicable substantive criteria.”

### **K.4 COUNCIL DETERMINATION ON LAND USE**

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

- (i) *Identify the affected local government(s);*
- (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;*

- (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;*
- (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; and*
- (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 and provide evidence to support all findings by the Council required under ORS 469.504(2).*

Response: The facility would be located within two Oregon jurisdictions: Morrow County and Gilliam County. The energy facility and a majority of the transmission line would be located within Morrow County, with a portion of the transmission line in Gilliam County. Both counties have acknowledged comprehensive plans and zoning ordinances.

The updates will not affect land designations within the Site Boundary. Consistent with the Council's rules, the existing comprehensive plan has been used for the criteria associated with this application.

The existing transmission line right-of-way (ROW) crosses federal land that is owned by the Bonneville Power Administration (BPA). The use of the existing transmission line would not require construction and would not affect this BPA-owned land. The new 500-kV transmission line would require construction on the BPA property, although this would take place within the existing ROW. This is addressed in the federal section of this exhibit (K.9).

In order to facilitate review and comment, this exhibit is organized first on a jurisdictional basis for each of the levels of government that have or may have land use standards or criteria with which the proposed facility must comply. The jurisdictions are addressed in the following order: Morrow County; Gilliam County; State of Oregon; and federal. The energy facility is located within Morrow County, and its related or supporting transmission line facilities are located within Morrow County and Gilliam County.

This exhibit addresses compliance with local land use standards. The applicant has elected to demonstrate compliance with the land use standards through a determination made by EFSC, pursuant to ORS 469.504(1)(b). EFSC has implemented this ORS provision through OAR 345-022-0030(2)(b), which requires EFSC to determine that:

- A. *The proposed facility complies with applicable substantive criteria as described in section (3) and the facility complies with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);*
- B. *For a proposed facility that does not comply with one or more of the applicable substantive criteria as described in section (3), the facility otherwise complies with the statewide planning goals or an exception to any applicable statewide planning goal is justified under section (4); or*
- C. *For a proposed facility that the Council decides, under sections (3) or (6), to evaluate against the statewide planning goals, the proposed facility complies with the statewide planning goals or that an exception to any applicable statewide planning goal is justified under section (4).*

Applicable Morrow and Gilliam County standards are printed in italics, followed by the applicant's statement of how the proposed energy facility complies with the standard.

## **K.5 MORROW COUNTY**

The energy facility and a majority of the transmission line corridor would be located within Morrow County's planning jurisdiction. The locations of each portion of the facility are shown in Figures K-1 and K-2 of this exhibit.

### **K.5.1 The Energy Facility Site**

#### **Surrounding Land Uses and Land Compatibility**

The proposed Carty Generating Station would be located on acreage that currently is under the control of both PGE and the Threemile Canyon Farms. A property transfer process is currently pending and will be conducted outside of this ASC process.

The "Energy Facility Site" area refers to approximately 90 acres of the Site near the Carty Reservoir that includes fenced areas that would enclose proposed buildings and structures, and fenced and unfenced areas containing evaporation ponds. The approximately 15-acre fenced Grassland Switchyard located west of the Energy Facility Site is included in the 90 acres but is evaluated under ORS 215.275.

The predominant land types are classified as cultivated crops and shrub/scrub, and the terrain is essentially flat, with minimal slopes. Associated land uses include existing industrial uses (Boardman Plant), farm and agricultural uses (Threemile Canyon Farms), and limited natural resource areas, which include State or federally designated wetlands in the proximity of the Project. Wetlands are identified in Exhibit J.

## **Project Description within Morrow County**

The Carty Generating Station would be located approximately 13 miles southwest of Boardman, Oregon, near the existing Boardman Plant and Carty Reservoir in Morrow County, Oregon.

The legal description of the site is: Township 2 north, Range 24 east and Township 3 north, Range 24 east, Willamette Meridian.

## **Zoning**

The Carty Generating Station would be located on land with a zoning designation of General Industrial (MG) and Exclusive Farm Use (EFU).

The Energy Facility Site would be located west of the existing Boardman evaporation pond areas, primarily on land zoned EFU.

The transmission line portion of the proposed Project within Morrow County would be located on land zoned EFU and within the existing Boardman to Slatt ROW except at the easternmost end, where the ROW would be widened prior to construction of the new transmission line.

## **Exclusive Farm Use**

The purpose of the EFU designation as noted in the Comprehensive Plan is to protect the agricultural element of the County's economic base. The Comprehensive Plan does recognize non-farm development in areas designated as EFU, such as residential development, commercial uses accessory to farm uses, and energy facilities.

Furthermore, Section 3.010, *Exclusive Farm Use, EFU Zone*, does provide for utility facilities as a conditional use under 3.010.D.16, *Commercial utility facilities* for the purposes of generating power for public use by sale, and in 3.010.D.17, *Utility facilities "necessary" for the public service*.

## **General Industrial**

As stated in the Morrow County Comprehensive Plan, the "*Industrial land designated in the Plan and on the land map reflects the needs of industrial for (a) access to highway, rail, and water transportation; (b) access to electric power and natural gas; (c) extensive, level building sites; and (d) room for expansion.*"

Therefore, the underlying purpose of the zoning designation MG is to provide for the needs of industrial developments (facilities and infrastructure), with room for expansion. The MG zone in this location is the result of an exception taken under the Comprehensive Plan, which states: "This parcel of 640 acres is the site of a PGE coal fire plant and is completely developed and no longer available of [sic] resource uses." However, in Section 3.070 of the County's Zoning

Code, *General Industrial Zone, MG*, utility facilities are not listed either as an allowed or a conditional use.

In response to this discrepancy, and because the MG-zoned land would be zoned for rural resource use absent the “exception,” the applicant requests a determination by EFSC that the related or supporting facilities located within Morrow County’s MG zone qualify for an exception to Statewide Planning Goal 3. The discussion of the Goal 3 exception is in Section K.7.3

#### **K.5.1.1 Morrow County Exclusive Farm Use (EFU)**

##### **Soil Classifications**

As noted in Table K-2, Soils Classification, below, the soil classifications adopted by Morrow County follow those adopted by the Natural Resources Conservation Service. These are delineated in Exhibit I. It is PGE’s understanding that no irrigation availability exists for any of the lands proposed to be used by the Project, therefore eliminating the classification of high value farmland. Furthermore, the acreage has been in ownership of a working industrial agricultural farm for over 30 years and has not been farmed to date. Acreage for the Carty Generating Station includes the building footprint(s). Temporary areas are not considered in the impact analysis, as they are not permanent in nature.

**Table K-2 Soils Classification, Land Zoned EFU, Morrow County**

NRCS Soil Class	Map Code	Classification(s)*	Energy Facility Site Acreage
Sagehill fine sandy loam, 2 to 5 percent slopes	54B	VIe dryland	Building footprints: 55.9 Temporary areas: 21.0
		IIe Prime farmland if Irrigated <b>HVF</b> if Irrigated	
Sagehill fine sandy loam, 12 to 20 percent slopes	54D	VIe dryland	Building footprints: 8.9 Temporary areas: 2.9
		IVe irrigated Statewide importance <b>Other Farmland</b>	
Sagehill fine sandy loam, hummocky, 5 to 12 percent slopes	55C	VIe dryland	Building footprints: 1.1 Temporary areas: 0.3
		IIIe irrigated Statewide Importance <b>Other Farmland</b>	
<b>HVF only if Irrigated</b>			Building footprints: 55.9 Temporary areas: 21.0
<b>Other Farmland</b>			Building footprints: 10.0 Temporary areas: 3.3
<b>TOTAL impact</b>			Building footprints: 65.9 Temporary areas: 24.3 TOTAL 90.2

Notes:\* Classifications were obtained from Morrow County Soils, which uses NRCS data. (VIe, IIe, VIe, IVe, IIIe)  
Last updated: December 17, 2010

Key: HVF = High Value Farmland  
N/A = not in project footprint  
NRCS = Natural Resources Conservation Service  
Other Farmland = Farmland as defined by OAR 660-033-130(17)

*SECTION 3.010. EXCLUSIVE FARM USE, EFU ZONE. In an EFU Zone, the following regulations shall apply:*

*Section 3.010.A. PURPOSE: The purpose of the Exclusive Farm Use Zone is to preserve and maintain agricultural lands for farm use consistent with historical, existing, and future needs, including economic needs that pertain to the production of agricultural products, and to permit the establishment of only those uses that are compatible with agricultural activities. Uses, buildings, or structures hereafter erected, structurally altered, enlarged, or moved and land hereafter used in the Exclusive Farm Use Zone shall comply with the following regulations.*

*D. CONDITIONAL USES PERMITTED. In an EFU Zone, the following uses and their accessory uses are permitted subject to demonstration of compliance with the requirements of Article 6 of this ordinance and Section (G) below:*

*16. Commercial utility facilities for the purposes of generating power for public use by sale. A power generation facility shall not preclude more than 12 acres of high value farmland*

*or 20 acres of other land from commercial farm use unless an exception is approved pursuant to OAR 660 Division 4.*

Response:

### **Carty Generating Station (Facility)**

The facility is considered a commercial utility facility for the purpose of generating power for public use by sale. As noted in Table K-2, the facility would occupy 55.9 acres of high value farmland *if irrigated*, and 10.0 acres of “other land” designated as EFU lands.

This acreage exceeds the standard noted above and, therefore, an exception to Goal 3, Agricultural Lands has been requested within this exhibit under Section K.7.3. The remaining conditional use criteria and standards have been included under this subsection of the exhibit in order to demonstrate that the energy facility, while exceeding the acreage limitations for EFU land, otherwise complies with the applicable conditional use standards. To clarify the area and acreages in question, a detailed visual outline is shown in Figure K-3, Zoning Detail.

17. *Utility facilities “necessary” for public service, excluding commercial utility facilities for the purpose of generating power for public use by sale, and transmission towers over 200 feet in height. A utility facility is necessary for public service if the facility must be sited in an exclusive farm use zone in order to provide the service. To demonstrate that a utility facility is necessary, an applicant 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 factors listed in OAR 660-033-0130(16).*

Response:

### **Transmission line**

The factors noted in OAR 660-033-0130(16), which mirror the requirements of ORS 215.275, include those related to technical and engineering feasibility, location dependency, lack of available urban and non-resource lands, availability of existing ROWs, public health and safety, and other requirements of state and federal agencies. The transmission line qualifies as a “utility facility necessary for public service” under these requirements. A response to these criteria is included in Section K.7.2 of this exhibit.

*D. LIMITATIONS ON CONDITIONAL USES. In addition to the general standards and conditions that may be attached to the approval of a conditional use as provided by Article 6 of this ordinance, the following limitations shall apply to a Conditional Use in the EFU Zone.*

1. *Will not force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; and*



2. *Will not significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.*

Response: This provision is identical to ORS 215.296(1) and OAR 660-033-0130(5), which are discussed in Section K.7.

*E. REQUIREMENTS FOR DWELLINGS CUSTOMARILY PROVIDED IN CONJUNCTION WITH FARM USE.*

Response: This subsection is not applicable as no dwellings would be developed.

*F. REQUIREMENTS FOR DWELLINGS NOT PROVIDED IN CONJUNCTION WITH FARM USE.*

Response: This subsection is not applicable as no dwellings would be developed.

*G. Dimensional Standards. In an EFU Zone, the following dimensional standards shall apply:*

1. *A lot or parcel of 160 acres or more shall be considered a farm unit.*
2. *A lot or parcel of less than 160 acres may be approved as a farm unit pursuant to the Conditional Use Permit process and when found to comply with the Agricultural Lands policies of the Comprehensive Plan and the provisions of Section 5.120 of the Morrow County Subdivision Ordinance.*
3. *The minimum average lot width shall be 150 feet with a minimum street frontage of 150 feet, excepting lots within an approved subdivision.*
4. *The minimum average lot depth shall be 150 feet.*

Response: These standards are not applicable as the applicant is not requesting the creation or alteration of any lots or parcels in conjunction with this ASC. Future ownership transfers may necessitate a property line adjustment, but this process will be addressed outside of this ASC.

*H. Yards. In an EFU Zone, the minimum yard setback requirements shall be as follows:*

1. *The front yard setback from the property line shall be a minimum of 100 feet if the property line is adjacent to an intensive agricultural use except as approved by the Commission; otherwise, front yards shall be 20 feet for property fronting on a local minor collector or marginal access street ROW, 30 feet from a property line fronting on a major collector ROW, and 80 feet from an arterial ROW unless other provisions for combining accesses are provided and approved by the County.*
2. *Each side yard shall be a minimum of 20 feet except that on corner lots or parcels the side yard on the street side shall be a minimum of 30 feet, and for parcels or lots with*

*side yards adjacent to an intensive agricultural use the adjacent side yard shall be a minimum of 100 feet, except as approved by the Commission.*

3. *Rear yards shall be a minimum of 25 feet, except for parcels or lots with rear yards adjacent to an intensive agricultural use rear yards shall be a minimum of 100 feet, except as approved by the Commission.*
4. *Stream Setback. All sewage disposal installations such as outhouses, septic tank and drainfield systems shall be set back from the high-water line or mark along all streams and lakes a minimum of 100 feet, measured at right angles to the high-water line or mark. All structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams or lakes a minimum of 100 feet measured at right angles to the high-water line or mark.*

Response:

### **Carty Generating Station**

The project area for the Carty Generating Station is in excess of 75 acres and is more than adequate to develop the Carty Generating Station without creating issues of compatibility with surrounding uses. Surrounding land uses include an energy facility and agricultural operations. As the final siting of the facility is dependent on topography and other site-specific factors, it is difficult to pinpoint the exact distance for each of the setbacks.

This Project would utilize the existing sewage disposal facilities of the Boardman Plant. No new facilities would be constructed as a result of this Project.

## Transmission Line

Response: ORS 215.275 provides the exclusive criteria for approving the transmission line and other criteria are not applicable<sup>3</sup>. For the sake of completeness, however, this subsection of the exhibit addresses County criteria.

The front yard setback, rear yard setback, and side yard setbacks required pursuant to Morrow County Zoning Ordinance 3.010.H do not apply to the transmission line. Under Morrow County Zoning Ordinance 1.030, those setbacks are measured from the respective lot lines “to the nearest point of a building.” The transmission line and towers are not a “building” as defined in Section 1.030: “A structure built for the support, shelter, or enclosure of persons, animals, chattels, or property of any kind.” The applicant anticipates, however, that transmission towers would be located at least 25 feet from property lines.

Any new transmission tower would be a “structure” as defined in Section 1.030: “Something constructed or built and having a fixed base on, or fixed connection to, the ground or another structure.” Section 3.010.H.4 requires that all “structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams or lakes a minimum of 100 feet measured at right angles to the high-water line or mark.” The transmission route would not come within 100 feet of any streams or lakes in Morrow County; thus, no transmission towers would be constructed within 100 feet of any streams or lakes in Morrow County.

### *I. Transportation Impacts*

1. *Traffic Impact Analysis (TIA). In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. Heavy vehicles – trucks, recreational vehicles and buses – will be defined as 2.2 passenger car equivalents. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections*

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<sup>3</sup> The transmission line is a “utility facility necessary for public service” under ORS 215.283(1)(c). The statements in the December 2009 Application for Site Certificate to the effect that ORS 215.275 (and the parallel provisions of OAR 660-033-130(16)) provides the exclusive approval criteria for the transmission line and switchyard, which are “utility facilities necessary for public service” on land zoned by Morrow County and Gilliam County for Exclusive Farm Use, are legally correct. As the Oregon Supreme Court explained in *Brentmar v. Jackson County*, 321 Or 481, 496 (1995): “After our review of the text, context, and legislative history of ORS 215.213(1), we conclude that the legislature intended that the uses delineated in ORS 215.213(1) be uses “as of right,” which may not be subjected to additional local criteria. In conclusion, under ORS 215.213(1) and 215.283(1), a county may not enact or apply legislative criteria of its own that supplement those found in ORS 215.213(1) and 215.283(1).” In other words, when the legislature placed “utility facilities necessary for public service” in ORS 215.213(1), it clearly signaled that local governments could not impose additional criteria for approval of such uses, including the 500-kV transmission line.

*for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and, mitigation of the impacts. If the corridor is a State Highway, use ODOT standards.*

Response:

### **Carty Generating Station**

A traffic impact analysis was prepared for the proposed Carty Generating Station site. The traffic-related impacts of the completed Project, as well as the impacts of the peak construction phases, are addressed within the report. Based on the findings from this report, the proposed project is not expected to have a significant impact on the adjacent roadway traffic, operations upon buildout, and normal daily operations. During the construction phase, the traffic impacts from the daily construction worker morning commute period is forecasted to have an impact on the Interstate 84/Tower Road westbound ramp terminal. However, simple travel demand management measures such as carpooling or temporary traffic control measures can mitigate these impacts. See Exhibit U, Appendix U-1, Traffic Impact Analysis.

### **Proposed Transmission Line Construction/Operation**

No significant trips would be generated as a result of the construction or operation of the proposed transmission line, as a limited number of construction staff would be needed.

### **Section 6, Conditional Use Criteria**

*SECTION 6.020. GENERAL CRITERIA. In judging whether or not a conditional use proposal shall be approved or denied, the Commission shall weigh the proposal's appropriateness and desirability, or the public convenience or necessity to be served against any adverse conditions that would result from authorizing the particular development at the location proposed and, to approve such use, shall find that the following criteria are either met or can be met by observance of conditions.*

A. *The proposal will be consistent with the Comprehensive Plan and the objectives of the Zoning Ordinance and other applicable policies and regulations of the County.*

Response: The Conditional Use criteria are applicable to the development of portions of the energy facility located within Morrow County's EFU-zoned portions of the site. Included in the next section of this exhibit is a response to the applicable Comprehensive Plan criteria for Morrow County, as well as the applicable zoning code sections.

B. *If located within the Urban Growth Boundary of a city, that said city has had an opportunity to review and comment on the subject proposal.*

Response: The Site Boundary is not located within a city's urban growth boundary.

C. *The proposal will not exceed carrying capacities of natural resources or public facilities.*

Response: Findings provided in Exhibit P, Q, S, and U note that the carrying capacities of natural resources or public facilities within the site area would not be exceeded.

### **Exhibit P, Fish and Wildlife Habitats and Species**

Exhibit P of this application addresses fish and wildlife species and habitat and describes eight wildlife habitat types and 13 state sensitive and/or federal species of concern that occur or potentially occur within the defined Project analysis area. As described in detail in Exhibit P, mitigation measures would be employed to avoid significant potential adverse impacts on the species and habitat. The mitigation measures fully comply with ODFW's fish and wildlife habitat mitigation goals.

### **Exhibit Q, Threatened and Endangered Species**

Exhibit Q addresses all state and federally listed threatened or endangered, candidate or proposed species. Candidate and proposed species are included because of their potential for listing during the project application process. Based upon the results received from Oregon Natural Heritage Information Center and consultation with the United States Fish and Wildlife Service and Oregon Department of Fish and Wildlife (ODFW), one federally listed candidate species had potential to exist within or near the Project boundary—the Washington ground squirrel. The squirrel is classified as a state listed endangered species. There are also a total of five state listed plant species with the potential to exist within or near the Project boundary. This includes one state endangered species, one state threatened species, and three state candidate species. Exhibit Q includes further information with a description of the nature, extent, locations, and timing of each species' occurrence in the analysis area and how the facility might adversely affect each listed or candidate species (OAR 345-021-0010(q)(B)).

In regard to the plant species, Exhibit Q notes that the primary measure to reduce or avoid impacts to these plant species is a ground survey within likely habitats at an appropriate time of year prior to construction activities and avoidance of wetland areas, and other areas of suitable habitat, during placement of the transmission lines. It is anticipated that the mitigation and avoidance measures would prevent impacts to these species from the construction, operation, and maintenance of the proposed facilities.

In compliance with the ODFW Fish and Wildlife Habitat Mitigation Policy (OAR 635-415), impacts to Washington ground squirrel habitat would be avoided.

### **Exhibit S, Cultural Resources Survey**

Exhibit S describes the procedures and process completed by Archeological Investigations Northwest Inc. (AINW) to identify cultural resources and/or additional research and analysis within the Project area. AINW conducted a pedestrian survey of the majority of the analysis area and excavated 90 shovel tests within the analysis area. AINW identified four archaeological

resources, including two archaeological sites and two archaeological isolates. No additional archaeological work is recommended at the four resources identified during the current phase of work because they are not recommended eligible for listing in the National Register of Historic Places.

## **Exhibit U, Public Services**

This project takes advantage of existing infrastructure in the immediate vicinity of the site—this includes energy distribution facilities in the form of the Boardman to Slatt Transmission line, as well as the transportation access to the site, using Tower Road and Interstate 84. As described in detail in Exhibit U, sewage collection and treatment, water supplies, stormwater facilities, solid waste disposal, and police and fire service facilities, as well as health care, public education, housing, and traffic would not be adversely affected by the Project due to the limited number of full time employees and the existing capacities of the service providers.

*SECTION 6.030. GENERAL CONDITIONS. In addition to the standards and conditions set forth in a specific zone, this article, and other applicable regulations; in permitting a new conditional use or the alteration of an existing conditional use, the Commission may impose conditions which it finds necessary to avoid a detrimental impact and to otherwise protect the best interests of the surrounding area or the County as a whole. These conditions may include the following:*

- A. Limiting the manner in which the use is conducted including restricting the time an activity may take place and restraints to minimize such environmental effects as noise, vibration, air pollution, glare and odor.*

Response: The general conditional use criteria noted above are applicable to the portions of the Carty Generating Station located within EFU-zoned land. The related or supporting facilities located on MG lands are not a permitted or conditional use within the MG zone. As discussed in Section K.5.1, the MG zone was placed on this site through the “exceptions” process. Therefore, siting of facilities within the MG zone is addressed in the Goal 3 exception in Section K.7.3.

The environmental impacts on soils, fish, and wildlife; threatened and endangered species; and wetlands, as well as impacts from noise emissions and cooling tower drift, have been evaluated in the respective exhibits of this ASC. Aside from compliance with permit requirements for construction of such a facility (for example, National Pollutant Discharge Elimination System [NPDES] 1200-C permit for construction), the only impacts that require mitigation are: (1) mitigation measures identified in Exhibit J for wetlands and Exhibit P for fish and wildlife habitat; and (2) control of cooling tower drift using high-efficiency drift eliminators, as discussed in Exhibit Z.

For the transmission line and Grassland Switchyard, ORS 215.275 provides the exclusive approval criteria. For the sake of completeness, however, they are noted and responded to in this section.



*B. Establishing a special yard or other open space or lot area or dimension.*

Response: As noted above, the lot area and dimensions are more than adequate for containing the proposed Carty Generating Station and transmission line.

*C. Limiting the height, size or location of a building or other structure.*

Response: As noted in Exhibit R, the building's height and location would have no significant adverse impact on documented important scenic and aesthetic values. The visual impact of the Carty Generating facility is relatively moderate and is located at least 13 miles from any population center. The Carty Generating Station Site Boundary would be located approximately 8 miles from the Columbia River in an area currently utilized for energy generation and transmission. Public access is not permitted on PGE land or Carty Reservoir for recreational activities. In addition, the impact on the scenic resources of the proposed new transmission line would be negligible because of the presence of existing transmission lines within the same corridor.

*D. Designating the size, number, location and nature of vehicle access points.*

Response: The size, number, and location of the vehicle access points, as noted on Figure B-3, are adequate for the proposed facility.

### **Size**

The vehicle access points are sized to allow for vehicles and truck traffic as expected at the Carty Generating Station.

### **Number**

There would be two access points—one noted as the Main Gate and the second as the Secondary Entrance, as shown on Figure B-3.

### **Location**

Both access points would be located along the private ownership portion of Tower Road. These access points are located approximately ½ mile from the entrances to the existing Boardman Plant, thus minimizing opportunities for potential traffic conflict.

*1. Where access to a county road is needed, a permit from Morrow County Public Works department is required. Where access to a state highway is needed, a permit from ODOT is required.*

Response: As shown on Figure B-3, there would be two access points to the site, both located along the portion of Tower Road under private ownership.

No additional access to roadways under ODOT ownership is expected.

2. *In addition to the other standards and conditions set forth in this section, a Traffic Impact Analysis (TIA) will be required for all projects generating more than 400 passenger car equivalent trips per day. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts of the project, and mitigation of the impacts. If the corridor is a State Highway, use ODOT standards.*

Response: A traffic impact analysis is included in Exhibit U as Appendix U-1.

- E. *Increasing the amount of street dedication, roadway width or improvements within the street right-of-way.*

Response: It is not anticipated that improvements to County transportation facilities would be required for this project. Should improvements be necessary, they would be constructed according to the Morrow County Transportation System Plan.

1. *It is the responsibility of the land owner to provide appropriate access for emergency vehicles at the time of development.*

Response: Based on preliminary layouts for the facility, ample turnaround spacing exists on site to accommodate emergency vehicles.

- F. *Designating the size, location, screening, drainage, surfacing or other improvement of a parking area or loading area.*

Response: A parking area is denoted on Figure B-3, Carty Generating Station Site Plan, in Exhibit B. These roads would be paved.

- G. *Limiting or otherwise designating the number, size, location, height, and lighting of signs.*

Response: As the facility would not generally be open to the public, signage would be limited to wayfinding for deliveries and general site circulation.

- H. *Limiting the location and intensity of outdoor lighting and requiring its shielding.*

Response: The site would be lit to ensure site safety while limiting impacts of lighting through shielding or other mechanisms.

- I. *Requiring diking, screening, landscaping or another facility to protect adjacent or nearby property and designating standards for its installation and maintenance.*

Response: The nearest use is the Boardman Plant, a use of similar nature. Therefore, the Carty Generating Station would not be visually screened from the Boardman Plant.

*J. Designating the size, height, location and materials for a fence.*

Response: It is expected that the perimeter fencing would be a chainlink fence with three strands of barbed wire at the top for site security.

*K. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.*

Response: Extensive research has been completed on the natural resource areas that exist within the site boundary. Findings can be found in Exhibits L, J, P, and Q of the ASC.

### **Habitat**

Exhibit P of the ASC addresses fish and wildlife species and habitat and describes eight wildlife habitat types and 13 state sensitive and/or federal species of concern that occur or potentially occur within the defined Project analysis area. As described in detail in Exhibit P, mitigation measures would be employed to avoid significant potential adverse impacts on the species and habitat. The mitigation measures fully comply with ODFW's fish and wildlife habitat mitigation goals.

### **Natural Areas**

As noted in Exhibit L, Protected Lands, several areas within the Project area have been classified as natural areas by federal and State agencies. As described in Exhibit P and referenced in Exhibit L, neither the proposed energy facility nor the transmission line or towers would affect any of the listed sites.

### **Wetlands**

As explained in detail in Exhibit J, there are nine waters of the State or waters of the United States located within the plant site area. These areas are noted in the exhibit as Wetlands A, B, C, D, H, and J. In addition, there are three wetland areas identified as the Fourmile Canyon, Willow Creek, and Eightmile Canyon.

No fill or removal would occur in wetlands as a result of Project construction, and wetland features would be avoided by construction traffic. No significant impacts to wetlands are anticipated. However, a brief description of the potential impact is described here and is noted in greater detail in Exhibit J.

The Carty Generating Station would not impact any waters of the State or waters of the United States. Any construction-related measures would be addressed by the Erosion Control Plan required under the NPDES 1200-C permit.

*L. Other conditions necessary to permit the development of the County in conformity with the intent and purpose of this Ordinance and the policies of the Comprehensive Plan.*

Response: No other conditions of approval are necessary.

*SECTION 6.040. PERMIT AND IMPROVEMENTS ASSURANCE. The Commission may require an applicant to furnish the County with a performance bond or such other form of assurance that the Commission deems necessary to guarantee development in accordance with the standards established and the conditions attached in granting a conditional use permit.*

Response: PGE will be subject to EFSC's financial assurance requirements. These requirements ensure that financial assurance will be in place at the time of construction.

*SECTION 6.050. STANDARDS GOVERNING CONDITIONAL USES.*

Response: No use-specific standards for energy facilities are noted in this section.

### **K.5.1.2 Morrow County General Industrial**

*SECTION 3.070 GENERAL INDUSTRIAL*

*C. Use Limitations. In an MG Zone, the following limitations and standards shall apply to all permitted uses:*

- 1. No use permitted under the provisions of this section that requires a lot area exceeding two (2) acres shall be permitted to locate adjacent to an existing residential lot in a duly platted subdivision, or a lot in a residential zone, except as approved by the Commission.*

Response: This standard does not apply. There is no residentially zoned land or residential uses within the Project area.

- 2. No use permitted under the provisions of this section that is expected to generate more than 20 auto-truck trips during the busiest hour of the day to and from the subject property shall be permitted to locate on a lot adjacent to or across the street from a residential lot in a duly platted subdivision, or a lot in a residential zone.*

Response: This standard does not apply. There is no residentially zoned land or residential uses within the Project area.

*D. Dimension Requirements. The following dimensional requirements apply to all buildings and structures constructed, placed or otherwise established in the M-G zone.*

- 1. Lot size and frontage: A minimum lot size has not been determined for this zone although the lot must be of a size necessary to accommodate the proposed use, however, it is anticipated that most, if not all uses will be sited on lots of at least two acres. The determination of lot size will be driven by the carrying capacity of the land given the proposed use. Minimum lot frontage shall be 300 feet on an arterial or collector; 200 feet on a local street.*

Response: The lot associated with the Carty Generating Station is irregular in shape and is adequate to accommodate the proposed use. The portion of Tower Road under private ownership extends through the lot for nearly 5,000 feet, well over the minimum amount of lot frontage required under this standard.

2. *Setbacks: No specific side or rear yard setbacks are identified within this zone, but may be dictated by provisions of the Building Code or other siting requirements. The minimum setback between a structure and the right-of-way of an arterial shall be 50 feet. The minimum setback of a structure from the right-of-way of a collector shall be 30 feet, and from all lower class streets the minimum setback shall be 20 feet. There shall be no setback requirement where a property abuts a railroad siding or spur if the siding or spur will be utilized by the permitted use.*

Response: Tower Road terminates at the Boardman Plant and is classified as private roadway for approximately 2.27 miles. Portions of the proposed footprint for the Energy Facility Site are adjacent to the private portion of Tower Road. Setbacks are not required along the private portion of Tower Road.

3. *Stream Setback: All sewage disposal installations such as outhouses, septic tank and drainfield systems shall be set back from the high-water line or mark along all streams and lakes a minimum of 100 feet, measured at right angles to the high-water line or mark. All structures, buildings, or similar permanent fixtures shall be set back from the high-water line or mark along all streams or lakes a minimum of 10 feet measured at right angles to the high-water line or mark.*

Response: There are no streams in the proximity of the existing sewage disposal installations.

4. *Uses adjacent to residential uses. A sight-obscuring fence shall be installed to buffer uses permitted in the General Commercial Zone from residential uses. Additional landscaping or buffering such as diking, screening, landscaping or an evergreen hedge may be required as deemed necessary to preserve the values of nearby properties or to protect the aesthetic character of the neighborhood or vicinity.*

Response: There are no residential uses within the proximity of the site. A chain-link fence would be provided for safety and security of the site.

#### *E. Transportation Impacts*

1. *Traffic Impact Analysis (TIA). In addition to the other standards and conditions set forth in this section, a TIA will be required for all projects generating more than 400 passenger car equivalent trips per day. Heavy vehicles B trucks, recreational vehicles and buses B will be defined as 2.2 passenger car equivalents. A TIA will include: trips generated by the project, trip distribution for the project, identification of intersections for which the project adds 30 or more peak hour passenger car equivalent trips, and level of service assessment, impacts*

*of the project, and, mitigation of the impacts. If the corridor is a State Highway, use ODOT standards.*

Response: A Traffic Impact Analysis is included in Exhibit U as Appendix U-1 and has incorporated these standards into the analysis.

### **K.5.1.3 Morrow County Other Zoning Provisions**

Response: In correspondence dated October 8, 2009, to the Oregon Department of Energy, Morrow County has identified the following standards as applicable or potentially applicable. For completeness these sections are addressed below.

#### **Article 4, Supplementary Provisions**

- Section 4.010, Access
- Section 4.020, Sight Distance
- Section 4.035, Permit Requirements for Land Use Development
- Section 4.040, Off-Street Vehicle Parking Requirements
- Section 4.045, Bicycle Parking Requirement
- Section 4.050, Off-Street Parking and Loading
- Section 4.060, Design and Improvement Standards
- Section 4.070, Sign Limitation and Regulations
- Section 4.165, Site Plan Review
- Section 4.170, Site Development Review

#### *Section 4.010, Access*

- A. *Minimum Lot Frontage Requirement. Every lot shall abut a street, other than an alley, for at least 50 feet, except on cul-de-sacs where the frontage may be reduced to 30 feet.*

Response: The proposed lot for the Carty Generating Station contains frontage onto the private portion of Tower Road before it terminates at the Boardman Plant.

- B. *Access Permit Requirement. Where access to or construction on a county road is needed, an access permit or right-of-way permit from Morrow County Public Works department is required subject to the requirements in this Ordinance. Where access to a state highway is needed, an access permit from ODOT is required as part of the land use application. Where access is needed to a road managed by the Forest Service or other entity, an access permit or other authorization from the appropriate entity shall be required as part of the land use application.*

Response: This standard can be met. An access permit or ROW permit from Morrow County Public Works would be applied for prior to construction if access to a County road is required. No roadways would be accessed that are under the jurisdiction of the Forest Service or other entity.



C. *Emergency Vehicle Access. It is the responsibility of the landowner to provide appropriate access for emergency vehicles at the time of development. A dead-end private street exceeding one hundred-fifty (150) feet in length shall have an adequate turn around facility approved by the appropriate Fire Marshal or, if the Fire Marshal fails to review the private street, approval by the Building Official or his designee.*

Response: This standard can be met. Based on a preliminary layout for the Carty Generating Station, ample turnaround spacing exists on site to accommodate emergency vehicles.

D. *Easements and Legal Access: All lots must have access onto a public right of way. This may be provided via direct frontage onto an existing public road, a private roadway, or an easement. Minimum easement requirements to provide legal access shall be as follows: 1.1000' or less, a minimum easement width of 20' 2.More than 1000', a minimum easement width of 40' 3.Parcels where 3 or more lots share an access (current or potential), a minimum easement of 60'.*

Response: This standard has been met. The parcels associated with the Carty Generating Station contain at least 50 feet of frontage along Tower Road (a roadway that includes County and private ownership along its length). The roadway easement for Tower Road and Access Road is 150 feet wide (75 feet on either side of the centerline of the ROW). See Appendix K-1 for a copy of Easement G.

E. *Access Spacing Requirements for Development Accessing State Highways.*

Response: No direct access onto a State Highway is anticipated. This standard is not applicable.

*Section 4.020 Sight Distance.*

A. *Sight Distance Requirements for New Accesses. It is the intent of this section to ensure that each new access point or each new lot or parcel created or development in the County will have a safe access to a public road, with the exception of development actions listed in Section 4.020.B. but are subject to improvements to maximize sight distance to the extent practicable by the County Operations Division through an Access Permit or Right-of-way Permit:*

Response: As shown on Figure B-3, the proposed project would take access at a portion of Tower Road under private ownership. Therefore, this section of the code does not apply to this proposal.

*SECTION 4.035 PERMIT REQUIREMENTS FOR LAND USE DEVELOPMENT. Except where otherwise noted, all proposed projects should meet the following Plot Plan Requirements as described in Table 4.035-1 below.*

Response: As specified in Table 4.035-1, a Conditional Use application is required to provide a plot plan indicating the Project setbacks, as well as a traffic impact analysis for determination of transportation improvements, parking information, and a signage layout. Based on the preliminary findings of the Traffic Impact Analysis, findings from Exhibit U and initial parking

estimates, and preliminary layout, these standards can be met at the time of development. The Oregon Department of Environmental (DEQ) site suitability test is not applicable to this project as it is required for onsite septic systems. As described in Exhibit U, Section 3.1, all sanitary wastewater would be sent to the existing Boardman Plant system which has ample capacity for additional sanitary wastewater within the system design.

*SECTION 4.040. OFF-STREET VEHICLE PARKING REQUIREMENTS. Because vehicle parking facilities can occupy large amounts of land, they must be planned and designed carefully to use the land efficiently while maintaining the visual character of the community.*

*At the time of construction, reconstruction, or enlargement of a structure, or at the time a use is changed in any zone, off-street parking space shall be provided as follows unless greater requirements are otherwise established. When the requirements are based on the number of employees, the number counted shall be those working on the premises during the largest shift at peak season. Fractional space requirements shall be counted as a whole space. Off-street parking spaces may include spaces in garages, carports, parking lots, and/or driveways if vehicles are not parked in a vehicle travel lane (including emergency or fire access lanes), public right-of-way, pathway or landscape area. The County may allow credit for “on-street parking”, as provided in Section 4.050. For uses not specified in Table 4.040-1, parking requirements shall be determined by the use in Table 4.040-1 found to be most similar in terms of parking needs.*

Response: Based on item F. Industrial, noted in Table 4.040-1, the required parking for the Carty Generating Station would be: *One space per employee on the largest shift.*

As noted in Exhibit B, the Carty Generating Station would employ approximately 20 permanent staff. As shown on the Carty Generating Station Site Plan, Figure B-3 in Exhibit B, the Carty Generating Station site area would include a parking area for approximately 22 standard cars and one handicapped vehicle, therefore, this standard can be met. For any overflow parking needs, the existing Boardman Plant site contains ample parking area and is in close proximity to the Carty Generating Station.

*SECTION 4.045. BICYCLE PARKING REQUIREMENT.*

*This chapter also provides standards for bicycle parking, because children as well as adults need safe and adequate spaces to park their bicycles throughout the community. All uses subject to Design Review that are located within an Urban Growth Boundary shall provide bicycle parking in conformance with the following guidelines. Uses outside an Urban Growth Boundary are encouraged to provide bicycle parking based on these guidelines.*

- A. *Number of Parking Spaces. A minimum of two bicycle parking spaces is recommended for each use with greater than 10 vehicle parking spaces.*

Response: The Carty Generating Station is located outside of an Urban Growth Boundary, and therefore, this section is not applicable to the project. However, this project expects to provide bicycle parking, consistent with PGE's internal policies to support alternative transportation and provide opportunities for employees to bicycle to work.

*SECTION 4.050. OFF-STREET PARKING AND LOADING. Buildings or structures to be built or substantially altered which receive and distribute materials and merchandise by trucks shall provide and maintain off-street loading berths in sufficient number and size to handle adequately the needs of the particular use. Off-street parking areas used to fulfill the requirements of this Ordinance shall not be used for loading and unloading operations except during periods of the day when not required to care for parking needs.*

Response: The Carty Generating Station would not receive or distribute materials or merchandise; therefore, no off-street loading berths are required under this section.

*SECTION 4.060. DESIGN AND IMPROVEMENT STANDARDS - Parking Lots*

Response: As shown on the Carty Generating Station Site Plan, Figure B-3 in Exhibit B, the site can accommodate an adequate area for parking. At the time of construction, the detailed design of the parking area will be submitted to the County and will meet the standards of this section of the code.

*SECTION 4.070. SIGN LIMITATIONS AND REGULATIONS. In addition to sign limitations and regulations set forth in a specific zone, the following limitations and regulations shall apply to any sign hereafter erected, moved or structurally altered within the jurisdiction of the County. In addition to the standards and limitations set forth in this Ordinance, signs shall be installed in accordance with applicable regulations of state and federal agencies. No sign will hereafter be erected, moved or structurally altered without being in conformity with the provisions of this Ordinance. Official traffic control signs and instruments of the state, county or municipality are exempt from all provisions of this Ordinance.*

Response: As the facility would not generally be open to the public, signage would be limited to wayfinding for deliveries and general site circulation. At the time of construction, the detailed design of any needed signage will be submitted to the County and will meet standards in accordance with this section of the code.

## SECTION 4.165, SITE PLAN REVIEW

*Site Plan Review is a non-discretionary or “ministerial” review conducted without a public hearing by the County Planning Director or designee. Site Plan Review is for less complex developments and land uses that do not require site development or conditional use review and approval through a public hearing.*

### Response:

#### **Carty Generating Station**

The Carty Generating Station would be located primarily on EFU land and requires conditional use review. Therefore, Site Plan Review is not required.

#### **Transmission Line**

The transmission line portion that is located within Morrow County would be located on land zoned as EFU and would follow the existing Boardman to Slatt ROW. The transmission line is evaluated under ORS 215.275, as noted in Section K.7.2.

- A. *Purpose. The purpose of Site Plan Review (ministerial review) is based on clear and objective standards and ensures compliance with the basic development standards of the land use district, such as building setbacks, lot coverage, maximum building height, and similar provisions. Site Plan review also addresses conformity to floodplain regulations, consistency with the Transportation System Plan, and other standards identified below.*
- B. *Pre-application review. Prior to filing its application for site plan review, the applicant shall confer with the County Planning Director or designee, who shall identify and explain the relevant review procedures and standards.*

Response: Prior to filing an application for Site Plan Review, the applicant will meet with the Planning Director. This standard can be met prior to development.

- C. *Applicability. Site Plan Review shall be required for all land use actions requiring a Zoning Permit as defined in Section 1.050 of this Ordinance. The approval shall lapse, and a new application shall be required, if a building permit has not been issued within one year of Site Review approval, or if development of the site is in violation of the approved plan or other applicable codes.*

Response: Prior to filing an application for Site Plan Review, the applicant will meet with the Planning Director. This standard can be met as a condition of approval that PGE, as the certificate holder, will submit a site plan that meets these criteria applicable to Morrow County prior to beginning construction.

D. *Review Criteria.*

1. *The lot area shall be adequate to meet the needs of the establishment.*

Response: As described above, the lot area is adequate to meet the needs of the Carty Generating Station.

2. *The proposed land use is permitted by the underlying land use district.*

Response: The MG zoned lands for the Project area are not subject to this criteria as the energy facility is not permitted by the underlying land use district. As discussed in Section K.5.1, but for an “exception” taken under the Morrow County Comprehensive Plan, the MG zoned land would be rural resource (EFU) land. Therefore, PGE is including the related or supporting facilities located within Morrow County’s MG zone in the Goal 3 exception in Section K.7.3.

3. *The land use, building/yard setback, lot area, lot dimension, density, lot coverage, building height and other applicable standards of the underlying land use district and any sub-district(s) are met.*

Response: These are addressed in previous sections of this exhibit.

4. *Development in flood plains shall comply with Section 3.100 Flood Hazard Overlay Zone of the Ordinance.*

Response: None of the areas noted for development are located within areas designated by Morrow County as the Flood Hazard Overlay Zone.

5. *Development in hazard areas identified in the Morrow County Comprehensive Plan shall safely accommodate and not exacerbate the hazard and shall not create new hazards.*

Response: The Morrow County Comprehensive Plan includes several policies regarding development in areas identified as hazard areas (flood plains, steep slopes, near streams prone to flash flooding, etc). As noted previously in this exhibit, land associated with the Carty Generating Station is not within flood plains, does not contain steep slopes, and is not adjacent to areas prone to flash flooding.

6. *Off-street parking and loading-unloading facilities shall be provided as required in Section 4.040 and 4.050 of the Morrow County Zoning Ordinance. Safe and convenient pedestrian access to off-street parking areas also shall be provided as applicable.*

Response: In Exhibit B of this ASC, Figure B-3 illustrates the general Project layout.

7. *County transportation facilities shall be located, designed and constructed in accordance with the design and access standards in the Morrow County Transportation System Plan.*

Response: It is not anticipated that improvements to County transportation facilities would be required for this Project. Should improvements be necessary, they will be constructed according to the Morrow County Transportation System Plan.

8. *Site planning, including the siting of structures, roadways and utility easements, shall provide, wherever practicable, for the protection of trees eight inch caliper or greater measured four feet from ground level, with the exception of noxious or invasive species, such as Russian olive trees.*

Response: No trees exist on site.

9. *Development shall comply with Section 3.200 Significant Resources Overlay Zone or 3.300 Historic Buildings and Sites protecting inventoried significant natural and historic resources.*

Response: Identification and preservation of natural resources and historic resource locations in the Project area have been provided in Exhibits P, Q, and S.

10. *The applicant shall determine if compliance is required with Oregon Water Resources Department water quantity and/or Oregon Department of Environmental Quality water quality designations.*

Response: The Carty Generating Station would use water from Carty Reservoir, utilizing existing intake structures. PGE has an existing water use permit for storage in Carty Reservoir. PGE has provided the information necessary to support a determination by EFSC that the Water Resources Department should issue a secondary water right authorizing the use of stored water from Carty Reservoir at the Carty Generating Station in Exhibit O, specifically, Appendix O-2 – Application for a Permit to Use Surface Water.

11. *The applicant shall determine if previous Code Enforcement violations have been cleared as applicable.*

Response: This project would consist of new construction. Therefore, there are no code enforcement violations for the proposed building.

12. *The applicant shall determine the method of disposal for solid waste, with staff providing information to the applicant about recycling opportunities.*

Response: As noted in Exhibit U, for construction PGE intends to minimize waste and would recycle as much material as possible at the site. Solid waste that is not recycled would be transported to an approved landfill. The nearest approved landfill is the Finley Buttes Regional Landfill, located approximately 10 miles east of the proposed Carty Generating Station. The Morrow County Planning Director noted that either Finley Buttes or Arlington would likely be available for solid waste disposal.



Solid waste generated during operation would not impact communities in the analysis area. The plant is expected to be a conditionally exempt Small Quantity Generator of Hazardous Waste (see Exhibit E). No significant adverse impacts are expected because of the small volume of waste that would be generated as a result of Carty Generating Station operations. PGE expects to facilitate extensive recycling opportunities, as noted in detail in Exhibit V.

13. *The applicant shall obtain the necessary access permit through the Public Works Department as required by Morrow County Resolution R-29-2000.*

Response: As described in Exhibit E, PGE will apply to Morrow County Public Works for all road crossing permits as needed.

E. *Submittal Requirements. A site plan shall be submitted including all of the following information except for specific items determined at the pre-application review not to be applicable. All site plans shall have dimensions clearly indicated. An applicant may provide the information on separate sheets, if necessary or desirable for clarity.*

1. *North arrow and scale.*
2. *Location of property boundaries, including adjacent public or private streets and rights of way.*
3. *Location of existing structures and natural features.*
4. *Areas affected by the proposed development with slopes in excess of 10 percent.*
5. *Location of utilities and facilities, or proposed locations (sewer, water, fire hydrants, septic system, storm water facilities, etc.).*
6. *Proposed landscaping.*
7. *Exterior lighting.*
8. *Circulation plan for vehicles, pedestrians, and bicyclists, including existing and proposed points of access and sidewalks.*
9. *Parking lot layout, with circulation plan and striping details.*
10. *Sign location and details.*

Response: In Exhibit B of this ASC, Figure B-3 illustrates a general Project layout.

#### **SECTION 4.170 SITE DEVELOPMENT REVIEW (MC-C-1-02)**

A. *Purpose. The purposes of site development review are to encourage site planning in advance of development that is permitted under Morrow County's Comprehensive Plan*

*and land use regulations; assure that development is supported with appropriate types and levels of transportation improvements and public facilities and services; and implement the Morrow County Comprehensive Plan and land use regulations with respect to development standards and policies.*

C. *When required.*

1. *Site development review shall be required for all major developments in industrial and commercial zones. As used in this Section, a "major development" is an industrial development utilizing 100 or more acres of real property. When development is proposed in phases, site development review shall apply to each phase of the development, whether or not the phase meets the site development review threshold.*

Response: Responses to this section were originally requested by Morrow County (letter to Sue Oliver, Oregon Department of Energy, dated October 8, 2009); however, the Energy Facility Site (11.4 acres of land zoned MG) would not meet the utilization criteria for a major development. Therefore, this section of the code is not addressed in this exhibit.

#### *SOLID WASTE MANAGEMENT ORDINANCE SECTION 5.000. PUBLIC RESPONSIBILITIES*

*Public responsibility requires the citizens of Morrow County comply with items two and five of Section 3.000 Purpose and Policy of this Ordinance.*

#### *SECTION 3.000. PURPOSE AND POLICY*

*To protect the health, safety and welfare of the people of Morrow County, hereafter referred to as the County, and to meet the goals of the Solid Waste Management Plan, it is declared to be the policy of the County to regulate solid waste management by:*

2. *Providing for the safe and sanitary accumulation, storage, collection, transportation and disposal of solid waste;*
5. *Prohibiting accumulation of waste or solid waste on private property in such manner as to create a public nuisance, a hazard to health or a condition of unsightliness, and to provide for the abatement of such conditions where found.*

Response: As noted in greater detail in Exhibit V, the Project would produce both liquid and solid waste. All the process wastewater produced during facility operations would be discharged to Carty Reservoir or an evaporation pond. Project construction and retirement would produce larger quantities of solid waste than facility operation. Solid waste would be recycled/reused as much as practicable with the balance disposed in a solid waste landfill. None of the waste disposal practices employed during construction, operation, or retirement of the proposed energy facility would have a significant adverse impact on the environment. As noted in Exhibit U,

capacity is available at several local solid waste service providers, which would enable the Project to facilitate removal of solid waste in a timely and County-approved manner.

#### *5.010. Transportation of Solid Waste*

*No person shall transport or self-haul, as defined in the Solid Waste Management Plan, solid waste on a public road unless such waste or solid waste is covered and secured. "Covered and Secured" includes:*

- 1. Loads which are totally contained within an enclosed vehicle or container;*
- 2. Loads of solid waste contained in garbage cans with tightly fitting lids, tied plastic solid waste disposal bags or similar totally enclosed individual containers that are completely contained within the walls of a vehicle or container, such that no solid waste can reasonably be expected to escape during hauling;*
- 3. Loads of brush, building materials and similar bulky materials which are secured in or on the hauling vehicle or completely contained within the walls of a vehicle or container, such that none can reasonably be expected to escape during hauling; or*
- 4. Loads consisting entirely of rock, concrete, asphalt paving, stumps and similar materials that are completely contained within the walls of a vehicle or container, such that none can reasonably be expected to escape during hauling.*

Response: All solid waste generated during construction or operation would be transported by a service provider or by a construction subcontractor in the manner noted above.

#### *5.020. Accumulation, Littering and Disturbance of Solid Waste Prohibited*

*No person shall accumulate or store wastes in violation of the Morrow County Nuisance Ordinance or in violation of regulations of the Oregon Littering Provisions (ORS 164.775 - 805). No unauthorized person shall remove the lid from any solid waste container or collect, disturb or scatter solid waste stored in the container or deposit solid waste into the container.*

Response: All solid waste generated by the Project would be disposed of in a timely and responsible manner. Additional detail on the waste disposal and recycling processes is noted in Exhibit V.

#### *5.030. Responsibility for Proper Disposal of Hazardous Waste*

*The owner, operator, or occupant of any premise, business, establishment, or industry shall be responsible for the satisfactory and legal disposal of all hazardous solid waste generated or accumulated by them on the property. All hazardous solid wastes shall be disposed of at an appropriate solid waste disposal site licensed to receive such waste, or in a manner consistent with Department of Environmental Quality regulations. It shall be unlawful for any person to*

*dump, deposit, bury, or allow the dumping, depositing or burying of any hazardous solid waste onto or under the surface of the ground or into the waters of the state, except at a State permitted solid or hazardous waste disposal site.*

Response: As noted in Exhibit V, hazardous waste could include oil rags, spent batteries, and equipment and vehicle maintenance solvents and oils. Chemicals used to clean piping systems and the heat recovery steam generators would also be managed as hazardous waste. All hazardous solid wastes would be disposed of at an appropriate disposal site licensed to receive such waste and in a manner consistent with DEQ regulations. Any applicable permits or registrations associated with hazardous waste are noted in Exhibit E.

#### *5.040. Open Burning*

*Woody debris, brush, leaves, grass, tumbleweeds, wood and cuttings from trees, lawns, shrubs and gardens (excepting paper, cardboard, or wood containers in commercial quantities) may be burned on private property only if the method of burning is approved by the local fire department and is done in accordance with the rules and regulations of the Oregon Department of Environmental Quality. Agricultural open burning is allowed pursuant to Oregon air pollution laws (ORS 468A.020) and the requirements and prohibitions of local jurisdictions and the State Fire Marshal.*

*Open burning of any waste materials, including on agricultural lands, that normally emit dense smoke, noxious odors, or that create a public nuisance is prohibited. These materials include, but are not limited to, household garbage, plastics, wire, insulation, auto bodies, asphalt, waste petroleum products, rubber products, animal remains, and animal or vegetable wastes resulting from the handling, preparation, cooking, or service of food.*

Response: The Carty Generating Station project would not engage in open burning during construction or operation. The ability to meet County standards for solid waste management is addressed in Exhibits V and U.

### **MORROW COUNTY CODE ENFORCEMENT ORDINANCE SECTION 7 NOISE AS A PUBLIC NUISANCE**

#### *Section 7.100 Citations*

- A. Citations may be issued for violations of Oregon Administrative Rule 340-035, Noise Control Regulations.*
- B. In addition to other remedies provided by this Ordinance, a violation may be enjoined by a civil action pursuant to ORS 30.315.*
- C. A continuing offense is one in which the sound constituting the violation occurs without substantial break for a period of 24 hours or more.*

D. *When an alleged noise nuisance is the result of an activity allowed by a permit issued by an authority of the County, State or Federal jurisdiction, the nuisance shall be enforced under the provisions and conditions of that particular permit.*

Response: The Project's ability to meet County standards for noise is addressed in Exhibit X. As described in Exhibit X, the Carty Generating Station would comply with the applicable noise limits established by DEQ in OAR-340-035-0035.

*MORROW COUNTY WEED CONTROL ORDINANCE  
SECTION 7 DUTIES OF OWNERS AND OCCUPANTS (as amended)*

D. *Any owner or occupant of land identified as having "A" list weed(s) on their property should submit a Weed Management Plan for their property within 45 days of identification of the existence of such weeds. The Weed Management Plan shall comply with requirements as established by the Morrow County Weed Control District Advisory Board.*

Response: The Oregon Department of Agriculture (ODA) has identified noxious weeds occurring in Gilliam and Morrow Counties. ODA has designated two categories of noxious weeds, "A" list species and "B" list species. Weeds designated on the "A" list are species of known economic importance that occur in the state in small enough infestations to make eradication or containment possible or are rare species not known to occur in the State but that have a presence in neighboring states, making future occurrence seem possible.

As discussed in Exhibit I, PGE has developed a Revegetation and Noxious Weed Control Plan (draft provided in Appendix P-4 to Exhibit P). The Plan will be reviewed and approved by the Morrow County Weed Control Advisory District Board and the Gilliam County Weed Control Officer prior to the start of construction.

#### **K.5.1.4 Morrow County Comprehensive Plan**

This section demonstrates that the proposed facility and transmission line comply with the applicable goals and policies of the Morrow County Comprehensive Plan. Morrow County Comprehensive Plan policies identified by the County as applicable to the Carty Generating Station include the following:

- Citizen Involvement Policies
- General Land Use Policies
- Agricultural Lands Policies
- Economic Policies
- Housing Policies
- Public Facilities and Services Policies
- Schools

- Utilities
- Solid Waste
- Energy Policies

### **Citizen Involvement**

1. *To provide a citizen involvement program that insures opportunity for citizens to participate in all phases of the planning process.*

Response: Under EFSC's rules, citizens have the opportunity, in a public hearing process, to present written and oral testimony on the Draft Proposed Order and, with respect to issues raised during the public hearing, to request a contested case on the Proposed Order. This process protects the right of citizen involvement.

2. *To conduct period community and county-wide surveys to ascertain public opinion and collect information; with distribution of findings to affected citizens.*

Response: This policy is designed to obtain community-wide information on public opinions for government decision-making, not for individual projects.

### **General Land Use Policies**

3. *To continue efforts to identify lands suitable for development and areas where development should be restricted.*

Response: Through the evaluations provided in this Application for Site Certificate, the area proposed for the Carty Generating Station has been illustrated as suitable for development.

4. *To continually monitor the land requirements and locations for projected economic development and population growth.*

Response: The Carty Generating Station would help provide a positive economic generator for the region, both in the short term as a result of increased construction activity and in the long term due to the provision of living wage employment positions. Additional information regarding economic development is provided in Exhibit U.

### **Agricultural Policies**

1. *It shall be the policy of Morrow County, Oregon, to preserve agricultural lands, to protect agriculture as its main economic enterprise, to balance economic and environmental considerations, to limit non-compatible nonagricultural development, and to maintain a high level of livability in the County.*

Response: As noted elsewhere in responses regarding this exhibit, the agricultural lands affected by the Carty Generating Station are limited to those along an existing transmission corridor and



those lands already occupied by existing industrial development. The existing agricultural areas that surround the Project area require irrigation/water availability. The ongoing mix of uses that surround the Boardman Plant illustrate that existing irrigation and other agricultural practices can co-exist with generating facilities. The Carty Generating Station and associated transmission line areas would not impede continued farming of the surrounding lands by Threemile Canyon Farms and others. As a result, economic diversification of land would result in the continued use of some lands for farming and agriculture and in the use of non-irrigated areas for energy development.

## **Economic Policies**

1. *To diversify, stabilize and improve the economy of the County.*

Response: The purpose of the Project is to generate power for use by Northwest industrial, municipal, commercial, and residential users. The Project is needed to help ensure that the region has sufficient baseload generating capacity to accommodate growth in the region. The Project would provide two key economic generators. First, —during construction it would create direct employment and secondary economic generators brought by worker’s wages in savings and spending for food, clothing, and shelter in the region. The second key economic generator is the development of stable, family wage employment throughout the life of the Carty Generating Station facility (30 years).

2. *To coordinate all planning, programs and decisions concerning economical base resources in the County and to maintain an economic-environmental balance in all resource management and allocation decisions.*

Response: This exhibit and others prepared for the ASC illustrate that the Carty Generating Station proposal meets the required local, State, and federal environmental standards and criteria.

3. *To require that development plans are based on the best economic information available and to take into account effects on the existing economy, available resources, labor market factors, transportation and livability.*

Response: The Carty Generating Station would be constructed only if need for the facility is confirmed in PGE’s Integrated Resources Plan approved by the Oregon Public Utility Commission and if the Project is selected through a competitive Request for Proposal process. The economic and social aspects of the facility are addressed in Exhibit U.

9. *To minimize high noise levels, heavy traffic volumes and other undesirable effects of heavy commercial and industrial developments.*

Response: As noted in Exhibits U and X, limited, short-term traffic effects would arise from the construction of the Carty Generating Station. PGE would employ several traffic demand management strategies during construction to alleviate overall traffic to the Project site. These are described in detail in Appendix U-1, Traffic Impact Analysis.

10. *To expand job opportunities and reduce unemployment, reduce outmigration of youth, and accommodate the growth of the County labor force.*
11. *To maximize the utilization of local manpower as job opportunities increase.*

Response: As noted in Exhibit U, the labor force associated with the development of the Carty Generating Station would range from 100 to approximately 350 workers over the course of the construction. The local employment base would be utilized to the greatest extent practicable. In addition, the work force associated with the ongoing operation of the Carty Generating Station would provide for approximately 30–50 living wage jobs over the course of the 30+ year lifespan of the station.

### **Housing Policies**

5. *The County will encourage sponsors of major construction projects in the area to help the County plan for and handle temporary populations of construction employees.*

Response: As noted in Exhibit U, as a result of maintenance and operations of the Boardman Plant, PGE is adept at managing temporary worker populations. PGE expects to hire a regional workforce, minimizing the amount of a transient workforce. Where this is not available, PGE and its subcontractors would seek available rental housing in the surrounding communities. Because the construction timeline for the Carty Generating Station is multi-year, the County and associated organizations would have ample time to plan for and handle temporary populations prior to commencement of construction.

### **Public Facilities and Services**

- A. *Planning and implementation of public facilities and service programs necessary for the public health, safety and welfare shall guide and support development at levels of service appropriate for, but not limited to, the needs of the development to be served.*
- C. *Public facilities and services for rural areas shall be provided at levels appropriate for rural use.*

Response: Findings noted in Exhibit U indicate that adequate levels of public facilities and services can continue to be met with the construction of this facility.

- F. *All utility lines and facilities shall be located on or adjacent to existing public or private right-of-way or through generally unproductive lands to avoid dividing existing farm units.*

Response: As discussed in Section K.7.2, ORS 215.275 provides the exclusive criteria for approval of the transmission line and Grassland Switchyard. As addressed in that discussion, the transmission line would be located entirely within or adjunct to an existing transmission right-of-way.

M. *Morrow County should utilize development review processes to ascertain the impact of large projects on County and community services and should demand the sponsor to participate in meeting associated expenses.*

Response: The local land use planning process and policy framework for Morrow County is addressed by way of the EFSC process providing for Council determination under ORS 469.504(1)(b). Through this path (b), EFSC will provide a determination of the application's ability to meet the standards and criteria of the local jurisdiction as included in this exhibit.

### **Schools**

I. *Morrow County will work with the school district and sponsors of future large scale developments to ensure adequate school facilities for present and potential residents.*

Response: As noted in Exhibit U, the three school districts located in the region of the Carty Generating Station (the Boardman, Ione, and Arlington School Districts) each have capacity to address any increase in student enrollment as a result of operational or construction-related employees.

### **Utilities**

A. *Programs should be continued to develop additional sources of electric and other power sources to assure adequate service to the County area and its projected growth.*

Response: If the Carty Generating Station is developed, it will be in response to a Request for Proposal to meet needs under PGE's Integrated Resources Plan, which is required by the Oregon Public Utility Commission to ensure adequate future service. The facility would not be intended to service Morrow County.

B. *Power substations should be centrally located to the service area and as much as possible to assure economic service and facilitate energy conservation.*

Response: The proposed Grassland Switchyard would be located so as to provide for efficient connection of the energy facility to the existing Boardman to Slatt transmission line and to allow for construction of a new 500-kV line.

C. *Power substations should be planned and designed in a manner which will minimize negative environmental impacts on nearby properties and the public as a whole.*

Response: By using the area adjacent to an existing utility facility, and by using existing ROW for transmission lines, the transmission line and switchyard has been planned and designed to minimize environmental impacts. Mitigation of specific impacts has been addressed within the applicable ASC exhibits.

### **Solid Waste**

- A. *Solid waste disposal shall be accomplished in conformance with City and County solid waste management plans and applicable regulations.*
- B. *No solid wastes shall be disposed of in the County without prior approval by the County. No such approval shall be granted until all environmental and economical considerations have been satisfied and the protection of the County, its' residents' and its' economy assured.*

Response: As addressed in this exhibit, solid waste disposal would be managed in accordance with state and local plans and policies.

- C. *Recycling shall be encouraged.*

Response: The applicant would provide for recycling over the course of construction and operation, as discussed in Exhibit V.

## **Energy Policies**

1. *To encourage renewable and/or efficient energy systems, design, siting and construction materials in all new development and improvements in the County.*

Response: The Carty Generating Station would be a highly efficient combined cycle combustion turbine generating facility and would provide reliable baseload electrical power using state-of-the-art natural gas-fired turbines.

Internal energy use for the Carty Generating Station would be minimized as a result of advanced features within the building design and mechanical operation including heat and energy recovery as well as sharing resources with the existing Boardman Plant. Construction energy usage would be mitigated through the use of extensive on-site material recycling programs and careful use of resources. All of these features and resources would be used to provide increased energy availability for the region while mitigating use of resources to produce that energy.

## **K.6 GILLIAM COUNTY**

### **K.6.1 The Transmission Line**

#### **Surrounding Land Uses and Land Compatibility**

The proper name for the existing 500-kV transmission line is the Boardman to Slatt transmission line. This portion of the exhibit focuses on the portions of the transmission line that are located in Gilliam County. The land surrounding the existing transmission corridor is predominantly used for grazing. As noted below, this combination of agricultural and utility-related uses is compatible. Additionally, a wind facility is located within 5 miles southwest of the corridor.

## **Project Description within Gilliam County**

The transmission line would utilize an existing transmission ROW. The corridor currently contains the Boardman to Slatt 500-kV line. This line was approved as part of the Boardman Plant and is approximately 18 miles long. Within Gilliam County, the width of the ROW is approximately 700 feet wide for approximately 14.5 to 15 miles before decreasing to 525 feet for approximately the last 1 to 1.5 miles before entering the Slatt Substation. The height of the existing support towers for the line is less than 200 feet.

A new 500-kV transmission line would be located within the existing ROW, on new towers that would not be greater than 200 feet.

## **Zoning**

As described above, this subsection of the exhibit focuses on the portion of the transmission line that would be located on lands under the jurisdiction of Gilliam County. This subsection describes how the transmission line would comply with applicable zoning regulations and comprehensive plan policies of Gilliam County. The complete extent of the transmission line in Gilliam County would pass through lands zoned entirely as EFU.

### **K.6.1.1 Gilliam County, Exclusive Farm Use**

#### **Section 4.020 EFU Exclusive Farm Use**

##### *Section 4.020.D. Conditional Uses Permitted*

*D. Conditional Uses Permitted. In the EFU Zone, the following uses and their accessory uses may be permitted if determined by the Planning Commission during a public hearing to satisfy the applicable criteria and procedures set forth in Section 7.040. The appropriate review criteria are identified for each use.*

*29. Utility facilities necessary for public service subject to the provisions of ORS 215.275 and OAR 660-033-0130(16). No local legislative criteria shall be applied for consideration of establishing a utility facility necessary for public service.*

Response: The transmission line complies with this standard for the reasons set forth in Section K.7.2, which addresses the standards of ORS 215.275. The development of the transmission line meets the following standards noted in ORS 215.275: the proposed transmission line is locationally dependent, and the proposed transmission line utilizes an existing ROW.

*Section 4.020.J*

*J. Property Development Standards. In the EFU Zone, the following standards apply to residential and nonresidential development.*

*1. Building Height. No limitations.*

*2. Setbacks*

*a. The front and rear yard setbacks from the property line shall be 25 feet.*

*b. The side yard setbacks from the property line shall be 25 feet.*

Response: Any new towers would be within ROW constructed easements, and tower footings would be set back from property lines at least 25 feet.

**K.6.1.2 Gilliam County: Other Zoning Provisions**

Response: ORS 215.275 provides the exclusive criteria for approving the transmission line. Therefore, other conditional use criteria are not applicable. For the sake of completeness, however, this subsection of the exhibit addresses County criteria.

**Article 7, Conditional Use Criteria**

*Section 7.010 Authorization to Grant or Deny Conditional Uses*

*A. General Approval Criteria and Conditions*

*1. In addition to criteria, standards and conditions that may be set forth in a specific Zone, this Article, or other regulations applicable to a specific Conditional Use shall not be approved or permitted unless the following criteria are met. A Conditional Use may be approved on the Condition or Conditions that the applicant obtain and maintain compliance with other permits and approvals required.*

*a. The proposed use shall be in compliance with the applicable Comprehensive Plan designation and policies.*

Response: Comprehensive Plan policies are addressed in Section K.6.1.3 of this exhibit.

*b. As applicable, sewage and/or solid waste disposal methods shall be provided in compliance with applicable local, State and Federal regulations.*

Response: No sewage or solid waste facilities would be constructed in conjunction with the transmission line. All temporary facilities would comply with the necessary State and federal permits.

- c. *Proposal shall be found to be in compliance or conditioned upon compliance with applicable air and noise pollution standards.*

Response: Noise pollution standards are addressed in Exhibit X. No significant changes to existing noise quality are expected to result from the transmission line. There would be no air emissions from the transmission line.

- d. *Required access shall be legally established, available, and adequate to serve the proposed use or provisions to provide such evident.*

Response: Access to the existing transmission line is currently available through existing easements. These easements would continue to provide adequate access. Should additional provisions for access for construction of the transmission line be needed, legal and adequate access easements would be obtained by PGE.

- e. *Public services deemed necessary shall be available or provisions for such provided and no use shall be approved which is found to exceed the carrying capacities of affected public services unless there are provisions to bring such capacities up to the need.*

Response: The proposed transmission line would not utilize any of the surrounding public services and would not, therefore, diminish the carrying capacity of the surrounding public services. A review of the public services required during construction is noted in the following exhibits:

**Water:** Exhibit O, Water Use and Exhibit U, Public Services

**Sanitary Sewer:** Exhibit U, Public Services

**Solid Waste:** Exhibit V, Waste Minimization and Exhibit U, Public Services

**Fire:** Fire safety and fire prevention is noted in Exhibit B, Fire service providers are noted in Exhibit U, Public Services.

**Police:** Exhibit U, Public Services

- f. *Proposal shall be in compliance with the applicable standards and limitations of the primary and combining zone as may be applicable.*

Response: The transmission line would be located on land zoned as EFU. Standards and limitations of the EFU are addressed in Section K.7.2. There are no additional combining zones or overlay standards.

- g. *No use shall be approved which is found to have a significant adverse impact on resource-carrying capacities unless there are provisions for mitigating such impact.*



Response: As described in Exhibits J, P, and Q, resource areas that would be potentially impacted by the transmission line have been addressed through mitigation or avoidance of the resource areas.

*h. No use shall be approved which is found to exceed the carrying capacities of affected public services and facilities.*

Response: The proposed facility would not utilize any of the surrounding public services and would not, therefore, diminish the carrying capacity of the surrounding public services.

*i. All required State and Federal permits or approvals have been obtained or will be as a condition of approval.*

Response: Conditions imposed by EFSC will prohibit construction until all required permits have been obtained.

*2. In addition to specific standards and/or conditions set forth by the applicable zone, this article or some other applicable regulations, other conditions may be imposed that are determined necessary to avoid a detrimental impact, and to otherwise protect the best interests of the surrounding area and the County as a whole. Such conditions may include, but are not limited to, the following:*

*a. Limiting the manner in which the use is conducted including restricting the time an activity may take place and restraints to minimize such environmental effects as noise, vibration, air pollution, glare and odor.*

*b. Establishing a special setback or other open space or lot area or dimension.*

*c. Limiting the height, size or location of a building or other structure.*

*d. Designating the size, number, improvements, location and nature of vehicle access points and parking or loading areas.*

*e. Limiting or otherwise designating the number, size, location, height, and lighting of signs and outdoor lighting.*

*f. Requiring diking, screening, fencing, landscaping or another facility to protect adjacent or nearby property and designating standards for its installation and maintenance.*

*g. Protecting and preserving existing trees, vegetation, water resources, wildlife habitat or other significant natural resources.*

*h. Limiting the term of the Conditional Use Permit to a specific time.*

*i. Requiring necessary on-site or off-site improvements and maintenance.*

- j. *Requiring the holder of a Conditional Use Permit to obtain review, renewal, or reapplication approval of the permit in the event that there is an increase in impact from the use on public facilities beyond that which was projected at the time of initial approval.*

Response: Following EFSC requirements for the ASC, the applicant has proposed specific mitigation measures as appropriate for impacts identified in other exhibits.

#### *Section 7.010 Authorization to Grant or Deny Conditional Uses*

- Q. *Conditional Uses in Exclusive Farm Use Zones*

Response: ORS 215.275 provides the standards for approval of the transmission line. See Section K.7.2 for this discussion.

### **K.6.1.3 Gilliam County Comprehensive Plan**

ORS 215.275 provides the exclusive criteria for the approval of the transmission line. Therefore, other Comprehensive Plan criteria are not applicable. However, for the sake of completeness, this subsection of the exhibit addresses the applicable goals and policies of the Gilliam County Comprehensive Plan. For this portion of the Project, those goals and policies found to apply are limited to those policies regarding Agricultural Land Use.

#### **Agricultural Land Use Comprehensive Plan Policies**

1. *It shall be the policy of Gilliam County to maximize the preservation and protection of Commercial Agriculture in the County, and to provide maximum incentives for such, through the application of zoning in compliance with ORS 215 to all lands identified as “Agricultural Lands”. However, this policy shall not be construed to, nor is it intended to exclude non-farm uses that are authorized by state statutes on Lands zoned as Exclusive Farm Use (EFU), and are otherwise consistent with the Plan.*
- A) *As defined by Statewide Planning Goal No. 3 and by OAR 660-033-0010, “Agricultural Lands” are those lands classified by the U.S. Natural Resource Conservation Service (NRCS) as predominantly Class I-VI soils and other lands in different soil classes, which are determined suitable for farm use, taking into consideration soil fertility, suitability for grazing, climatic conditions, and availability of water for irrigation, existing land use patterns, technological and energy inputs required, and accepted farming practices. Lands in other classes, which are necessary to permit farm practices to be undertaken on adjacent or nearby lands, shall be included as Agricultural Land in any event.*
- B) *Commercial Agricultural enterprises shall consist of farm operations which will:*
  - a) *contribute in a substantial way to the area’s existing agricultural economy, and*

- b) *help maintain agricultural processors and established farm markets.*
2. *With the exception of the General Industrial and future Rural Residential lands indicated on the Comprehensive Plan map and the lands included within Urban Growth Boundaries, all lands in Gilliam County are hereby defined as agricultural lands for purposes of applying policies adopted by this Comprehensive Plan.*

Response: As a result of the location and ground clearance of the transmission lines, the lines do not interfere with agricultural activities. Existing agricultural uses would not realize any constraints that do not already exist due to the current transmission line in the corridor.

3. *In order to preserve the maximum level of agriculture in the County, all “Agricultural Lands” shall be so designated and shall be zoned in accordance with the provisions of ORS 215.283. Further, those non-farm uses permitted by ORS 215.283(1) shall be permitted uses, and those non-farm uses permitted by ORS 215.283(2) may be allowed as conditional uses subject to ORS 215.296.*

Response: As noted, ORS 215.283 identifies the uses permitted in EFU zones. The EFU zone for Gilliam County is the only zone within the County that designates agricultural lands. ORS 215.283(1)(c) provides that “utility facilities necessary for public service” are allowed in EFU zoned lands. As the proposed transmission line qualifies as a utility facility necessary for the public service, it is allowed in EFU-zoned lands pursuant to the criteria of ORS 215.275.

4. *Where lands are designated by the Plan as Agricultural Lands, parcels containing 160 acres or more shall be presumed to be commercial agriculture entities and dwellings proposed for location on such parcels shall be considered farm accessory dwellings, unless there is substantial evidence to the contrary.*

Response: The transmission line would not include accessory dwellings.

5. *Other policies enunciated in this Plan notwithstanding, it is the policy and declaration of Gilliam County that under certain circumstances, some accepted farming practices may endanger the public health, safety and welfare of the citizens of the county and state, and that in such cases, the County will exercise its lawful authority to protect the rights of those adversely affected by such practices. Implementation of this policy may include the adoption and enforcement of standards with respect to the location and design of livestock feed yards or lots, grain storage facilities and similar structures and uses, whether they are operated independently or as an integral part of a general ranching operation; in addition, setbacks from adjacent property lines may be imposed for wind generation facilities if shown that there are adverse impacts to adjacent landowners.*

Response: The proposed transmission lines would be located within an existing ROW.

6. *Non-farm uses that legitimately require a location in close proximity to areas of commodity production shall not interfere with the use of surrounding lands for*

*agricultural pursuits. Such uses shall be considered to be commercial activities in conjunction with or of direct service and support to agriculture.*

Response: ORS 215.275 establishes the exclusive criteria for approving commercial utility facilities necessary for public service. A response to these criteria is in Section K.7.2 of this exhibit.

7. *In areas where concentrated, intensive agricultural production occurs, it can be expected that a demand for certain types of handling or processing facilities may arise. While these establishments may be no different in kind than those noted in policy statement 6 above, they may differ in size and number. It is the policy of Gilliam County to encourage the grouping of such production-oriented agri-businesses in such a manner and at such a location that the proper public facilities (such as roads and necessary utilities) to serve them can be installed and maintained in the most economic fashion.*

Response: This policy is not applicable.

8. *Development of facilities, such as described in policy statement 7 above, may involve the addition of a number of new workers and their families to the population of the County. It is expected that housing demands created by these workers can be accommodated, either in existing ranch facilities or in residential units developed in or adjacent to a nearby incorporated city where necessary services can be provided most effectively. It is there the policy of the County that future concentrated residential development associated with agriculturally oriented industries be located inside urban growth boundaries of the incorporated cities in accordance with policies expressed in Part Four of the Comprehensive Plan.*

Response: The development of the proposed transmission line does have a construction worker component. However, as noted in this exhibit and in Exhibit U, the housing demands created by the construction workers can be accommodated within the region.

9. *Because of the vital importance of the railroad facilities from Arlington to Condon for the need of agriculture, Gilliam County opposed plans of abandonment of said facility. Union Pacific abandoned operation of the line from the Columbia Ridge Landfill to the City of Condon and removed the track in 1993. It remains the policy of the County to support and utilize every effort possible to retain the remaining section of rail line to facilitate shipment of agricultural product from Shutler siding and to encourage diversified economic development through transportation opportunities by rail in the County.*

Response: The development of the transmission line would not affect the status of the existing rail lines in Gilliam County.

10. *No planned unit developments or non-farm subdivisions shall be allowed on land qualified for exclusive farm use zoning, unless an exception is taken to the applicable resource goal.*

Response: No planned unit development is proposed as part of the ASC.

11. *All land divisions in the EFU Zone shall comply with ORS 215.263.*
12. *Homestead partitions shall be considered, but shall be reviewed for approval against the criteria for non-farm dwelling in ORS 215.284 (2) and (3).*

Response: No land divisions or homestead partitions are proposed.

13. *In addition to those requirements for approval of non-farm dwellings set forth by ORS 215.284, no non-farming dwelling in an EFU Zone shall be given final approval until compliance with ORS 215.236 is evident.*

Response: No residential development is proposed.

## **K.7 Land Conservation and Development Commission Rules, State Statutes, and Statewide Planning Goals**

As demonstrated in the sections above, the proposed energy facility and transmission line would be in compliance with all applicable provisions of the local government land use regulations and comprehensive plans in effect on the date the application was submitted. OAR 345-022-0030(2)(b)(A) also requires the energy facility to comply with new or amended statewide planning goals, Oregon Department of Land Conservation and Development (LCDC) administrative rules, and land use statutes that are directly applicable to the proposed project under ORS 197.646(3). This section addresses those requirements. In addition, this section includes a review of the Project's compliance with the Statewide Planning Goals. Compliance with the Statewide Planning Goals is being addressed because the energy facility is not listed as a permitted or conditional use in Morrow County's MG zone.

### **K.7.1 Directly Applicable Administrative Rules**

#### **K.7.1.1 Farm Rules**

The proposed transmission facilities in both Morrow and Gilliam County are on land zoned EFU. Within the EFU designation, areas are classified as having high-value or non-high-value farmland. As illustrated in Table K-2, none of the land area under the EFU zone for either Morrow and or Gilliam County is designated as high value. In Morrow County, this is the case because high-value farmland is only created as a result of irrigation capabilities, and the Project area has no irrigation capabilities. In the Project area for Gilliam County, no high-value farmland exists based on either non-irrigated or irrigated soil type. However, due to the existing

lotting/ownership pattern that exists within the EFU land, PGE has assumed that the energy facility may be subject to EFU rules for high-value farmland. As a result, the following sections of OAR 660 are applicable:

**OAR 660-033-0090 *Uses on High-Value and Non High-Value Farmland***

- (1) *Uses on land identified as high-value farmland and uses on land not identified as high-value farmland shall be limited to those specified in OAR 660-033-0120. Except as provided for in section (2) of this rule, counties shall apply zones that qualify as exclusive farm use zones under ORS chapter 215 to "agricultural land" as identified under OAR 660-033-0030 which includes land identified as high-value farmland and land not identified as high-value farmland.*

Response: See response to OAR 660 - 33-0120, below.

**OAR 660-033-0100 *Minimum Parcel Size Requirements***

1. *Counties shall establish minimum sizes for new parcels for land zoned for exclusive farm use. For land not designated rangeland, the minimum parcel size shall be at least 80 acres. For land designated rangeland, the minimum parcel size shall be at least 160 acres.*

Response: This application does not involve the creation of new parcels; therefore, this criterion is not applicable.

**OAR 660-033-0120 *Uses Authorized on Agricultural Lands***

*The specific development and uses listed in Table 1 [of the LCDC rule] are permitted in the areas that qualify for the designation pursuant to this division. All uses are subject to the general provisions, special conditions, additional restrictions and exceptions set forth in this division. The abbreviations used within the schedule shall have the following meanings:*

1. *A -- Use may be allowed. Authorization of some uses may require notice and the opportunity for a hearing because the authorization qualifies as a land use decision pursuant to ORS Chapter 197. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-033-0130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.*
2. *R -- Use may be approved, after required review. The use requires notice and the opportunity for a hearing. Minimum standards for uses in the table that include a numerical reference are specified in OAR 660-033-0130. Counties may prescribe additional limitations and requirements to meet local concerns as authorized by law.*
3. *\* -- Use not permitted.*

4. # -- Numerical references for specific uses shown on the chart refer to the corresponding section of OAR 660-033-0130. Where no numerical reference is noted for a use on the chart, this rule does not establish criteria for the use.

Response: Table 1, which is part of the LCDC rule, includes “utility facilities necessary for public service” among the uses allowed on both high-value and other farmland, provided it complies with the standards listed in the following section. The table further stipulates that transmission towers cannot exceed 200 feet.

The proposed transmission line qualifies as a use necessary for public service because in order to transmit electricity from the new energy facility to a regional switchyard, it would be necessary to cross agricultural land. Second, while the proposed transmission line would require the construction of new towers, none of the towers would exceed 200 feet. Table 1 identifies OAR 660-033-0130(16) as the applicable standard. As discussed below, OAR 660-033-0130(16) is identical to ORS 215.275.

Under Table 1, the energy facility falls within the category of “commercial utility facilities for the purpose of generating power for public use by sale, not including wind power generation facilities.” Table 1 identifies OAR 660-033-0130(5) and (17) as the applicable standards on high-value farmland, and OAR 660-033-0130(5) and (22) as the applicable standards on all other farmland. OAR 660-033-0130(17) and (22) are the 12 acre and 20 acre limits, previously discussed. Compliance with OAR 660-033-0130(5) is discussed below.

**OAR 660-033-0130** *Minimum Standards Applicable to the Schedule of Permitted and Conditional Uses*

*The following standards apply to uses listed in OAR 660-033-0120 where the corresponding section number is shown on the chart for a specific use under consideration. Where no numerical reference is indicated on the chart, this division does not specify any minimum review or approval criteria. Counties may include procedures and conditions in addition to those listed in the chart as authorized by law:*

**OAR 660-033-0130 (5)** As discussed above, the proposed generating facility is a “commercial utility facility for the purpose of generating power for public use by sale, not including wind power generation facilities,” and is subject to the requirements of OAR 660-033-0130(5) on all EFU-zoned land.

OAR 660-033-0130(5) requires that the proposed use be reviewed under ORS 215.296. ORS 215.296(1) provides:

*A use allowed under ORS 215.213(2) or 215.283(2) may be approved only where the local governing body or its designee finds that the use will not:*

1. *Force a significant change in accepted farm or forest practices on surrounding lands devoted to farm or forest use; or*



2. *Significantly increase the cost of accepted farm or forest practices on lands devoted to farm or forest use.*

There are no forest practices conducted on lands surrounding the energy facility site. All farming on “surrounding lands devoted to farm use” is conducted by Threemile Canyon Farms, which has approximately 35,000 acres under cultivation. Threemile Canyon Farms grows a range of crops, all using center pivot irrigation.

The energy facility site would be located approximately ¼ mile from the edge of the nearest irrigation circle. Construction and operation of the generating facility would not alter or reduce the area of any of the center pivot circles, would not necessitate relocating any access routes or farm infrastructure, and would not result in changes to the practices for planting, irrigating, fertilizing, or harvesting the circles. Thus, the proposed energy facility complies with ORS 215.296(1).

#### **K.7.2 ORS 215.275**

In 1999, the legislature enacted ORS 215.275 into law to clarify when a utility facility is “necessary for public service,” as that phrase is used in 215.283(1)(c). Subsequent to the passage of this law, any applicant wishing to site a utility facility on EFU lands pursuant to ORS 215.283(1)(c) must establish that the facility is in fact “necessary for public service” according to the standards set forth in ORS 215.275. The accompanying administrative rule, OAR 660-033-0130(16) mimics the provisions of ORS 215.275.

#### **ORS 215.275 (2)**

According to ORS 215.275(1), a utility facility established under ORS 215.283(1)(c) is necessary for public service if the facility “must be sited in an exclusive farm use zone in order to provide the service.” To demonstrate that a utility facility is necessary under ORS 215.283(1)(c), ORS 215.275(2) requires that an applicant must show that reasonable alternatives have been considered and that the facility must be sited in an EFU 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 lands 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 non-resource lands;*
- d. *Availability of existing rights-of-way;*

- e. *Public health and safety; and*
- f. *Other requirements of state or federal agencies.*

Response:

Based on the factors in ORS 215.275(2), as discussed below, it is necessary to site the transmission line and Grassland Switchyard on EFU lands. Therefore, they are “utility facilities necessary for public service” within the meaning of ORS 215.283(1)(d).

- a. *Technical and engineering feasibility;*

Response: The continued use of an existing ROW with an existing line, demonstrates that this is a technically feasible route for transmission. Other transmission routes may also be feasible but would require new ROW, with associated impacts to property owners and existing land uses, including agriculture.

- b. *The proposed facility is locationally dependent. A utility facility is locationally dependent if it must cross lands 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;*

Response: The purpose of the transmission line is to transmit electricity from the new generating facility to the grid. To do so, the transmission line must connect to the grid. The Slatt substation (the point of connection to the grid) and all other substations in proximity to the energy facility site are located on land zoned for EFU. In other words, there is no alternative route—direct or indirect—that could avoid EFU lands entirely. Therefore, these transmission facilities are locationally dependent. The proposed transmission line minimizes impacts on EFU lands by utilizing the existing ROW from the Grassland Switchyard to the Slatt substation, with some limited widening.

- c. *Lack of available urban and non-resource lands;*

Response: The vast majority of Morrow County and Gilliam County is composed of rural resource lands. A linear facility such as a transmission line likely would have to be located entirely within an urban growth boundary to avoid resource lands. That is not practical, particularly when regional substations such as the Slatt substation are located outside of an urban growth boundary and surrounded on all sides by resource (EFU) lands, as shown on Figure K-2. The existence of the Boardman to Slatt transmission corridor affords an opportunity to connect to the regional grid without establishing a new transmission corridor over resource lands.

From the energy facility site, there is no way to connect to the regional grid without crossing EFU lands, as is evident from Figures K-1 and K-2. The existence of the Boardman to Slatt transmission corridor affords an opportunity to connect to the regional grid without establishing a new transmission corridor over resource lands. Even assuming that the energy facility could be

located elsewhere, the fact that rural resource lands dominate both counties would make it extremely difficult to site a new major generating facility (with the constraints discussed in the Goal 3 exception) without having a transmission line on EFU lands.

*d. Availability of existing rights-of-way;*

Response: Availability of existing ROW for the transmission line is a key consideration. Use of the Boardman to Slatt Transmission corridor limits the need for additional ROW and, therefore, the impact on agricultural land.

*e. Public health and safety; and*

Response: As noted, this transmission line would follow existing ROW for the majority of its length, with small amounts of widening along the corridor. Potential impacts to public health and safety are increased when new corridors are being created and compatibility issues are brought to light. In this case, the impacts to public health and safety would be minimal, as any new transmission lines would comply with the EFSC standards for OAR 345-024-0090, Siting Standards for Transmission Lines in regard to standards for electrical field distances.

*f. Other requirements of state or federal agencies.*

Response: As noted in this and all associated Exhibits, all requirements of state or federal agencies will have been met at the time of construction for both the transmission line and the Carty Generating Station.

**ORS 215.275 (3)**

*(3) Costs associated with any of the factors listed in subsection (2) of this section may be considered, but cost alone may not be the only consideration in determining that a utility facility is necessary for public service. Land costs shall not be included when considering alternative locations for substantially similar utility facilities. The Land Conservation and Development Commission shall determine by rule how land costs may be considered when evaluating the siting of utility facilities that are not substantially similar.*

Response: Costs of developing new transmission facilities along the proposed route are anticipated to be significantly lower than any alternative alignment. The cost savings results from the proposed alignment being direct and within an existing transmission ROW (with some minor expansion), not from the fact that the corridor is on land zoned for EFU.

**ORS 215.275 (4) and (5)**

*(4) The owner of a utility facility approved under ORS 215.213 (1)(c) or 215.283 (1)(c) shall be responsible for restoring, as nearly as possible, to its former condition any agricultural land and associated improvements that are damaged or otherwise disturbed by the siting, maintenance, repair or reconstruction of the facility. Nothing in this section*

*shall prevent the owner of the utility facility from requiring a bond or other security from a contractor or otherwise imposing on a contractor the responsibility for restoration.*

Response: The applicant would comply with ORS 215.275(4) through the mitigation and restoration commitments described in the ASC.

The proposed Wildlife and Habitat Monitoring and Mitigation Plan is provided in Appendix P-3 of Exhibit P. The proposed Revegetation and Noxious Weed Control Plan is provided in Appendix P-4 of Exhibit P.

These measures would be implemented to ensure that the EFU land is restored, as nearly as possible, to its former condition.

- (5) *The governing body of the county or its designee shall impose clear and objective conditions on an application for utility facility siting under ORS 215.213 (1)(c) or 215.283 (1)(c) to mitigate and minimize the impacts of the proposed facility, 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.*

Response: The development of the transmission line would not affect the costs of inputs to the established agricultural practices. These inputs are assumed to be labor, fertilizer, electricity, and water. Specifically, the surrounding agricultural uses utilize center pivot irrigation, and the development of these areas would not change the availability of inputs or the ability of the surrounding property owners to obtain those resources.

The potential for a change of practices associated with the ROW, such as from electrical impacts, potential for conflicts with aerial spraying, and potential for spread of invasive species due to construction, is very limited based on the total amount of new ROW, the limited disturbance necessary for a new transmission line, and mitigation measures proposed by PGE in the Revegetation and Noxious Weed Control Plan (Appendix P-4 of Exhibit P).

- (6) *The provisions of subsections (2) to (5) of this section do not apply to interstate natural gas pipelines and associated facilities authorized by and subject to regulation by the Federal Energy Regulatory Commission.*

Response: The development in question is not an interstate natural gas pipeline or associated facilities.

### **K.7.3 Exception to Statewide Planning Goal 3**

#### **Exception to Statewide Planning Goal 3 (Revised per RAI #2)**

As discussed in Section K.5.1.1, the Energy Facility Site would permanently occupy 65.9 acres of EFU land: 55.9 acres of high value farmland *if irrigated* and 10 acres of “other land”

designated as EFU land. In addition, evaporation ponds could occupy as much as 11.4 acres currently zoned MG but which would be rural resource land but for the “developed” exception under the Morrow County Comprehensive Plan for the existing Boardman Plant. OAR 660-033-0130(17) provides, with respect to “high-value farmland”:

*A power generation facility shall not preclude more than 12 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to OAR chapter 660, division 4.*

With respect to all other farmland, OAR 660-033-0130(22) provides:

*A power generation facility shall not preclude more than 20 acres from use as a commercial agricultural enterprise unless an exception is taken pursuant to ORS 197.732 and OAR chapter 660, division 4.*

These standards apply only to the portion of the proposed facility that is a “power generation facility.” The transmission improvements that relate to or support the proposed energy facility are covered under distinct standards of the EFU zone as “utility facilities necessary for public service” and are separately addressed.

The power generation portion of the facility would occupy approximately 65.9 acres of EFU land at full buildout, which would thereby be precluded from use as a commercial agricultural enterprise. Approximately 46.6 acres of the permanent impact on EFU land at full build-out of the facility would be for evaporation ponds, with the balance of the land occupied by the generating units, cooling towers, and other components of the energy facility. Up to 11.4 acres of “exception” land currently zoned MG would be permanently impacted for evaporation ponds.

None of the land that would be occupied is currently cultivated or shows evidence of commercial cultivation any time in the past. The EFU land is currently owned by Threemile Canyon Farms (the applicant is in the process of acquiring the land through an exchange, which would give Threemile Canyon Farms title to highly productive agricultural land it currently leases from PGE). Threemile Canyon Farms cultivates 35,000 irrigated acres in Morrow and Gilliam Counties. The Energy Facility Site, however, has not been placed in agricultural production. Cultivation of crops in the area occurs within “center pivot” irrigation circles. Irrigation is necessary for productive cultivation. The land that would be occupied by the energy facility is not within any irrigation circles, does not have water rights for irrigation, and is not currently capable of commercial cultivation.

OAR 660-033-0020(8) defines “high-value farmland”:

*"High-Value Farmland" means land in a tract composed predominantly of soils that are:*

- (A) Irrigated and classified prime, unique, Class I or II; or*
- (B) Not irrigated and classified prime, unique, Class I or II.*

The soils on the Energy Facility Site are illustrated in Exhibit I, Figure I-1, and a breakdown of the soil types and acreages within Morrow County EFU zoning is shown in Table K-2, Soils Classification, Land Zoned EFU, Morrow County. None of the soils are classified as prime, unique, Class I or II if not irrigated.

Portland General Electric would acquire the EFU land from the current owner, Threemile Canyon Farms. At present, the EFU land is part of a large “tract” (contiguous lots or parcels in common ownership) of several thousand acres. Given the size of the Threemile Canyon Farms tract, and the definition of “high-value farmland” (relying on soils types and irrigation), it would be a complex exercise to determine whether the “tract” is predominantly “high-value” soils, and thus whether the correct limit on power generation is 12 acres or 20 acres. For purposes of this Application for Site Certificate, the applicant assumes that the energy facility may be subject to either limit.

EFSC’s rules (OAR 345-022-0030(4)), which mirror ORS 469.504(2)(c), provide the standards for taking an exception to a Statewide Planning Goal:

“(4) The Council may find goal compliance for a facility that does not otherwise comply with one or more 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 the Land Conservation and Development Commission pertaining to the exception process, the Council may take an exception to a goal if the Council finds:

- (a) The land subject to the exception is physically developed to the extent that land is no longer available for uses allowed by the applicable goal;
- (b) The land subject to the exception is irrevocably committed as described by the rules of the Land Conservation and Development Commission to uses not allowed by the applicable goal because existing adjacent uses and other relevant factors make uses allowed by the applicable goal impracticable; or
- (c) The following standards are met:
  - (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 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.”

**Response:** A “reasons” exception to Statewide Planning Goal 3 is justified under OAR 345-022-0030(4)(c). EFSC’s standards for a “reasons” exception are addressed below.

(A) Reasons justify why the state policy embodied in the applicable goal should not apply;

**Response:** EFSC’s standards do not elaborate on what “reasons” are adequate to justify a decision that the state policy embodied in Goal 3 should not apply. However, the concept of a “reasons” exception is derived from Statewide Planning Goal 2 and is clarified in the LCDC’s rules interpreting the Goal 2 exception process.

OAR 660-004-0022 describes the types of reasons that may or may not be used to justify an exception. Of particular relevance to the proposed generating facility, OAR 660-004-0022(3) contains a non-exclusive list of reasons that may justify rural industrial development:

(3) Rural Industrial Development: For the siting of industrial development on resource land outside an urban growth boundary, appropriate reasons and facts include, but are not limited to, the following:

(a) The use is significantly dependent upon a unique resource located on agricultural or forest land. Examples of such resources and resource sites include geothermal wells, mineral or aggregate deposits, water reservoirs, natural features, or river or ocean ports; or

(b) The use cannot be located inside an urban growth boundary due to impacts that are hazardous or incompatible in densely populated areas; or

(c) The use would have a significant comparative advantage due to its location (e.g., near existing industrial activity, an energy facility, or products available from other rural activities), which would benefit the county economy and cause only minimal loss of productive resource lands. Reasons for such a decision should include a discussion of the lost resource productivity and values in relation to the county's gain from the industrial use, and the specific transportation and resource advantages which support the decision.

The second and third factors listed under OAR 660-004-0022(3) are relevant to the reasons for locating the proposed generating facility at the site identified in the ASC.

Incompatibility with densely populated areas: The noise impacts of a large natural gas-fired generating facility can be incompatible with siting in areas that are even moderately populated. As discussed in Exhibit X, a new generating facility is subject to DEQ noise regulations, OAR 340-035-0035, which are intended to protect “noise sensitive property” from new industrial or commercial noise sources. “Noise sensitive property” is defined in the DEQ rules as: “real property normally used for sleeping, or normally used as schools, churches, hospitals or public libraries.” The rules require that new commercial or industrial noise sources on previously unused sites shall not increase ambient statistical noise levels, L10 or L50, by more than 10 A-



weighted decibels (dBA) in any one hour, or exceed the noise limits specified for new sources located on previously used sites.

As discussed in Section X.4 of this ASC, the noise contributions from the energy facility are predicted to be less than 10 dBA at a distance of approximately ½ mile from the facility. Although that compliance distance would vary in a setting with different topography and ambient noise, the results of the noise modeling in Appendix X-1 indicate that compliance with DEQ noise standards requires a substantial buffer of separation from noise sensitive properties, including any residences. Moreover, the DEQ rules do not protect an industrial noise source from compliance issues raised by noise sensitive uses that are initiated after the noise source is constructed or begins operating. Finding a site within an urban growth boundary with such a buffer from existing or potential “noise sensitive properties” is difficult. The developer of a new industrial or commercial noise source can protect itself from the development of new “noise sensitive properties” by negotiating restrictive covenants with nearby property owners. However, such restrictions may be at odds with the development density intended for land within an urban growth boundary. Siting of large generating facilities outside of urban growth boundaries preserves the urban lands for intensive urban uses, including industrial and commercial uses that are more compatible with urban settings.

Significant comparative advantage of location: A natural gas-fired generating facility generally must be in reasonably close proximity to a gas pipeline, a water supply, and transmission facilities. If those facilities are not already available, they must be developed in conjunction with the generating facility.

The proposed location of the Carty Generating Station would allow it to take advantage of two key existing facilities: a water supply from Carty Reservoir and the existing Boardman to Slatt transmission line and transmission corridor.<sup>4</sup>

Carty Reservoir is an existing facility located on EFU land and is not in an exception area. PGE has an existing water right for storage in Carty Reservoir, which is supplied by an existing pumping station on the Columbia River and an existing pipeline between the river and the reservoir. PGE proposes to obtain a secondary water use permit to draw water from Carty Reservoir for use in the Carty Generating Station, primarily as cooling tower water. The application for the secondary use permit is contained in Appendix O-2. Neither the pump station on the Columbia River nor the pipeline to the reservoir would need to be altered. In other words, at the proposed location, the new generating facility could be provided with adequate water without limiting water available for other economic uses in Morrow County or Gilliam County, including municipal water supplies or irrigation water.

Power generated at the Carty Generating Station would be transmitted to the Slatt Substation via the existing 500-kV Boardman to Slatt transmission line and a new 500-kV single circuit or double circuit transmission line. The approximately 1,400 acres, and 18 miles, of existing

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<sup>4</sup> Unlike the Carty Reservoir and the existing transmission corridor, the Boardman Coal Plant is the subject of a “committed” exception under the Morrow County Comprehensive Plan. Thus, the presence of the Boardman Coal Plant cannot justify a further Goal 3 exception for the Carty Generating Station.

transmission ROW offer a significant comparative advantage for this energy facility site. The existing 500-kV line provides immediate transmission capacity, and a second transmission line can be constructed if and when needed with only minor acquisition of additional ROW. As compared with a site requiring a new transmission corridor, this site would preserve more lands for other economic uses by utilizing an existing transmission corridor.

The proposed location is also highly advantageous with respect to noise impacts. The nearest noise sensitive properties, as discussed in Appendix X-1, are the Threemile Canyon Farms Dairy Housing, located approximately 5.2 miles northwest of the energy facility site, and a private residence located approximately 4.9 miles south of the energy facility site. The Carty Generating Station noise contribution was modeled to be zero at both locations, as discussed in Exhibit X.

The development of the Carty Generating Station would not result in lost productivity of resource lands. The EFU land on which the energy facility would be located is not under cultivation, does not appear to have been in cultivation in the past, and does not have irrigation rights. As shown on Table K-2, the soils are Class VI if not irrigated (dryland). Threemile Canyon Farms, from which the applicant would acquire the property, uses center pivot irrigation on its approximately 35,000 irrigated acres. Threemile Canyon Farms does not cultivate non-irrigated land because irrigation is necessary to produce crops in the arid climate of Morrow County. The construction and operation of the energy facility, therefore, would not remove land from cultivation. The energy facility site could be used for a commercial agricultural enterprise only if new irrigation rights were obtained or existing rights transferred to the land, and an irrigation system were constructed. The fact that a large and sophisticated commercial farm such as Threemile Canyon Farms never cultivated this land is at least a strong indicator that the energy facility site is not well suited to commercial cultivation.

As discussed above, the Goal 3 rules do not prohibit the development of power generation facilities on EFU land. Rather, the Goal 3 rules place a limit on the acreage of those facilities: 12 acres for high-value farmland and 20 acres for other farmland. The layout for the generating units, cooling towers, buildings, and parking area, shown in Exhibit B, Figure B-3, is compact, given the size of the combined cycle combustion turbines that may be utilized. The majority of the impact on EFU land is for evaporation ponds and all of the permanent impact on the MG-zoned exception area for the Boardman Plant would be for evaporation ponds. As explained in Exhibit O and Exhibit V, the applicant would re-use wastewater within the energy facility and would discharge to the Carty Reservoir to the greatest extent practical, which would minimize the size of the evaporation ponds.<sup>5</sup> Although the EFU lands to be occupied by the energy facility do not appear to have been in cultivation and could not reasonably be cultivated without irrigation, the applicant has sought to keep the footprint of the facility to the minimum necessary.

In summary, the energy facility site would offer significant comparative advantages of access to water supply, access to existing transmission ROW, and remoteness from noise sensitive properties. The development of the energy facility would not result in lost productivity of resource lands because the energy facility would not occupy land that is cultivated, or that could

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<sup>5</sup> The Boardman Coal Plant also utilizes evaporation ponds, as there is no practical means of discharging wastewater to any surface stream.

be cultivated absent the acquisition of irrigation rights and the installation of irrigation systems. The energy facility would exceed the acreage limits of OAR 660-033-0130(17) (assuming the site is “high-value farmland”) and OAR 660-033-0130(22) (assuming the site is not high-value farmland), but the impact would be minimized to the greatest extent practical with the management of wastewater from the energy facility.

(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 rules of the Council applicable to the siting of the proposed facility; and

**Response:** The ASC addresses the significant environmental, economic, social, and energy-related consequences anticipated as a result of the construction and operation of the energy facility. There are no significant adverse impacts that could not be mitigated, as discussed in the relevant exhibits of this ASC. Moreover, with the exception of one archaeological site, the impacts identified do not arise from the specific location of the energy facility on EFU land, which is the subject of this Goal 3 exception analysis.

Environmental Consequences: The impacts on soils, fish and wildlife, threatened and endangered species, and wetlands, as well as impacts from noise emissions and cooling tower drift, have been evaluated in the respective exhibits of this ASC. Aside from compliance with permit requirements for construction of such a facility (for example, NPDES 1200-C permit for construction), the only impacts that would require mitigation are: (1) mitigation measures identified in Exhibit P for fish and wildlife habitat and in Exhibit Q for the Washington ground squirrel; and (2) control of cooling tower drift using high-efficiency drift eliminators, as discussed in Exhibit Z.

Economic Consequences: The proposed energy facility would provide a reliable supply of baseload electrical energy using high-efficiency combined cycle combustion turbine technology. The energy facility would be expected to provide electricity to the region for at least 30 years. As discussed under Criterion (C) (compatibility with adjacent uses), the energy facility would not adversely affect farming operations in the area. There are no significant adverse economic consequences to constructing and operating the energy facility on the site.

Social Consequences: Social consequences are discussed in Exhibit S, Exhibit T, Exhibit U, and Exhibit V. Exhibit S discusses a known archaeological site, which would be protected through avoidance. Exhibit U discusses measures to mitigate potential transportation system impacts during construction. There are no other significant social consequences that would require mitigation.

Energy Consequences: The proposed energy facility would provide reliable baseload energy through clean, high-efficiency technology. The energy consequences of constructing and operating the proposed energy facility are positive.

(C) The proposed facility is compatible with other adjacent uses or will be made compatible through measures designed to reduce adverse impacts.

**Response:** The existing uses adjacent to the proposed energy facility site are the Boardman Plant (to the east); Carty Reservoir (south and southeast); farming (northwest, west, and southwest); and Nature Conservancy lands (north and northeast). As discussed below, the energy facility is compatible with each of these adjacent uses.

Boardman Plant: The energy facility would be compatible with the Boardman Plant because they are similar power generation uses and would both be operated by the applicant.

Carty Reservoir: As discussed in Exhibit O, the applicant proposes to draw water from the Carty Reservoir under a secondary use permit for use in the energy facility. Thus, the reservoir would serve both the Boardman Plant and the new energy facility. In the event that wastewater from the energy facility could not be re-used in the energy facility, discharges to Carty Reservoir would have a negligible impact on the quality of water in the reservoir, due to the small volume of wastewater in comparison to the volume of the reservoir.

Threemile Canyon Farms: Threemile Canyon Farms cultivates extensive areas using center pivot irrigation; it currently has approximately 35,000 acres irrigated acres in production, with the primary crops being potatoes, onions, and specialty wheat. These farming operations have been conducted for many years in the vicinity of the Boardman Plant and the existing 500kV Boardman to Slatt transmission line. The construction and operation of the new energy facility on land that is not cultivated would not interfere with the cultivation and harvest of center pivot circles on land owned or leased by Threemile Canyon Farms. The potential for cooling tower drift to adversely impact crops is evaluated in Exhibit Z. As discussed in Exhibit Z subsections Z.4.2 and Z.4.3, the rate of salt deposition would be substantially below the threshold for any adverse impacts to soils or vegetation.

The Nature Conservancy: The Nature Conservancy (TNC) manages conservation areas under the terms of an ODFW conservation easement, a sublease with Threemile Canyon Farms, and a management plan approved by the United States Fish and Wildlife Service. TNC's management activities are designed to maintain and improve habitat of four species in particular: Washington ground squirrel, ferruginous hawk, loggerhead shrike, and sage sparrow. The proposed energy facility site is not part of the lands managed by TNC. The construction and operation of the energy facility would not interfere with TNC's ability to manage vegetation or to control soil disturbance, hunting, or similar activities within the conservation areas for the benefit of the four identified species.

#### **K.7.4 Statewide Land Use Goals**

This section provides a discussion of conformance with the Statewide Planning Goals, to the extent EFSC finds that there are "applicative substantive criteria" under OAR 345-022-0030(3) or are necessary for a determination under OAR 345-022-0030(2)(b)(B).

## **Goal 1—Citizen Involvement**

*To develop a citizen involvement program that insures the opportunity for citizens to be involved in all phases of the planning process.*

Response: The energy facility proposal does not directly affect opportunities for citizen involvement. EFSC's procedures for reviewing an ASC ensure a public hearing on the Draft Proposed Order, and opportunity for a contested case.

## **Goal 2 Land Use Planning**

*To establish a land use planning process and policy framework as a basis for all decision and actions related to use of land and to assure an adequate factual base for such decisions and actions.*

Response: The state statute requires that EFSC find a project to be consistent with the Statewide Planning Goals. Therefore, the approval of the energy facility must be substantively consistent with Oregon's land use planning system.

## **Goal 3 Agricultural Lands**

*To preserve and maintain agricultural lands. Agricultural lands shall be preserved and maintained for farm use, consistent with existing and future needs for agricultural products, forest and open space and with the state's agricultural land use policy expressed in ORS 215.243 and 215.700.*

Response: An exception statement for the Carty Generating Station is included in this exhibit. Although the energy facility would exceed the acreage limits of OAR 660-033-0130(17) (assuming the site is "high-value farmland") and OAR 660-033-0130(22) (assuming the site is not high-value farmland), the impact has been minimized based on mitigation items noted in Exhibit J, P, Q, and Z. The exception demonstrates that the Carty Generating Station site continues to be suited for further industrial development that is consistent with its proximity to existing facilities and surrounding uses.

The MG zone was placed on and around the Boardman Plant in express recognition that the land is committed to non-resource use. For reasons that are not clear, however, the MG zone placed on the site does not recognize power generation as a permitted or conditional use. Therefore, the 11.4 acres of potential permanent impact within the MG zone have been addressed in the Goal 3 exception request in Section K.7.3.

## **Goal 4 Forest Lands**

This Goal is not applicable, as there are no areas zoned for forest land in the Project area.

## **Goal 5 Natural Resources, Scenic and Historic Areas, and Open Spaces**

*To protect natural resources and conserve scenic and historic areas and open spaces. Local governments shall adopt programs that will protect natural resources and conserve scenic, historic, and open space resources for present and future generations. These resources promote a healthy environment and natural landscape contributes to Oregon's livability.*

### Habitat

Exhibit P of this application addresses fish and wildlife species and habitat and describes eight wildlife habitat types and 13 state sensitive and/or federal species of concern that occur or potentially occur within the defined Project analysis area. As described in detail in Exhibit P, mitigation measures would be employed to avoid significant potential adverse impacts on the species and habitat. The mitigation measures fully comply with ODFW's fish and wildlife habitat mitigation goals.

### Natural Areas

As noted in Exhibit L, several areas within the Project area have been classified as natural areas by federal and State agencies. As described in Exhibit P and referenced in Exhibit L, neither the proposed energy facility nor the transmission line or towers would affect any of the listed sites.

### Wetlands

As explained in detail in Exhibit J, nine wetland sites are located within the plant site area. These areas are noted in the Exhibit as Wetlands A, B, C, D, H, and J. In addition, there are three wetland areas identified as the Fourmile Canyon, Willow Creek, and Eightmile Canyon.

No fill or removal is expected to occur in wetlands due to the Project construction or maintenance, and wetland features would be avoided by construction traffic. No significant impacts to wetlands are anticipated. However, a brief description of the potential impact is described here and is noted in greater detail in Exhibit J.

Water features occur both on the Energy Facility Site and on the transmission line ROW. The Carty Generating Station would not impact any waters of the state or United States. The wetlands and water features occurring along the transmission line ROW would be avoided, or existing crossings would be used.

The transmission line ROW is approximately 18 miles long and would require the installation of towers to support the transmission lines. The proposed access road that would be used for construction vehicles and transportation of equipment would avoid all wetlands. All other waters of the State and United States would be avoided during construction and operation.

The existing dirt road crossing Sixmile Canyon drainage would potentially be used for construction and maintenance of the transmission line. Due to the ephemeral nature of the

drainage, the previous disturbance to construct the existing road, and the presence of an existing road crossing, the construction and operation of the transmission line is not anticipated to adversely affect this feature. Construction would be conducted utilizing the Erosion and Sediment Control Plan developed for the Project as required under the NPDES 1200-C permit (Appendix I-2 of Exhibit I). As a result of these steps and findings noted above, the proposed project is not anticipated to impact wetlands.

### Historic and Cultural Areas

As discussed in Exhibit S, no other significant historic or cultural areas have been identified at the Energy Facility Site or along the proposed transmission corridors. As a result, no mitigation has been proposed for historical or cultural resources. Additionally, although a portion of the Oregon Historical Trail passes through Morrow and Gilliam Counties approximately 6 to 7 miles south of the proposed Carty Generating Station and transmission line, the trail has limited public access, which would not be further encumbered by the development of the Carty Generating Station and transmission line facilities.

### Scenic Resources/Open Space

As identified in Exhibit R, the Carty Generating Station would have no significant adverse impact on documented important scenic and aesthetic values. The visual impact of the Carty Generating facility would be moderate. The energy facility would be located at least 13 miles from any population center. The Site Boundary would be set back approximately 8 miles from the Columbia River in an area currently utilized for energy generation and transmission. Public access for recreational activities is not permitted on PGE land or Carty Reservoir. In addition, the impact on the scenic resources of the transmission line would be negligible because of the presence of an existing transmission line within the same corridor.

As discussed in this exhibit, the entire new transmission line would be located within an existing transmission corridor, except for an expansion of new area parallel with the existing corridor. This would greatly minimize the transmission line's impacts on scenic resources and open spaces.

## **Goal 6 Air, Water and Land Resources Quality**

Response: Responses for air, water, and land resource quality are noted below.

### Air Quality

PGE would meet applicable requirements under the Clean Air Act through a separate permitting process with DEQ.

As noted in Exhibit Y, EFSC's carbon dioxide emissions standards would be met through compliance with the monetary path payment requirement of OAR 345-024-0710.



## Water Quality

As noted in Exhibit O, water usage for the Carty Generating Station is divided into two components: construction and operation.

During construction, PGE anticipates using approximately 10,000,000 gallons of water from Carty Reservoir during construction of each block (total of 20,000,000 gallons of water).

During operation, the Carty Generating Station, under annual average conditions, would use approximately 2,300 gallons per minute (gpm) from Carty Reservoir and approximately 1 gpm from an existing well. Water would be withdrawn from Carty Reservoir under a secondary use permit.

Potential adverse impacts related to water use would be mitigated by reusing wastewater from the Carty Generating Station internally, and by filling Carty Reservoir to a slightly higher pool level during the winter months. These measures would help to ensure overall maintenance of water quality in the Project area.

### **Goal 7 Areas Subject to Natural Hazards**

*To protect people and property from natural hazards.*

Response: No natural hazards have been identified at the proposed Energy Facility Site. Exhibit H references additional findings regarding seismic and soil suitability.

### **Goal 8 Recreational Needs**

*To satisfy the recreational needs of the citizens of the state and visitors and, where appropriate, to provide for the siting of necessary recreational facilities including destination resorts.*

Response: As noted in Exhibit T, several recreational resources are located within the Project area, including the Columbia River waterfront and the Lewis and Clark Historic Trail, located along the Columbia River approximately 5 miles from the proposed Carty Generating Station transmission line. The trail also parallels the Columbia River in the vicinity of Arlington, Oregon. Parks include the Port of Arlington RV Park and a marina, the Arlington State Park, a City of Boardman Park, Wilsons Willow Run Golf Course, and the Crow Butte State Park in Washington.

However, due to the difference in elevation and steep canyon walls along the Columbia River, the Carty Generating Station and its transmission line would not be visible from the river. In addition, the proposed energy facility would not adversely impact any identified existing recreation facilities within the 5-mile analysis area and would cause no loss of recreational use.

The proposed facility would not detract from recreational opportunities generally available in the vicinity, such as fishing, waterfowl hunting, hiking, cycling, and boating. Hunting and other

recreational activities are not currently allowed in the area proposed for the Carty Generating Station or Carty Reservoir.

### **Goal 9 Economic Development**

*To provide adequate opportunities throughout the state for a variety of economic activities vital to the health, welfare, and prosperity of Oregon's citizens.*

Response: The energy facility would create a strong economic development presence in the region. This is a result of the proposed location of the facility that takes advantage of the use of existing facilities and infrastructure on the Carty Generating Station site (including the Boardman to Slatt transmission line and associated ROW). The Project would also provide a number of employment opportunities during construction of the facility as well as permanent full time staffing over the life of the facility. This would also expand and diversify the County's economic base. The energy facility is expected to operate for at least 30 years, providing a stable contribution to the County's economy.

### **Goal 10 Housing**

*To provide for the housing needs of citizens of the state.*

Response: As noted in Exhibit U, as a result of maintenance and operations of the Boardman Plant, PGE is adept at managing temporary worker populations. PGE expects to hire a regional workforce, minimizing the amount of a transient workforce. Where this is not available, PGE and its subcontractors would seek available rental housing in the surrounding communities. Because the construction timeline for the Carty Generating Station is multi-year, the County and associated organizations would have ample time to plan for and handle temporary populations prior to commencement of construction.

### **Goal 11 Public Facilities and Services**

*To plan and develop a timely, orderly and efficient arrangement of public facilities and services to serve as a framework for urban and rural development.*

Response: As noted in the response to Goal 9, Economic Development, this project takes advantage of existing infrastructure in the immediate vicinity of the site—this includes energy distribution facilities in the form of the Boardman to Slatt transmission line as well as transportation access to the site, using Tower Road and Interstate 84. As described in detail in Exhibit U, sewage collection and treatment, water supplies, stormwater facilities, solid waste disposal, and police and fire service facilities, as well as health care, public education, housing, and traffic would not be adversely affected.

### **Goal 12 Transportation**

*To provide and encourage a safe, convenient and economic transportation system.*

Response: A TIA was prepared for the Carty Generating Station site. The traffic-related impacts of the completed Project, as well as the impacts of the peak construction phases, are addressed within the report. Based on the findings from this report, the proposed Station is not expected to have a significant impact on the adjacent roadway traffic operations upon buildout and normal daily operations. During the construction phase, the traffic impacts from the daily construction worker morning commute period is forecasted to have an impact on the Interstate 84/Tower Road westbound ramp terminal. However, simple travel demand management measures such as carpooling, construction worker shift staggering, and temporary traffic control measures can mitigate these impacts.

### **Goal 13 Energy Conservation**

*To conserve energy.*

Response: The purpose of the Project is to generate power for use by Northwest industrial, municipal, commercial, and residential users. The Project is needed to help ensure that the region has sufficient baseload capacity and to accommodate growth in the region.

The Carty Generating Station would be a highly efficient natural gas-fired combined cycle combustion-turbine generating facility, using state of the art equipment. By using area adjacent to an existing utility facility and by using existing ROW for transmission lines, the Carty Generating Station has been planned and designed to minimize environmental impacts. Mitigation of specific impacts has been addressed within the applicable ASC exhibits.

### **Goal 14 Urbanization**

*To provide for an orderly and efficient transition from rural to urban land use, to accommodate urban population and urban employment inside urban growth boundaries, to ensure efficient use of land, and to provide for livable communities.*

Response: The Carty Generating Station is located outside of an urban growth boundary. The development of the energy facility (as a utility) would not encourage additional residential or commercial developments outside of the urban growth boundary, primarily because the development of the facility is designed to provide for regional electrical provision, not local service in the surrounding rural area.

### **Goal 15 Willamette River Greenway**

### **Goal 16 Estuarine Resources**

### **Goal 17 Coastal Shorelands**

### **Goal 18 Beaches and Dunes**

### **Goal 19 Ocean Resources**

The Carty Generating Station and the transmission line would not be located within the areas of the Willamette River or those along the Oregon Coast or coastline. Therefore, Goals 15 through 19 are not applicable to this ASC.

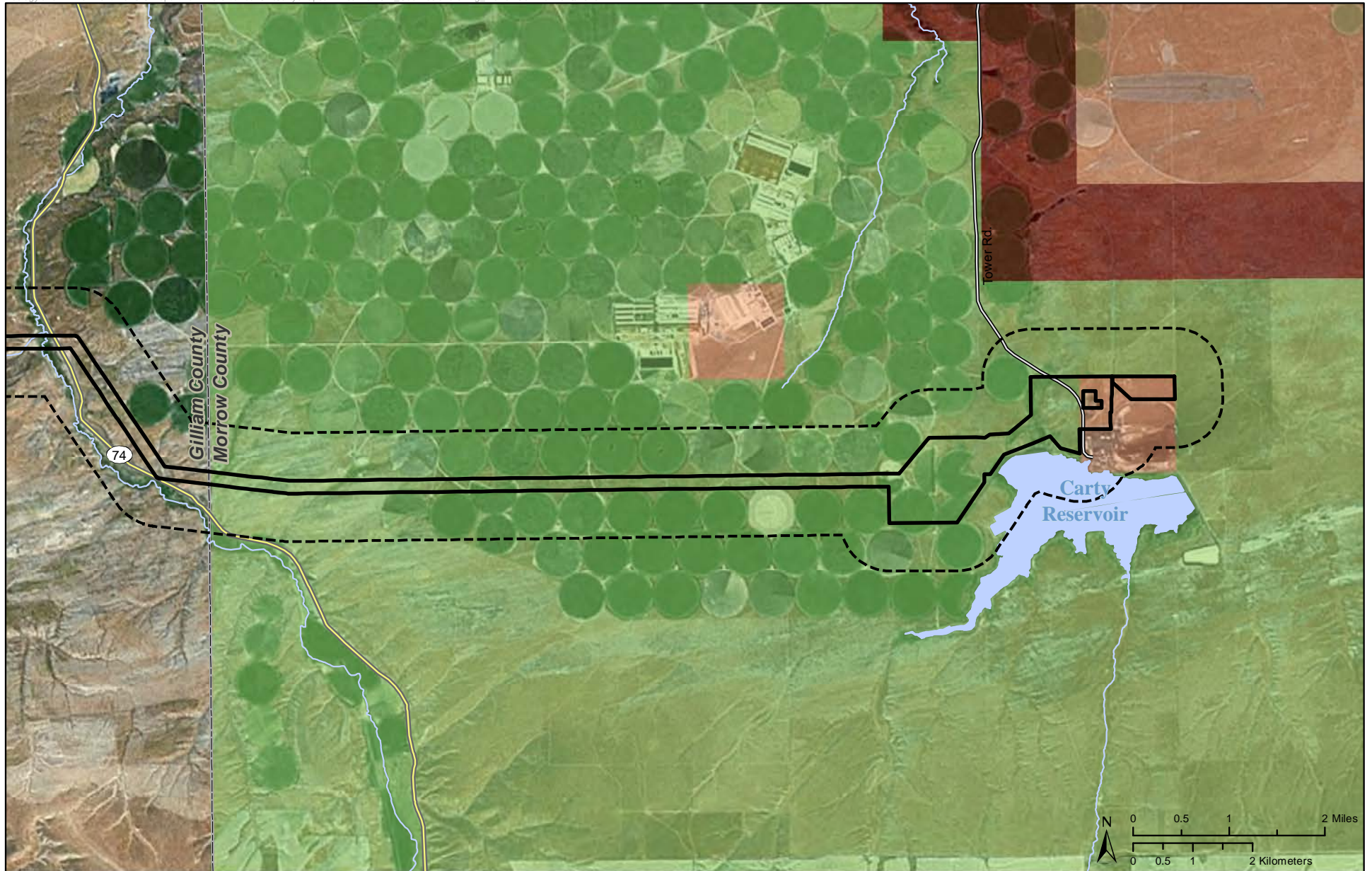
## **K.8 FEDERAL LAND MANAGEMENT PLANS**



**ORAR 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 ORAR 345-021-0010(1)(k)(B) and (C) of this subsection and explain the basis for the waiver.*




Response: The proposed energy facility would not be located on lands under federal land use jurisdiction. However, a small portion of the existing transmission line ROW is located on property controlled by the BPA. In any event, BPA does not have a federal land management plan that would be applicable to the proposed energy project.





 Site Boundary  
 1/2 mile Analysis Area

Morrow County Comprehensive Plan / Zoning Designation\*

 Exclusive Farm Use  
 General Industrial  
 Space Age Industrial

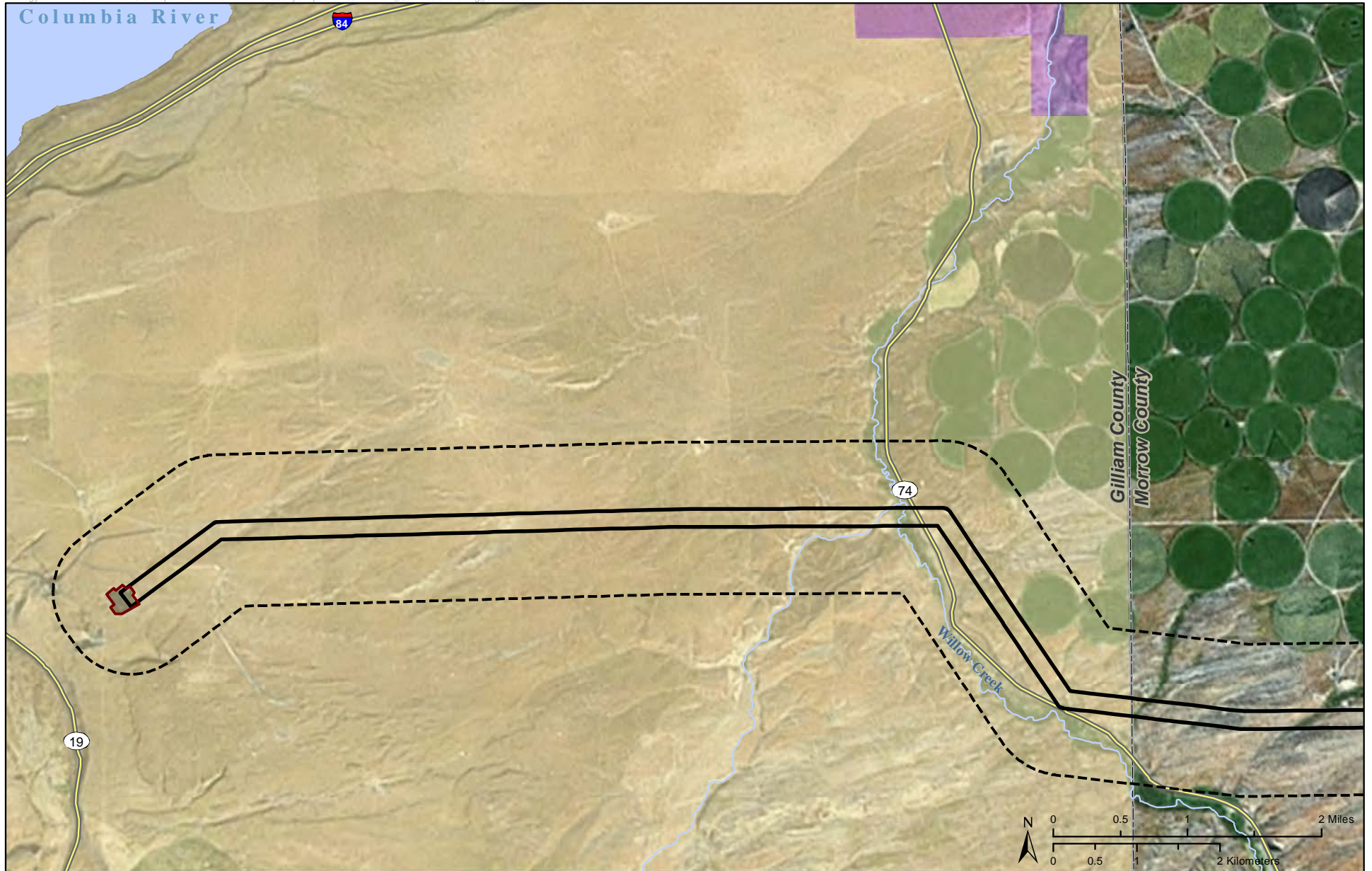
**Figure K-1**  
**Morrow County**  
**Comprehensive Plan / Zoning Designation**  
**PGE Carty Generating Station**  
**Application for Site Certificate**




\*Comprehensive plan designation is same as zoning designation  
 Morrow County Zoning data detail is at 1:24,000 scale; Gilliam County Zoning was digitized with guidance from Gilliam Planning Department.  
 Sources: Morrow County; Oregon Geospatial Enterprise Office











-  Site Boundary
-  Slatt Substation
-  1/2 mile Analysis Area

- Gilliam County Comprehensive Plan / Zoning Designation\*
-  Exclusive Farm Use
  -  Light Industrial

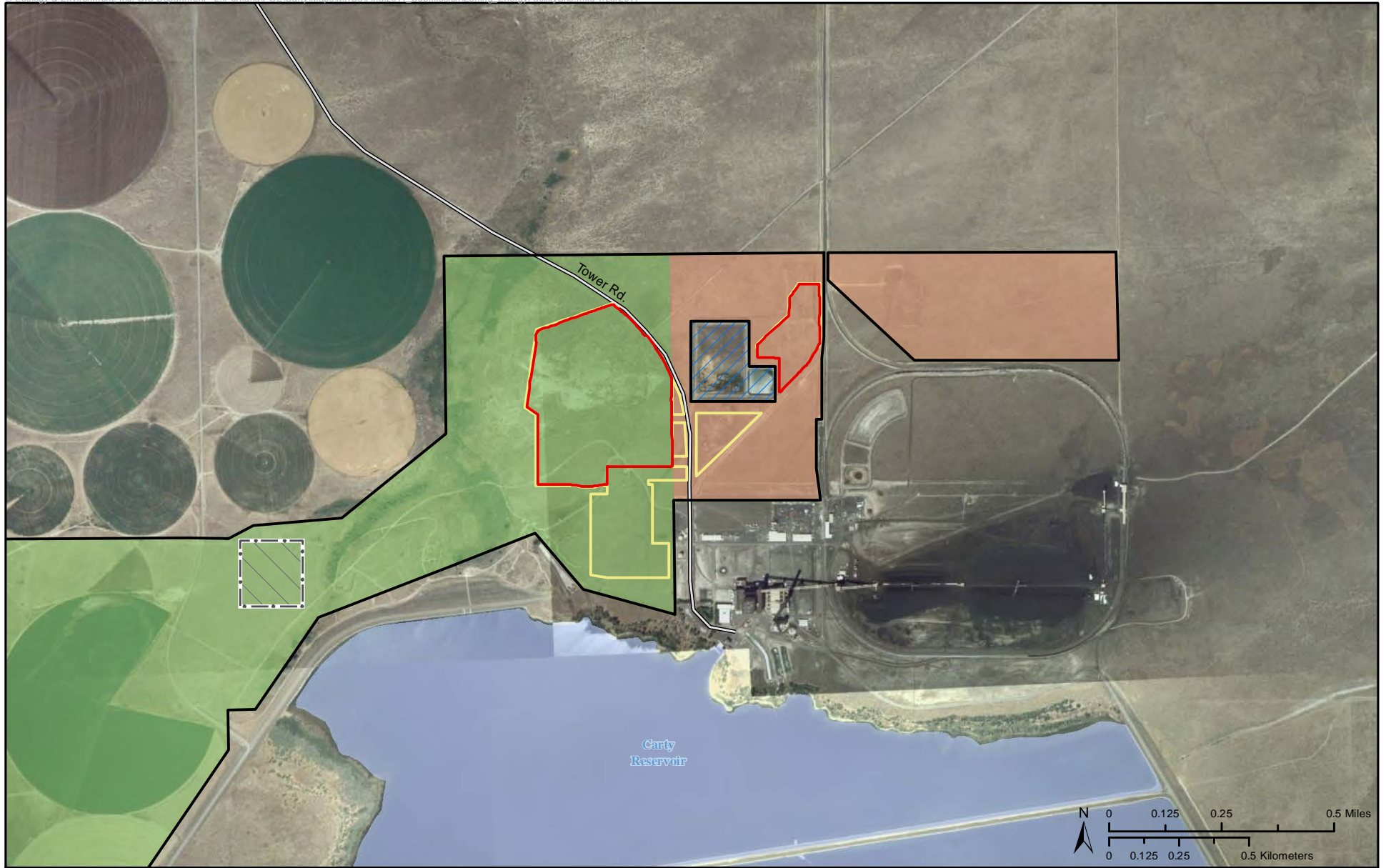






**Figure K-2**  
**Gilliam County**  
**Comprehensive Plan / Zoning Designation**  
**PGE Carty Generating Station**  
**Application for Site Certificate**

\*Comprehensive plan designation is same as zoning designation  
 Morrow County Zoning data detail is at 1:24,000 scale; Gilliam County Zoning was digitized with guidance from Gilliam Planning Department.  
 Sources: Morrow County; Oregon Geospatial Enterprise Office









-  Site Boundary
-  Proposed Energy Facility Area
-  Temporary Construction Area
-  Proposed Grassland Switchyard

-  Existing Boardman Evaporation Pond

- Morrow County Zoning
-  Exclusive Farm Use
  -  General Industrial

**Figure K-3**  
**Zoning**  
**PGE Carty Generating Station**  
**Application for Site Certificate**





# **APPENDIX K-1**

## **Access Agreement Documentation**





\*\* This document is being rerecorded to correct the legal description.

~~A-2000-81~~  
M-2000-287

NON-EXCLUSIVE EASEMENT

For Roadway Purposes

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5 pages

1. PARTIES:

The parties to this agreement are PORTLAND GENERAL ELECTRIC (PGE), an Oregon Corporation, BOEING AGRI-INDUSTRIAL COMPANY, an Oregon Corporation (BAIC) and STATE OF OREGON (State), and PORT OF MORROW (Port), a municipal corporation of the State of Oregon.

2. BACKGROUND:

Port owns property which is accessed over Tower Road, a private roadway owned by PGE on land owned by State and leased by BAIC. State, PGE and BAIC agree to allow Port to use Tower Road under the terms of this easement.

3. PROPERTY:

State owns certain real property across which Tower Road and an airport access road (hereafter referred to as Tower Road) are located. BAIC leases the property from State. PGE owns Tower Road improvements. A general description of the property traversed by Tower Road is described on Exhibit "A". Tower Road is hereafter referred to as subject property. Port owns certain real property described on Exhibit B, hereafter referred to as benefitted property.

4. GRANT OF EASEMENT:

State hereby grants to Port, under the terms of this agreement, a non-exclusive easement along Tower Road from the I-84 freeway south to the south edge of the Benefitted Property. PGE and BAIC consent to allow Port to use Tower Road as provided in this agreement.

5. PURPOSE OF EASEMENT:

The above described easement shall be non exclusive and perpetual and shall be used only for the purposes of vehicular and pedestrian ingress and egress by Port and its agents, lessees, invitees and successors for use and access to benefitted property. Use of the easement shall be on regular, continuing, nonexclusive, and nonpriority basis, benefitting Port, its successors, assigns, lessees, invitees and guests.

1 - EASEMENT

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to After Recording Retu  
Port of Morrow  
P.O. Box 200  
Boardman, OR. 97824



6. RIGHTS AND OBLIGATIONS OF THE PARTIES:

State and BAIC shall have no obligation to maintain the easement. Port irrevocably waives and assigns to PGE all rights and prerogatives with respect to changing the character of Tower Road from a private road to a public road. PGE hereby reserves to itself and its sublessees, assigns and invitees, including PGE, a non-exclusive perpetual right and easement to use the airfield for aircraft take-off, landing and parking and to use the airfield access road for access thereto.

State, PGE, BAIC and Port acknowledge that the rights and interest of Port are, and shall be subject to all existing subleases, easements, profits, reservations, rights-of-way, access and other rights, entitlements, restrictions and limitations pertaining to the subject property, whether or not of record, granted or held by BAIC or third parties, including all rights PGE has regarding use of the PGE railroad spur line. Said rights and entitlements include, but are not limited to, operation, maintenance and reconstruction of existing water and power lines and pipelines and roads.

7. INDEMNIFICATION:

Port shall defend, indemnify and hold State, PGE and BAIC harmless from any and all liability, claims, demands, actions, causes of action which may occur as a result of any activities of Port, its agents, contractors, invitees, lessees, successors and assigns arising out of or related to the easement.

8. MAINTENANCE AND REPAIR:

Port agrees to pay a fair share of the maintenance costs of the portion of Tower Road which serves the benefitted property. Port and PGE shall divide the responsibilities for maintenance and repair of the easement, and if Port and PGE cannot agree, then said obligations of maintenance and repair shall be controlled by ORS 105.170 et. seq.

9. SUCCESSORS AND ASSIGNS:

This easement and all rights and obligations contained herein shall run with the land as to all property burdened and benefitted by such easement, including any division or partition of such property. The rights, covenants and obligations contained in this

agreement shall bind, burden and benefit each party's successors and assigns. The Port will not assign its rights and duties under this Easement without the prior written consent of PGE and BAIC. Such consent will not be unreasonably withheld.

10. WAIVER OF CONSEQUENTIAL DAMAGES: In no event shall State, PGE or BAIC be liable to any party hereto for any lost or prospective profits or any other special, punitive, exemplary, consequential, incidental or indirect losses or damages (in tort, contract or otherwise) arising out of or related to this Easement.

11. MISCELLANEOUS:

In the event any litigation arises under this agreement, the prevailing party shall recover from the losing party, the prevailing party's reasonable attorney fees at trial or on appeal as adjudged by the trial or appellate court. In event any party shall fail to perform its obligations under this agreement, the other party shall be entitled to require such performance by suit for specific performance, or, where appropriate, through injunctive relief. Such remedies shall be in addition to any other remedies afforded under Oregon law.

PORTLAND GENERAL ELECTRIC

By: Walter S. Pallone  
105

BOEING AGRI INDUSTRIAL COMPANY

By: Nick Scott  
NICK SCOTT

STATE OF OREGON

By: Bill Pickelberry

PORT OF MORROW

By: Ray Peaf

STATE OF OREGON, )  
 ) ss.  
County of \_\_\_\_\_ )

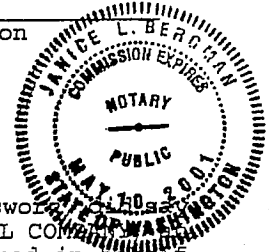
Personally appeared \_\_\_\_\_, who, being duly sworn, did say that he/she is the \_\_\_\_\_ of PORTLAND GENERAL ELECTRIC, an Oregon Corporation, and that said instrument was signed in behalf of said Corporation by authority of its Board of Directors; and he/she acknowledged the foregoing instrument to be his/her voluntary act and deed. Before me.

Notary Public for Oregon

STATE OF WASHINGTON, )  
 ) ss.  
County of Pierce )

Personally appeared NICK SCOTT, who, being duly sworn, that he is the Vice President of BOEING AGRI-INDUSTRIAL COMPANY, an Oregon Corporation, and that said instrument was signed in behalf of said Corporation by authority of its Board of Directors; and he acknowledged the foregoing instrument to be his voluntary act and deed. Before me.

Janice L. Bergman  
Notary Public for Washington



STATE OF OREGON, )  
 ) ss.  
County of Morrow. )

Personally appeared Gary Neal, who, being duly sworn, did say that he is the General Mgr of Port of Morrow, a municipal corporation, and that said instrument was signed on behalf of said Corporation by authority of its Board of Commissioners, and he acknowledged said instrument to be his voluntary act. Before me.

Kathleen Mc Gowan  
Notary Public for Oregon



STATE OF OREGON, )  
 ) ss.  
County of Marion )

Personally appeared Bill Nickleberry, who, being duly sworn, did say that he is the Manager of Real Property State of Oregon, Department of Justice, that said instrument was signed in behalf of said Department; and he acknowledged the foregoing instrument to be his voluntary act and deed. Before me.

Colleen J. Mohr  
Notary Public for Oregon



EXHIBIT "A"

A tract of land in Section 15 and 22 of Township <sup>4</sup>/<sub>5</sub> North, Range 24, EWM, County of Morrow, State of Oregon, beginning at the ~~I-5~~ <sup>I-84</sup> interchange and extending on each side of the roadway commonly referred to as Tower Road which divides said section and extends generally in a southerly direction through said sections.



EXHIBIT "B"

A tract of land in Section 15, 16, 17, 18, 19, 20, 21, and 22 of Township 24 North, Range 24 East, Willamette Meridian, County of Morrow, State of Oregon and being more particularly described as follows:

Beginning at the S.W. corner of said Section 22, thence Easterly, along the South line thereof, 3,500 feet more or less to the West line of Tower Road (an easement 150 feet in width); thence Northerly, along said West line, 8,100 feet, more or less to the Southerly line of Interstate Highway No. 84 (State Highway No. 30); thence Westerly, along said Southerly line, 15,500 feet, more or less, to the Easterly line of the "P.G.E. R.R. SPUR" (being 150 feet in width); thence Southerly, along said Easterly line, 6,500 feet, more or less, to the South line of aforesaid Section 19; thence East, along the South line of said Sections 19, 20, and 21, 17,400 feet, more or less, to the S.W. corner of Section 22 and the Point of Beginning.

STATE OF OREGON }  
County of Morrow } SS

I certify that this instrument was received and recorded in the book of records of said county.

BARBARA BLOODSWORTH  
Morrow County Clerk

by: *[Signature]* Deputy.

Doc#: 2000-81  
Rcpt: 14891 41.00  
01/11/2000 1:55 PM

STATE OF OREGON }  
County of Morrow } SS

I certify that this instrument was received and recorded in the book of records of said county.

BARBARA BLOODSWORTH  
Morrow County Clerk

by: *[Signature]* Deputy.

Doc#: 2000-287  
Rcpt: 15123 30.00  
02/04/2000 2:10 PM

v

M-2001-878

MCTC 3541

After recording return to:

Perkins Coie, LLP  
1211 SW 5<sup>th</sup> Ave., Suite 1500  
Portland, Oregon 972104  
Attention: Steven Hultberg

This space reserved for recorder's use.

**NON-EXCLUSIVE ROADWAY AND UTILITY EASEMENTS**

This Agreement for NON-EXCLUSIVE ROADWAY AND UTILITY EASEMENTS (this "Agreement") is executed and effective as of this \_\_\_ day of April, 2001, by and among BAIC, INC., as the successor in interest to Boeing-Agri-Industrial Company (BAIC, Inc. and all its predecessors in interest shall be referred to collectively as, "BAIC"), the undersigned sublessees of BAIC, PORTLAND GENERAL ELECTRIC COMPANY ("PGE") and the STATE OF OREGON, BY AND THROUGH ITS DEPARTMENT OF ADMINISTRATIVE SERVICES (the State of Oregon, without regard to the position or agency through which it is acting 'by and through', shall be referred to as the "State").

**RECITALS**

A. The State is the owner of certain real property which it leased to BAIC under a lease agreement (the "Master Lease") dated July 2, 1963, recorded January 28, 1964, in Book 70, Page 241, Morrow County deed records, as assigned by Assignment Agreement recorded July 16, 1974, as Microfilm No. M-7049, Microfilm Records of Morrow County, Oregon (the "Leased Property"). The Master Lease terminates in 2040.

B. Two roads commonly referred to as "Tower Road" and "Taggares Road" are located on the Leased Property and have been used for many years by the sublessees of BAIC for access to and from the portions of the Leased Property subleased by each such sublessee of any tier. The legal description of Tower Road is attached as Exhibit A hereto and the legal description of Taggares Road is attached as Exhibit B hereto, both incorporated herein by this reference. All references in this



Agreement to Tower Road and Taggares Road refer only to such property as described in Exhibits A and B respectively.

C. Pursuant to subleases of any tier, certain parties have leasehold rights with respect to various portions of the Leased Property. These parties include: (1) Taggares Farms, Inc, (2) RD Offutt Company-Northwest, (3) Threemile Canyon Farms, LLC, (4) Beef Northwest Feeders, Inc, (5) BNW Partners II LLC, (6) Columbia River Dairy, LLC, and (7) Sixmile Dairy, LLC. Together, the preceding seven sublessees are referred to as the "Sublessees" and individually as a "Sublessee".

D. Pursuant to its sublease agreement, each Sublessee has the right of access to and from the portion of the Leased Property it subleases. To facilitate financing and other business activities, the Sublessees desire to have their nonexclusive rights to use Tower Road and Taggares Road for ingress and egress and the provision of utilities restated in the form of an express grant of an easement from the State, as the owner of the Leased Property, in a document to be recorded in its entirety.

E. Pursuant to various agreements and deeds between or among the State, BAIC and PGE, BAIC released a portion of the real property subject to the Master Lease in connection with the State conveying title to such property to PGE. BAIC also subordinated its leasehold interest in the Leased Property to the easements the State granted to PGE that are located on the Leased Property, including the easement to use Tower Road for ingress and egress. The agreements also obligated BAIC to similarly subordinate the rights of its sublessees and provided that BAIC and its sublessees, including the Sublessees, would otherwise continue to have the right pursuant to the Master Lease and subleases to use Tower Road together with PGE.

F. PGE joins in the execution of this Agreement to acknowledge its consent to the easements granted herein.

### AGREEMENT

NOW, THEREFORE, for valuable consideration, receipt of which is hereby acknowledged, the State, BAIC, PGE and the Sublessees agree as follows:

1. Easement. The State hereby confirms and grants to each Sublessee and its heirs, assigns and successors, a non-exclusive easement over and across Tower Road and Taggares Road, as described in Exhibits A and B, respectively, or as each may be relocated from time to time. Each of the easements may be used by the Sublessee and its agents, employees, contractors and invitees for access and the provision of utilities to and from that portion of the Leased Property subleased by it.

2. Term of Easement. The easements confirmed and granted herein to each of the Sublessees shall be for a period equal to the terms of their respective subleases, and any renewal or extension thereof, but in no case shall extend beyond December 31, 2040. The easements granted herein to each of the Sublessees shall automatically terminate on December 31, 2040 without any further action by the State or BAIC. Provided, however, that the easement granted with respect to either Tower Road or Taggares Road shall terminate effective at such time as it becomes a public right-of-way.

3. Pre-existing and Reserved Rights. The easements granted to each of the Sublessees are non-exclusive and subject to all pre-existing liens, encumbrances and rights of third parties respecting the Leased Property, including without limitation, the easements previously granted to PGE by the State. Each Sublessee hereby confirms and subordinates its interest in the Leased Property to the easements granted to PGE by the State. Further, each Sublessee hereby consents to the grant by the State of an easement to the other Sublessees with respect to any portion of Tower Road or Taggares Road (as described in Exhibits A and B, respectively, or as each may be relocated from time to time) that is located within that portion of the Leased Property subleased by Sublessee. Subject to such prior rights, including those of BAIC under the Master Lease, the State reserves the right to grant to other parties an easement on, over or under Tower Road and Taggares Road for any purpose consistent with the rights the State has previously granted. In no event shall any such future grant by the State materially affect the ability of the Sublessees to use Tower Road and Taggares Road for the purposes set forth herein.

4. PGE. The State confirms and grants to PGE and its successors and assigns, a roadway easement over and across Tower Road as described in attached Exhibit A, or as relocated from time to time, along with all other rights and property interests previously granted to PGE by the Bargain and Sale Deed from the State dated July 2, 1975, recorded August 13, 1975, in Book "M", Microfilm No. 8457; as modified, amended, added to and corrected by that certain Agreement and Grant dated February 20, 1976 and recorded July 29, 1976 in Book "M", Microfilm No. 9783; and the Bargain and Sale Deed dated October 2, 1978, recorded October 17, 1978, in Book "M", Microfilm No. 14243, all in Microfilm Records of Morrow County, Oregon; or by any other deeds and agreements with or consented to by the State. This Agreement is intended to confirm any and all rights previously granted to PGE and to confirm PGE's right of access over and across Tower Road.

5. Relocation of Roads. With respect to the Sublessees and not PGE, BAIC may, at its absolute discretion, change or alter the exact locations of Tower Road and Taggares Road without the prior consent of the Sublessees. This Agreement

shall be automatically amended to reflect the new location after such change or alteration. A Sublessee shall have no complaint or cause of action, provided that its ability to use Tower Road and Taggares Road for the purposes set forth herein has not been materially impaired.

6. Maintenance of Tower Road. BAIC, PGE and the Sublessees agree that maintenance of Tower Road shall be governed by the provisions for maintenance of Tower Road set forth in Section 7 of that certain agreement between BAIC and PGE dated May 29, 1975 and recorded on January 25, 1982 as Microfilm No. M-19964 Morrow County Microfilm Records (the "May 29, 1975 Agreement"), and that Sublessees are parties that hold rights under BAIC for purposes of the May 29, 1975 Agreement.

7. Indemnification. Each Sublessee and its successors and assigns, shall indemnify and hold the State and BAIC, and their respective agents and employees harmless from any liability, cost, damage or injury to persons or property resulting directly or indirectly from such Sublessee's use of Tower Road and Taggares Road, and from all claims of third parties for all damages or injuries of any kind and nature that may be claimed or may arise by reason of any third party's use of Tower Road and Taggares Road. As between PGE and BAIC, indemnification shall be governed by Section 15 of the May 29, 1975 Agreement.

8. Consent of BAIC and PGE. BAIC and PGE each hereby consents to the easements confirmed and granted by the State in this Agreement.

9. Counterparts. This Agreement may be executed in any number of counterparts.

This AGREEMENT shall be effective as of the date first written above.

STATE OF OREGON, acting by and  
through its DEPARTMENT OF  
ADMINISTRATIVE SERVICES

BAIC, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

BNW PARTNERS II, LLC

COLUMBIA RIVER DAIRY, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

TAGGARES FARMS, INC.

THREEMILE CANYON FARMS, LLC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

R.D. OFFUTT COMPANY-  
NORTHWEST

BEEF NORTHWEST FEEDERS, INC.


By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

SIXMILE DAIRY, LLC

PORTLAND GENERAL ELECTRIC  
COMPANY

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By:  \_\_\_\_\_ DRW  
Name: RONALD W JOHNSON  
Title: VICE PRESIDENT, POWER  
SUPPLY

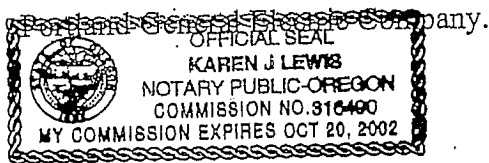
STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of State of Oregon, acting by and through its Department of Administrative Services.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of Multnomah )

The foregoing instrument was acknowledged before me this 23<sup>rd</sup> day of April, 2001, by Ronald W. Johnson, as Vice President of



Karen J. Lewis  
\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: Oct. 20, 2002

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of BAIC, Inc.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

This AGREEMENT shall be effective as of the date first written above.

STATE OF OREGON, acting by and  
through its DEPARTMENT OF  
ADMINISTRATIVE SERVICES

BAIC, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

BNW PARTNERS II, LLC

COLUMBIA RIVER DAIRY, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

TAGGARES FARMS, INC.

THREEMILE CANYON FARMS, LLC.

By: \_\_\_\_\_  
Name: Tom K. Dickler  
Title: V.P.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

R.D. OFFUTT COMPANY-  
NORTHWEST

BEEF NORTHWEST FEEDERS, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

SIXMILE DAIRY, LLC

PORTLAND GENERAL ELECTRIC  
COMPANY

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

\_\_\_\_\_  
Notary Public for Oregon

My Commission Expires: \_\_\_\_\_

STATE OF OREGON )

) ss.

County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of

BNW Partners II, LLC.

\_\_\_\_\_  
Notary Public for Oregon

My Commission Expires: \_\_\_\_\_

STATE OF OREGON )

) ss.

County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of

Columbia River Dairy, LLC.

\_\_\_\_\_  
Notary Public for Oregon

My Commission Expires: \_\_\_\_\_

STATE OF <sup>WASHINGTON</sup> ~~OREGON~~ )

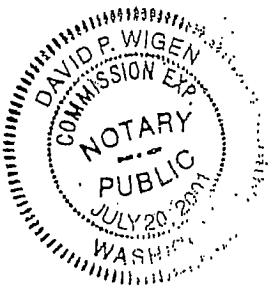
) ss.

County of ADAMS )

The foregoing instrument was acknowledged before me this 10 day of APRIL, 2001, by TOM K DICKEY, as V.P. of

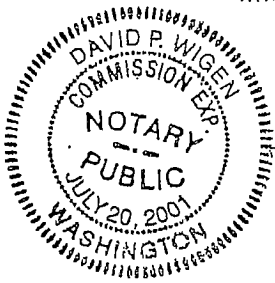
Taggares Farms, Inc.





*[Handwritten signature]*

Notary Public for Oregon WASH  
My Commission Expires: 7-20-01



This AGREEMENT shall be effective as of the date first written above.

STATE OF OREGON, acting by and  
through its DEPARTMENT OF  
ADMINISTRATIVE SERVICES

BAIC, INC.

By: Paul Nickleberry  
Name: Bill Nickleberry  
Title: Real Property Service Manager

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

BNW PARTNERS II, LLC

COLUMBIA RIVER DAIRY, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

TAGGARES FARMS, INC.

THREEMILE CANYON FARMS, LLC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

R.D. OFFUTT COMPANY-  
NORTHWEST

BEEF NORTHWEST FEEDERS, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

SIXMILE DAIRY, LLC.

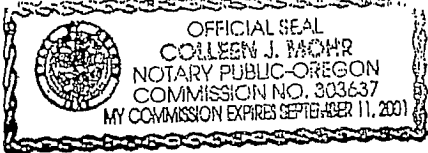
PORTLAND GENERAL ELECTRIC  
COMPANY

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of Marion )

The foregoing instrument was acknowledged before me this 19<sup>th</sup> day of April, 2001, by Bill Nickleberry, as Manager of State of Oregon, acting by and through its Department of Administrative Services.



Colleen J. Mohr  
Notary Public for Oregon  
My Commission Expires: 9-11-01

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of Portland General Electric Company.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of BAIC, Inc.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )

This AGREEMENT shall be effective as of the date first written above.

STATE OF OREGON, acting by and  
through its DEPARTMENT OF  
ADMINISTRATIVE SERVICES


BAIC, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

BNW PARTNERS II, LLC

COLUMBIA RIVER DAIRY, LLC

By:   
Name: John S. Kliesen Jr.  
Title: Member

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

TAGGARES FARMS, INC.

THREEMILE CANYON FARMS, LLC.


By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

R.D. OFFUTT COMPANY-  
NORTHWEST

BEEF NORTHWEST FEEDERS, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By:   
Name: John S. Kliesen Jr.  
Title: President

SIXMILE DAIRY, LLC

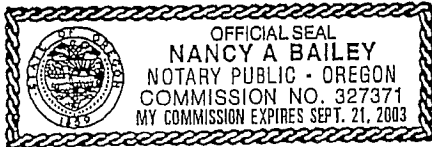
PORTLAND GENERAL ELECTRIC  
COMPANY

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of Baker )

The foregoing instrument was acknowledged before me this 11<sup>th</sup> day of April, 2001, by John S. Wilson Jr., as authorized rep of BNW Partners II, LLC.



Nancy A. Bailey  
Notary Public for Oregon  
My Commission Expires: 9-21-03

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_  
Columbia River Dairy, LLC.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of \_\_\_\_\_  
Taggares Farms, Inc.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_



STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of Threemile Canyon Farms, LLC.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

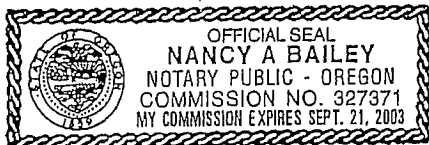
STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of R.D. Offutt Company-Northwest.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of Baker )

The foregoing instrument was acknowledged before me this 11<sup>th</sup> day of April, 2001, by John S. Wilson, Jr., as authorized rep of Beef Northwest Feeders, Inc.



Nancy A. Bailey  
Notary Public for Oregon  
My Commission Expires: 9-21-03



This AGREEMENT shall be effective as of the date first written above.

STATE OF OREGON, acting by and  
through its DEPARTMENT OF  
ADMINISTRATIVE SERVICES

BAIC, INC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: ~~MAKIN~~ \_\_\_\_\_  
Name: ~~MARINA MYERS~~ \_\_\_\_\_  
Title: ~~General Manager~~ \_\_\_\_\_

BNW PARTNERS II, LLC

COLUMBIA RIVER DAIRY, LLC

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: ~~John Bos~~ \_\_\_\_\_  
Name: ~~John Bos~~ \_\_\_\_\_  
Title: ~~owner~~ \_\_\_\_\_

TAGGARES FARMS, INC.

THREEMILE CANYON FARMS, LLC.

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

By: ~~MAKIN~~ \_\_\_\_\_  
Name: ~~MARINA MYERS~~ \_\_\_\_\_  
Title: ~~General Manager~~ \_\_\_\_\_

R.D. OFFUTT COMPANY-  
NORTHWEST

BEEF NORTHWEST FEEDERS, INC.

By: ~~MAKIN~~ \_\_\_\_\_  
Name: ~~Marina Myers~~ \_\_\_\_\_  
Title: ~~General Manager~~ \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

SIXMILE DAIRY, LLC

PORTLAND GENERAL ELECTRIC  
COMPANY

By: ~~John Bos~~ \_\_\_\_\_  
Name: ~~John Bos~~ \_\_\_\_\_  
Title: ~~owner~~ \_\_\_\_\_

By: \_\_\_\_\_  
Name: \_\_\_\_\_  
Title: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of State of Oregon, acting by and through its Department of Administrative Services.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

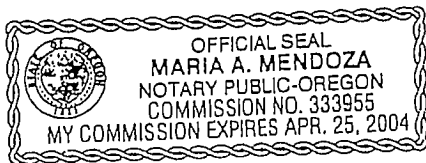
STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of Portland General Electric Company.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of McYrow )

The foregoing instrument was acknowledged before me this 23 day of April, 2001, by Martin D. Myers, as General Manager of BAIC, Inc.



Maria A. Mendoza  
Notary Public for Oregon  
My Commission Expires: Apr. 25th 2004

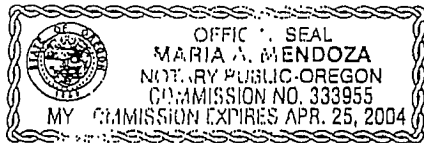
STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of  
BNW Partners II, LLC.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_

STATE OF OREGON )  
 ) ss.  
County of Madras )

The foregoing instrument was acknowledged before me this 19 day of April, 2001, by Arend John Bos, as owner of  
Columbia River Dairy, LLC.



Maria A. Mendoza  
Notary Public for Oregon  
My Commission Expires: April 25, 2004

STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of  
Taggares Farms, Inc.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_



EXHIBIT A

**LEGAL DESCRIPTION**  
(TOWER ROAD ACCESS EASEMENT)

Easement located in Sections 3, 4, 8, 9, 16 and 17, Township 3 North, Range 24 East, W.M. and Sections 15, 22, 27 and 34, Township 4 North, Range 24 East, W.M., Morrow County, Oregon, said easement being for access purposes over and across a strip of land being 150 feet in width with 75 feet each side of a centerline described as follows:

Beginning at the east quarter corner of Section 20, Township 3 North, Range 24 East, W.M.; thence North  $01^{\circ}09'17''$  West along the east line of said Section 20, 2604.20 feet to the northeast corner of said section; thence North  $17^{\circ}18'25''$  West 1142.68 feet to the centerline of Tower Road and the True Point of Beginning; thence North  $00^{\circ}33'24''$  West 343.33 feet to the point of a curve, the radial center of which bears North  $89^{\circ}19'49''$  East 1679.89 feet; thence northeasterly along said curve to the right 631.44 feet thru a central angle of  $21^{\circ}32'11''$  to a point of tangent; thence North  $20^{\circ}24'32''$  East 385.45 feet to a point of curve the radial center of which bears North  $69^{\circ}35'28''$  West 1715.00 feet; thence northeasterly along said curve to the left 621.96 feet thru a central angle of  $20^{\circ}46'44''$  to a point of tangent; thence North  $00^{\circ}22'11''$  West 6717.92 feet to a point of curve the radial center of which bears North  $89^{\circ}37'49''$  East 4000.00 feet; thence northeasterly along said curve to the right 4635.54 feet thru a central angle of  $66^{\circ}23'57''$  to a point of tangent; thence North  $66^{\circ}01'46''$  East 4188.19 feet to a point of curve the radial center of which bears North  $23^{\circ}58'14''$  West 3000.00 feet; thence northeasterly along said curve to the left 3196.13 feet thru a central angle of  $61^{\circ}02'30''$  to a point of tangent; thence North  $04^{\circ}59'16''$  East 10239.66 feet to the point of a curve, the radial center of which bears North  $85^{\circ}00'44''$  West 1913.53 feet; thence northerly along said curve to the left, 437.71 feet thru a central angle of  $13^{\circ}06'22''$  to a point of tangent; thence North  $08^{\circ}06'53''$  West 5664.04 feet to the end point of Tower Road interchange at highway station 110+71.02 and the terminus of said centerline and easement.



EXHIBIT B

**LEGAL DESCRIPTION**  
(ACCESS EASEMENT TAGGARES LANE)

Easement located in Sections 24 and 25, Township 3 North, Range 23 East, W.M. and Sections 17, 19 and 20, Township 3 North, Range 24 East, W.M., Morrow County, Oregon, said easement being for access and utilities purposes over under and across a strip of land being 60 feet in width with 30 feet each side of a centerline described as follows:

Beginning at the east quarter corner Section 20, Township 3 North, Range 24 East, W.M.; thence North  $01^{\circ}09'17''$  West along the east line of said Section 20, 2604.20 feet to the northeast corner of said section; thence North  $13^{\circ}04'15''$  West 1508.63 feet to the centerline of Tower Road and the True Point of Beginning; thence North  $89^{\circ}28'02''$  West 37.01 feet to the point of a curve, the radial center of which bears South  $00^{\circ}31'58''$  West 200.00 feet; thence southwesterly along said curve to the left 103.51 feet to a point of tangent; thence South  $60^{\circ}52'46''$  West 14,577.74 feet to a point of curve the radial center of which bears North  $29^{\circ}07'14''$  West 1,440.00 feet; thence southwesterly along the arc of said curve to the right 725.13 feet to a point of tangent; thence South  $89^{\circ}43'54''$  West 257.52 feet to a point of curve the radial center of which bears South  $00^{\circ}16'06''$  East 715.00 feet; thence southwest along said curve to the left 630.98 feet to a point of curve the radial center of which bears North  $33^{\circ}57'30''$  West 380.70 feet; thence westerly along said curve to the right 310.42 feet to a point of tangent; thence North  $80^{\circ}16'07''$  West 374.24 feet to the east line of the Columbia River & Willow Creek Dairies boundary and the terminus of said centerline and easement.

Subject to other easements, reservations and restrictions of record.



STATE OF OREGON

County of Morrow

} SS

I certify that this instrument was received and recorded in the book of records of said county.

BARBARA BLOODSWORTH,  
Morrow County Clerk

by: Bobbie A. M. [Signature] Deputy.

Doc#: 2001-878

Rcpt: 19048 121.00

04/30/2001 1:42 pm

M 2001-1305

After recording return to:

Perkins Coie, LLP  
1211 SW 5<sup>th</sup> Ave., Suite 1500  
Portland, Oregon 972104  
Attention: Steven Hultberg

STATE OF OREGON }  
County of Morrow } SS

I certify that this instrument was received and recorded in the book of records of said county.

BARBARA BLOODSWORTH,  
Morrow County Clerk

by: [Signature] Deputy.

Doc#: 2001-1305  
Rcpt: 19503 0.00  
06/13/2001 4:46 pm

**AGREEMENT TO DEDICATE PUBLIC RIGHT-OF-WAY**

The STATE OF OREGON acting by and through its DEPARTMENT OF ADMINISTRATIVE SERVICES (the "State"), PORTLAND GENERAL ELECTRIC COMPANY ("PGE"), BAIC, INC. ("BAIC") and MORROW COUNTY execute this Agreement to Dedicate Right-of-Way (this "Agreement") as of the 13 day of June, 2001.

**RECITALS**

- A. The State is the owner of certain real property which it leased to The Boeing Company under a lease agreement dated July 2, 1963, recorded January 28, 1964, in Book 70, Page 241, Morrow County deed records, as amended, and as assigned by The Boeing Company to BAIC by Assignment Agreement recorded July 16, 1974, as Microfilm No. M-7049, Microfilm Records of Morrow County, Oregon (the "Leased Property").
- B. PGE is the fee owner of certain real property within the boundary of the Leased Property and has a non-exclusive easement over Tower Road. Tower Road is currently a private road and provides access to and from PGE's property.
- C. The R.D. Offutt Company—Northwest ("RDO"), an affiliate of BAIC, has received preliminary approval from Morrow County (Land Partition Request, LP-N-277) to partition a portion of the Leased Property to create two additional parcels of land (the "Dairy Parcels").
- D. As a condition of approval, Morrow County has required RDO to dedicate a 60-foot right-of-way to provide access to the Dairy Parcels. On the final recorded plat, Partition Plat No. 2001-6, the State has dedicated a 60-foot

public right-of-way along Tower Road to a point south of the intersection of Taggares Lane and Tower Road (the "Plat Dedication"). PGE has consented to this dedication.

E. The State, PGE and BAIC have agreed to dedicate an additional 60-foot public right-of-way from the terminus of the Plat Dedication to the western boundary of the Leased Property (the "Extension Road"). A portion of the existing Tower Road right-of-way shall remain private and shall provide access to the PGE property, as set forth on Exhibit A (the "PGE Access").

F. Morrow County, PGE and BAIC are parties to that certain agreement dated September 22, 1999 (the "Tower Road Agreement"). In recognition of changed circumstances, the parties hereto desire to nullify the Tower Road Agreement and provide alternative maintenance provisions for Tower Road.

G. The parties to this Agreement have not determined the final alignment of the Extension Road. Therefore this Agreement refers to a general corridor within which the final alignment of the Extension Road will be placed and the public right-of-way dedicated. After the alignment of the Extension Road is finalized, the State, PGE and BAIC shall record a supplement to this Agreement identifying the final alignment and legal description of the Extension Road and dedicating the public right-of-way.

### **AGREEMENT TO DEDICATE PUBLIC RIGHT-OF-WAY**

1. In consideration of the foregoing and other good and valuable consideration, the State, PGE and BAIC hereby agree to dedicate to Morrow County as a public road, as that term is defined in ORS 368.001(5), a 60-foot right-of-way within the corridor set forth on the map attached hereto as Exhibit A, subject to the following conditions and restrictions:

(a) The final alignment of the 60-foot right-of-way for the Extension Road to be dedicated pursuant to Paragraph 1 above shall be determined by the State, PGE and BAIC after consultation with the Morrow County Department of Public Works within 60 days of the date hereof.

(b) Upon finalization of the alignment of the Extension Road by the State, PGE and BAIC, the State, PGE and BAIC shall record a modification of this Agreement which shall specify the exact alignment and legal description of the Extension Road. At such time, the dedication of the public road shall be effective.

(c) The Extension Road shall begin at the terminus of the Plat Dedication of Tower Road and extend across the Leased Property to the western boundary of the Leased Property within the corridor as set forth on Exhibit A.

(d) As of the effective date of the public road dedication as set forth in Paragraph 1(b), Morrow County shall accept maintenance of Tower Road and the Extension Road and shall maintain such roads in accordance with applicable county road standards, subject to the following conditions and restrictions:

(i) In consideration of the foregoing, PGE hereby conveys to Morrow County the railroad crossing lights, signals, arms, switching and other related equipment presently in place at the rail crossing on Tower Road (the "Crossing Equipment") and Morrow County agrees to own, replace, repair and maintain the Crossing Equipment in accordance with all applicable state and federal regulations. For a period of three years from the effective date of this Agreement, PGE shall reimburse Morrow County for all of Morrow County's reasonable costs associated with Morrow County's obligations with respect to the Crossing Equipment.

(ii) Morrow County shall use its best efforts to snowplow and sand Tower Road from the south right-of-way of I-84 to the intersection with the PGE Access (approximately 8.2 miles) when necessary to provide PGE employees with access to and from PGE's property during shift changes (i.e. 6:30-7:30 a.m., 5:30-7:00 p.m.). Should Morrow County fail to snowplow and sand this portion of Tower Road in a timely manner, then PGE may perform emergency plowing and sanding for the sole purpose of providing its employees with safe access to the PGE property.

(iii) PGE and BAIC shall have the right, but not the obligation, to perform maintenance on Tower Road if either PGE or BAIC believe that Morrow County is not adequately maintaining Tower Road, provided however, that prior to such maintenance, PGE or BAIC, as appropriate, shall notify Morrow County in writing of the intended maintenance and except for emergency repairs shall afford Morrow County a 45-day period within which to complete such maintenance. Such additional maintenance shall be at the sole cost of PGE and BAIC.

2. PGE, Morrow County and BAIC hereby agree that the Tower Road Agreement is null and void and of no further force or effect. Each party hereby releases and forever discharges the others from any and all claims or causes of action arising under the Tower Road Agreement. This Agreement is intended to replace the Tower Road Agreement.

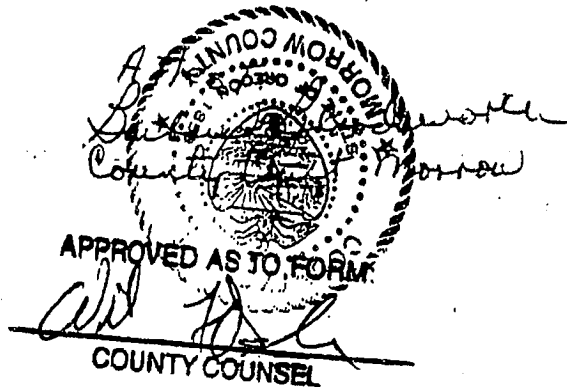
3. If any legal action is instituted to enforce this Agreement, the party not prevailing shall pay the prevailing party's reasonable costs, disbursements and attorneys' fees in connection with such enforcement, both at trial and upon appeal. Notwithstanding





MORROW COUNTY

By Jerry K. Salzman  
Name John M. ...  
Title Dean ...



STATE OF OREGON )  
 ) ss.  
County of \_\_\_\_\_ )

The foregoing instrument was acknowledged before me this \_\_\_ day of \_\_\_\_\_, 2001, by \_\_\_\_\_, as \_\_\_\_\_ of Morrow County.

\_\_\_\_\_  
Notary Public for Oregon  
My Commission Expires: \_\_\_\_\_



After recording return to:

This space reserved for recorder's use.

2024

101

(4)

Until a change is requested send all tax statements to:

2002- 5381

### DEDICATION OF EASEMENT AND RIGHT-OF-WAY (FOR ROAD, STREET AND UTILITY PURPOSES)

THIS DEDICATION OF EASEMENT AND RIGHT OF WAY (FOR ROAD, STREET AND UTILITY PURPOSES) (the "Easement and Right-of-Way") is entered into this 30 day of August, 2002.

KNOW ALL MEN BY THESE PRESENTS THAT: PORTLAND GENERAL ELECTRIC COMPANY, Grantor, in consideration of other property or value given or promised which is the whole consideration, the receipt of which is hereby acknowledged, does hereby forever grant and convey to MORROW COUNTY, Grantee, a permanent and perpetual easement and right-of-way for the purposes and upon the terms and conditions hereinafter set forth, over, across, in, under, through, along, and within the real properties in Morrow County, Oregon, more particularly described on Exhibits A ("Properties"). TO HAVE AND TO HOLD SAID EASEMENT AND RIGHT-OF-WAY UNTO THE GRANTEE, ITS SUCCESSORS AND ASSIGNS FOREVER.

Purpose.

The Easement and Right of Way herein granted shall allow Grantee, its successors and assigns to install, lay, construct, reconstruct, maintain, improve, repair, operate and utilize the property for (i) a public right-of-way, streets, roads, highways, sidewalks; (ii) the installation of storm sewer lines, mains, conduits and drainage ways and (iii) other public uses not inconsistent with such uses.

Grantee shall have the right at any time hereafter to enter upon the property for the purposes hereinabove mentioned, and in connection therewith, to do anything necessary, useful or convenient for the enjoyment of the Easement and Right-of-Way hereby granted, including (a) the installation of sewer lines, mains, conduits and drainage ways; (b) the installation of roadway improvement, street improvements, sidewalks and other similar improvements necessary for vehicular and pedestrian access; (c) the right to remove trees, shrubs, bushes or other landscaping necessary or convenient to accomplish said purposes; and (d) the right to develop, maintain, operate, improve, enhance, preserve and protect the property for the use of the general public in the manner herein described:

Grantor hereby reserves all rights to the Properties not expressly granted herein, including the right to use the Properties in a manner not inconsistent with the rights expressly granted to Grantee.

Ownership.

Grantor hereby covenants with Grantee that Grantor is the owner in fee simple of the Properties and has the right to grant the Easement and Right-of-Way set forth herein.

IN WITNESS WHEREOF, I hereunto set my hand on this 30 day of August 2002.

GRANTOR:

PORTLAND GENERAL ELECTRIC COMPANY

By: 

Name: JIM LOBIDEL

Title: VICE PRESIDENT

This Dedication of Easement and Right-of-Way (for Road, Street and Utility Purposes) is hereby accepted by Morrow County.

By: TERRY K. TALLMAN  
Name: Terry K. Tallman  
Title: MORROW COUNTY JUDGE

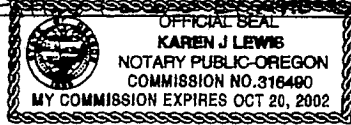
APPROVED AS TO FORM:

Walt Johnson  
COUNTY COUNSEL

STATE OF OREGON )  
 ) ss.  
County of Multnomah )

This instrument was acknowledged before me on August 30, 2002 (date) by James F. Lobden (name(s) of person (s)) as Vice President (type of authority, e.g., officer, trustee, etc.)

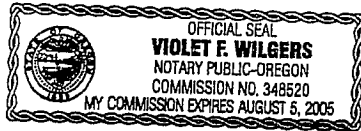
of T. Tallman (name of party on behalf of whom instrument was executed).



Karen J. Lewis  
Notary's Signature  
My Commission Expires: Oct. 20, 2002

STATE OF OREGON )  
 ) ss.  
County of Morrow )

This instrument was acknowledged before me on September 4 (date) by Terry Tallman (name(s) of person (s)) as Judge (type of authority, e.g., officer, trustee, etc.)  
of Morrow County (name of party on behalf of whom instrument was executed).



Violet F. Wilgers  
Notary's Signature  
My Commission Expires: 8-5-05

EXHIBIT A

That portion of "TOWER ROAD EXTENSION", delineated and described on PARTITION PLAT ~~2007-6~~, recorded concurrently herewith, in the records of Morrow County, Oregon, which portion lies within the Northwest ¼ of Section 5, Township 2 North, Range 24 East, Willamette Meridian, Morrow County, Oregon.

STATE OF OREGON

County of Morrow

I certify that this instrument was received and recorded in the book of records of said county.

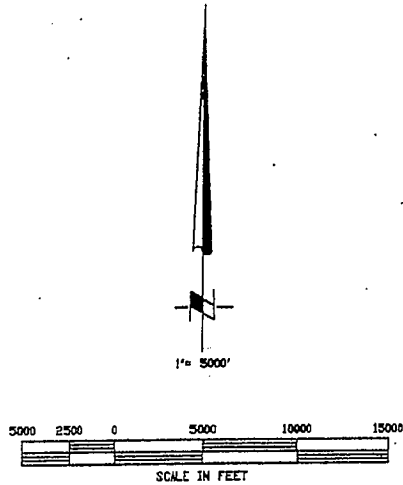
BARBARA B. GODSWORTH  
Morrow County Clerk

by:  Deputy.

Doc#: 2002-5081  
Rept: 5054 0:00  
09/09/2002 4:07 pm

# PARTITION PLAT 2002-6

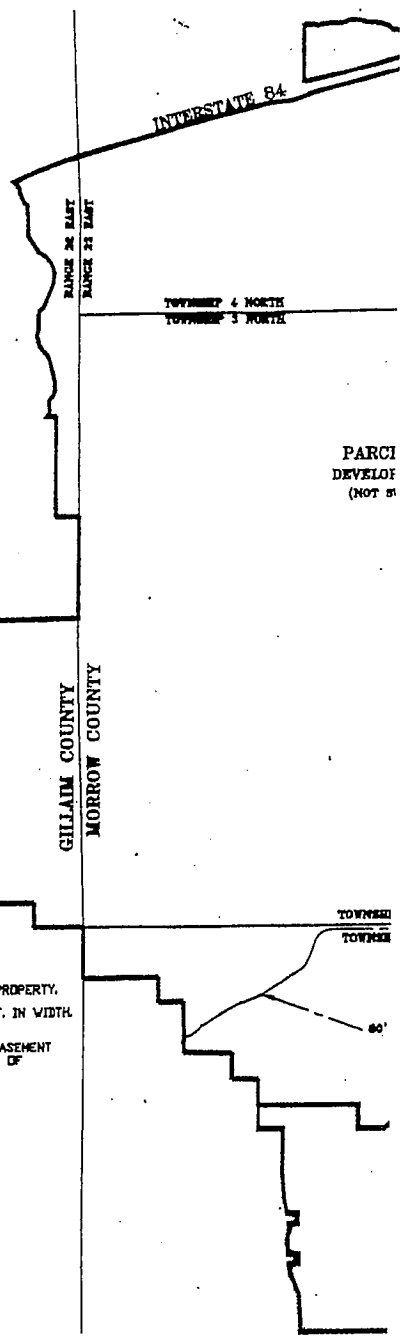
A PORTION OF PARCEL 3, PARTITION PLAT 2001-06  
 LOCATED IN PORTIONS OF TOWNSHIPS 2 & 3 & 4 NORTH  
 RANGES 22, 23 & 24 EAST OF THE WILLAMETTE MERIDIAN  
 MORROW COUNTY AND GILLIAM COUNTY, OREGON  
 (LEGAL DESCRIPTIONS ON SHEET 4 OF 5 AND 5 OF 5)  
 (APPROVALS ON SHEET 5 OF 5)



## NOTES & LEGEND:

1. ALL BEARINGS AND DISTANCES SHOWN HEREON ARE 'GRID' VALUES, OREGON COORDINATE SYSTEM, (NORTH ZONE), NORTH AMERICAN DATUM OF 1983/91 (NAD83/91). THE HORIZONTAL CONTROL FOR THIS SURVEY WAS ESTABLISHED FROM NGS TRI-STATION 'CASTLE' AND 'WILLOW' USING GPS MEASUREMENTS. A COMBINED FACTOR OF 1.000067168 MUST BE APPLIED TO ALL DISTANCES TO CONVERT TO 'TRUE DISTANCES'.
2. ○ = DENOTES SET 5/8"x24" REBAR WITH YELLOW PLASTIC CAP STAMPED 'RSI-GW 02817LS'.
3. ● = DENOTES FOUND 5/8"x24" REBAR STAMPED 'GSI'-(GOLLADAY)
4. THIS SURVEY WAS PERFORMED USING TRIMBLE 4000SSI GPS RECEIVERS OPERATING IN THE REAL TIME KINEMATIC (RTK) MODE.
5. ⚡ = DENOTES CORNER NOT FOUND, COMPUTED POSITION ONLY.
6. THIS PARTITION DOES NOT PURPORT TO SHOW ALL EXISTING EASEMENTS WHICH MAY AFFECT THIS PROPERTY.
7. AT APPROX. 1000 FT. BACK FROM THE END OF THIS DESCRIPTION, RIGHT OF WAY NEEDS TO BE 100 FT. IN WIDTH (50 FT. EACH SIDE OF CENTERLINE)
8. THE 40.00 FOOT EMERGENCY ACCESS EASEMENT IS A PERPETUAL, NON-EXCLUSIVE PRIVATE ACCESS EASEMENT FOR THE BENEFIT OF PARCEL 1, AND MAY BE USED FOR EMERGENCY PURPOSES ONLY BY THE OWNERS OF PARCEL 1 AND AUTHORIZED EMERGENCY SERVICE PERSONNEL, AND FOR NO OTHER USE.
9. TAGGAREE LANE IS A PRIVATE ACCESS EASEMENT FOR THE BENEFIT OF PARCEL 1 AND PARCEL 2 OF PARTITION PLAT 2001-6, AS SET FORTH IN PARTITION PLAT 2001-6. TAGGAREE LANE IS NOT A PUBLIC ROAD. (RESTRICTIVE COVENANT RECORDED IN MICROFILM # 2001-1306)
10. END OF TOWER ROAD DEDICATED RIGHT OF WAY AS SHOWN ON PARTITION PLAT 2001-06.
11. STATE HIGHWAY 74 CONNECTS TOWER ROAD EXTENSION BY QUIT CLAIM DEED NO. M-2002-4882

- ⊕ = DENOTES CORNER NOT FOUND, HED FEIKE CORNER UNLESS OTHERWISE NOTED
- = DENOTES FOUND 2-1/2" GLD BRASS CAP PER 1939 DEPENDENT RESURVEY BY OTIS GOULD
- ⊕ = DENOTES FOUND 2-1/2" GLD BRASS CAP PER 1939 DEPENDENT RESURVEY BY OTIS GOULD
- = HEAVY SOLID LINES INDICATE PARTITION PLAT BOUNDARY
- - - x - - - = DASHED LINES WITH 'X' INDICATE EXISTING FENCE LINES
- - - - - = LIGHTLY DASHED LINES INDICATE UNSURVEYED LINES
- - - - - = DASHED LINES INDICATE SURVEYED AND/OR CALCULATED LINES
- ////// = HATCHED AREAS, NOT PART OF THIS PLAT, PORTLAND GENERAL ELECTRIC. SEE DEED FROM STATE OF OREGON TO PAGE RECORDED IN MICROFILM #4457 & PARCELS 1 & 2 OF PARTITION PLAT NO. 2001-06.

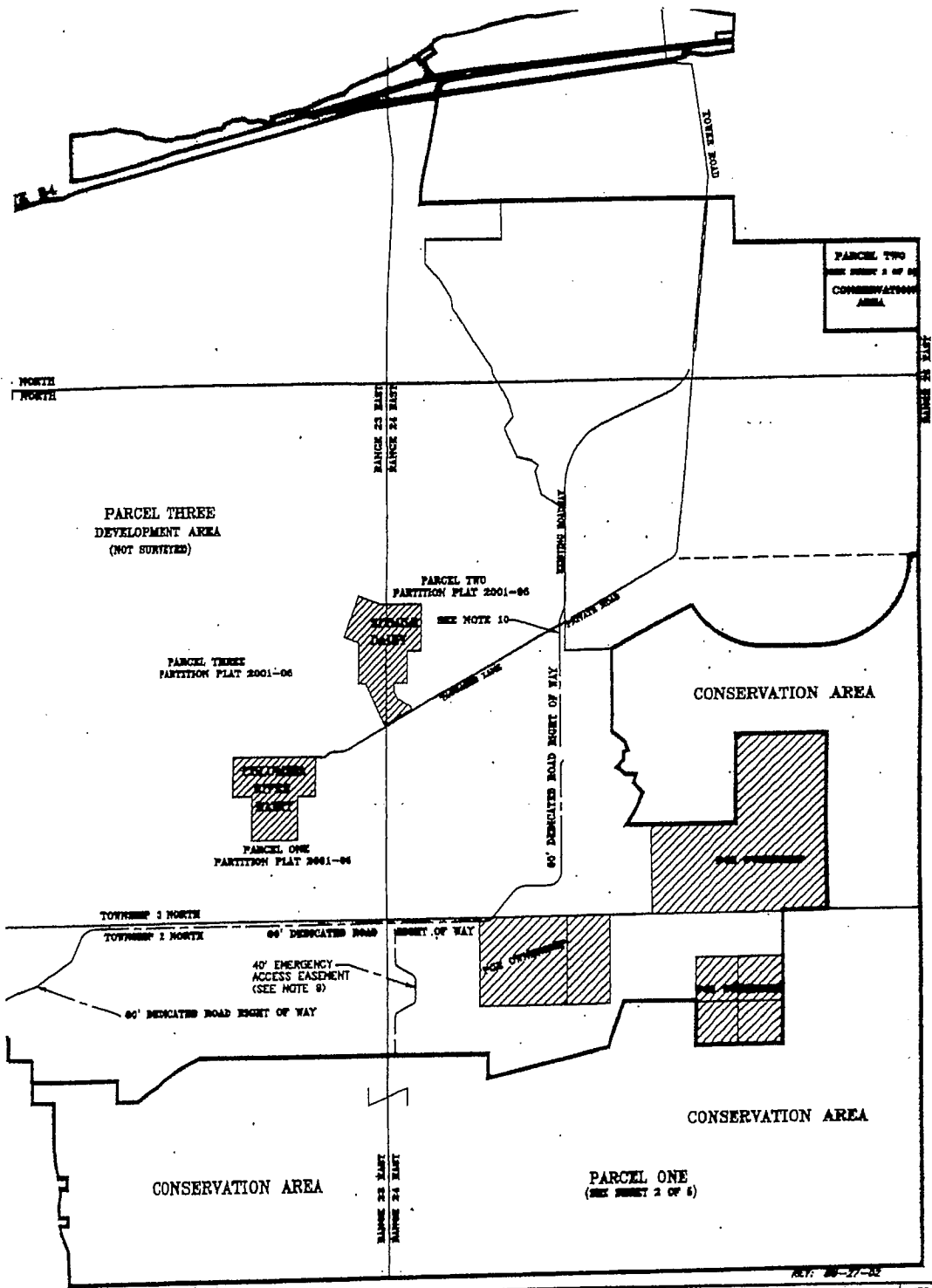


PARCEL  
 DEVELOP  
 (NOT SH)

GILLIAM COUNTY  
 MORROW COUNTY

TOWNSHIP  
 TOWNSHIP

60'

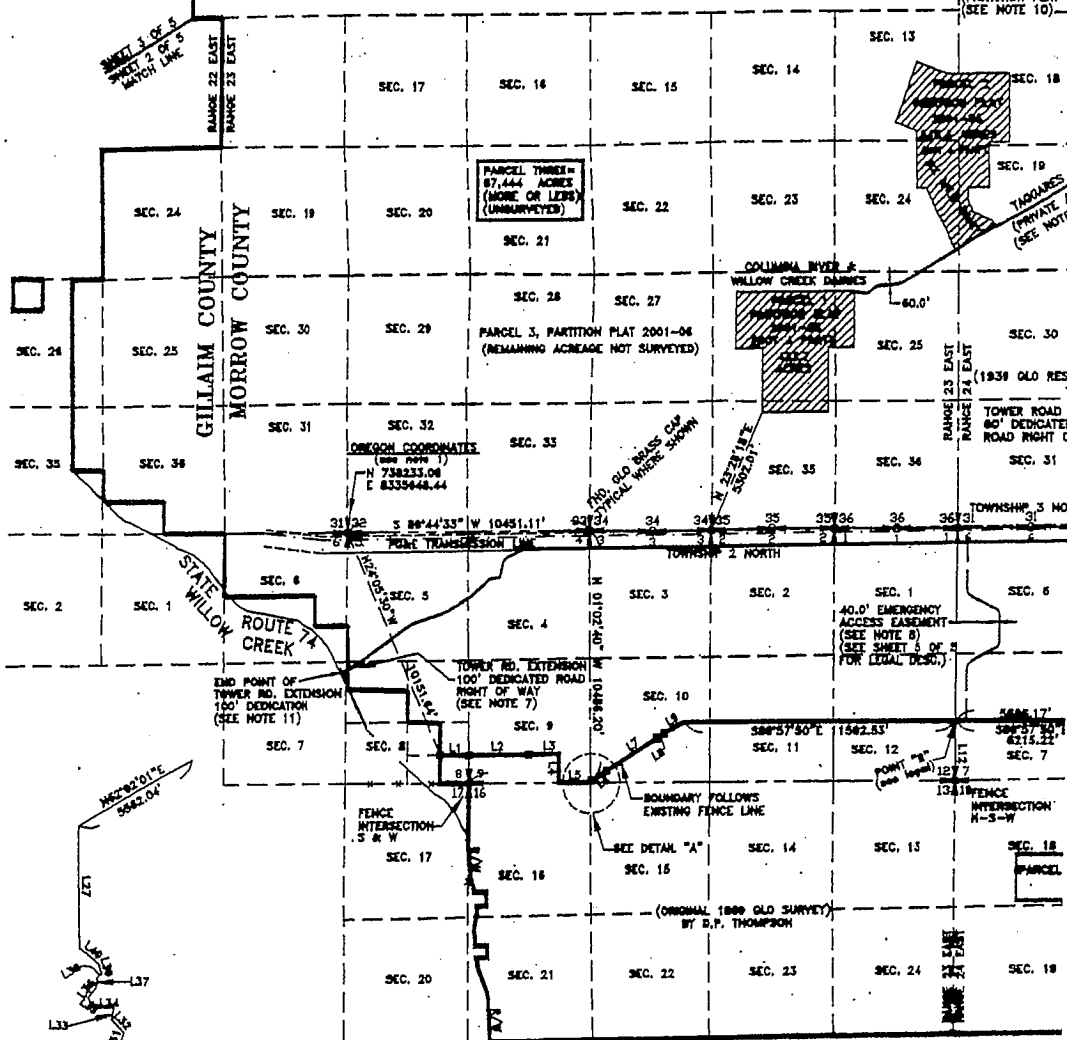
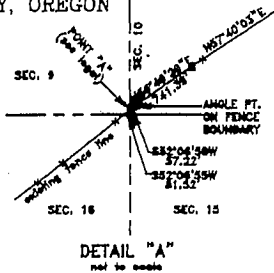
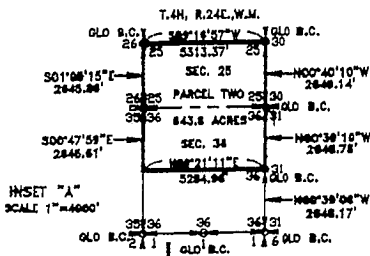


**RSA ROGERS SURVEYING INC.**  
 803 COLUMBIA PARK TRAIL  
 ROWLAND, WA. 98962  
 PHONE (509) 827-5658  
 FAX: (509) 827-2894

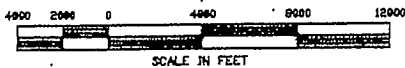
CLIENT	B.A.I.C., INC.		JOB	30801
PROJECT	PARTITION PLAT THREE MILE CANYON FARMS			
DRN.	GBV	SCALE 1" = 5000'	F. S. NO.	NONE
APPROVED	GBV	DATE 06/07/02	VERSION	ACAD14
			FILE	30801-sht2
			SHEET	OF 5

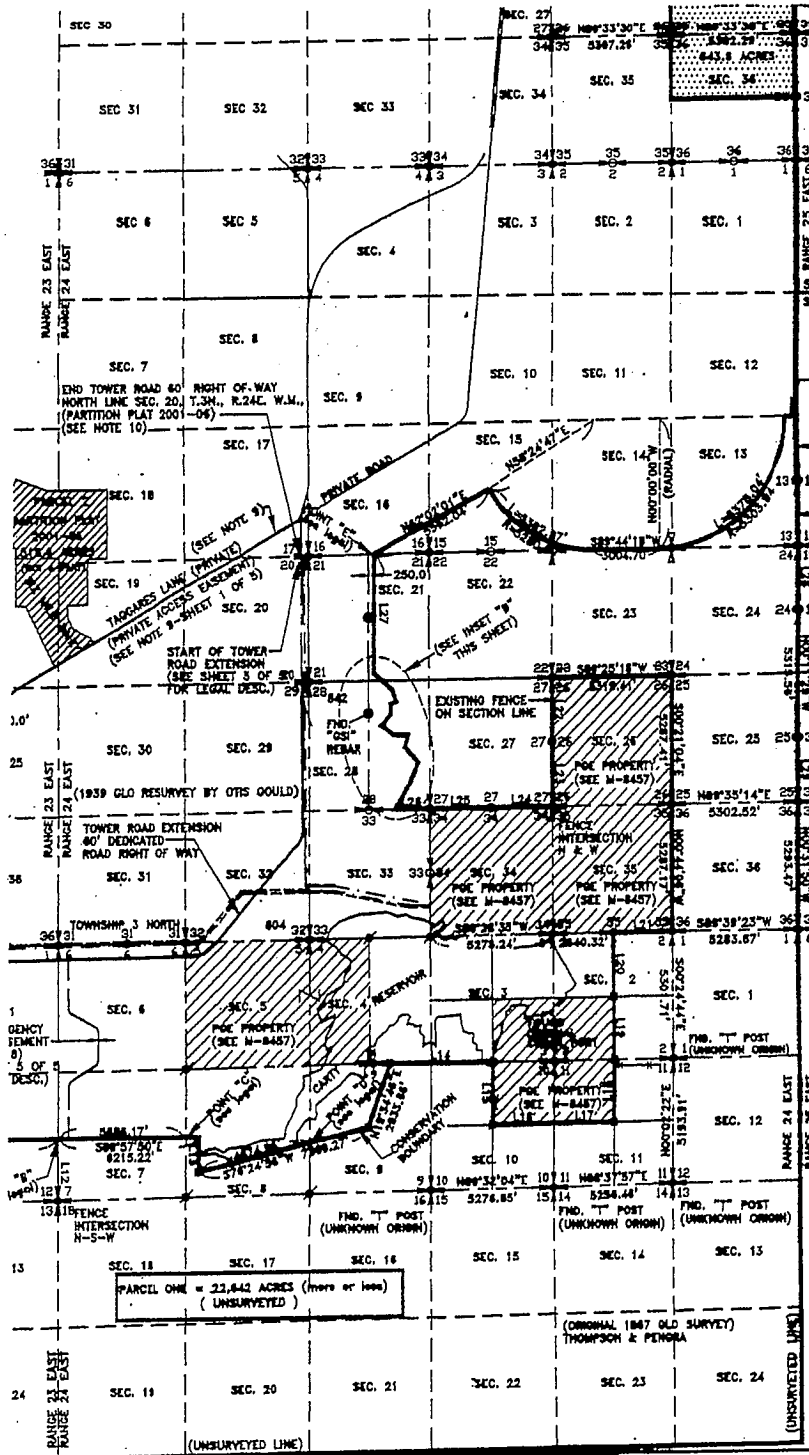
# PARTITION PLAT 2002-6

A PORTION OF PARCEL 3, PARTITION PLAT 2001-06  
 LOCATED IN PORTIONS OF TOWNSHIPS 2 & 3 & 4 NORTH  
 RANGES 22, 23 & 24 EAST OF THE WILLAMETTE MERIDIAN  
 MORROW COUNTY AND GILLIAM COUNTY, OREGON



**INSET "B"**  
 SCALE 1"=4000'





NOTE:  
HATCHED AREAS ARE NOT A PART OF THIS PARTITION PLAT.

LINE	DIRECTION	DIFFERENCE
L1	N89°45'20\"	1248.13
L2	N89°21'38\"	2088.97
L3	N89°21'38\"	1388.88
L4	S00°21'38\"	1234.88
L5	S00°21'38\"	1388.88
L6	N89°45'20\"	741.38
L7	N87°48'38\"	2088.70
L8	N87°20'14\"	377.88
L9	N87°41'12\"	977.82
L10	N00°01'57\"	3088.88
L11	N87°11'38\"	1488.88
L12	N87°41'12\"	488.87
L13	S00°21'38\"	3088.72
L14	N87°41'12\"	3088.73
L15	N87°11'38\"	3088.13
L16	N87°41'12\"	3088.14
L17	N87°11'38\"	3088.24
L18	N87°41'12\"	3088.24
L19	N87°11'38\"	3088.24
L20	N87°41'12\"	3088.24
L21	N87°11'38\"	3088.24
L22	N87°41'12\"	3088.24
L23	N87°11'38\"	3088.24
L24	N87°41'12\"	3088.24
L25	N87°11'38\"	3088.24
L26	N87°41'12\"	3088.24
L27	N87°11'38\"	3088.24
L28	N87°41'12\"	3088.24
L29	N87°11'38\"	3088.24
L30	N87°41'12\"	3088.24
L31	N87°11'38\"	3088.24
L32	N87°41'12\"	3088.24
L33	N87°11'38\"	3088.24
L34	N87°41'12\"	3088.24
L35	N87°11'38\"	3088.24
L36	N87°41'12\"	3088.24
L37	N87°11'38\"	3088.24
L38	N87°41'12\"	3088.24
L39	N87°11'38\"	3088.24
L40	N87°41'12\"	3088.24

06-27-02

**RSI** ROGERS SURVEYING INC.  
805 COLUMBIA PARK TRAIL  
RICHMOND, VA 23262  
PHONE (800) 827-6868  
FAX: (800) 827-2984

CLIENT	B.A.I.C., INC.		JOB	39801
PROJECT	PARTITION PLAT THREE MILE CANYON FARMS			
BY	GNW	SCALE	1" = 4000'	F. B. NO. HOME
APPROVED	GNW	DATE	06/07/02	VERSION - A04D14
				FILE: 39801-PP
				SHEET 2 OF 5





# PARTITION PLAT 2002-6

A PORTION OF PARCEL 3, PARTITION PLAT 2001-06  
 LOCATED IN PORTIONS OF TOWNSHIPS 2 & 3 & 4 NORTH  
 RANGES 22, 23 & 24 EAST OF THE WILLAMETTE MERIDIAN  
 MORROW COUNTY AND GILLIAM COUNTY, OREGON

EAST OF THE WILLAMETTE  
 MERIDIAN AS FOLLOWS:

1 THE SOUTHWEST 1/4 OF THE  
 THE SOUTHWEST 1/4 OF SECTION  
 10 OF TOWNSHIP 2 NORTH AND ALL  
 1/4 OF THE SOUTHWEST QUARTER  
 OF SECTION 14, TOWNSHIP 3  
 NORTH AND ALL 1/4 OF SECTION 14,  
 TOWNSHIP 4 NORTH, BEING CAP  
 11.11 FEET FROM THE  
 THENCE 00°12'40"E, 10446.2  
 1 AN BOUNDARY LINE AND  
 HEREFTER REFERRED TO A POINT  
 LESS TO THE SOUTH LINE OF

11 AND 12 OF SAID TOWNSHIP 2  
 BEING DESCRIBED AS FOLLOWS:  
 BEING AN EXISTING FENCE LINE  
 0°04'20"E, 741.36 FEET; N  
 1 N 82°41'12"E, 433.89; THENCE  
 0°05'57"30"E, 11,592.53 FEET  
 THE TERMINUS OF SAID LINE, SAID  
 BEARS  
 WHEN OF SAID SECTION 12

THE WESTERLY OF STATE HIGHWAY  
 10 OF SECTION 16 DESCRIBED  
 BOUNDARY LINE OF THE RIGHT OF  
 3, 400 FEET NORTH AND 400 FEET  
 THENCE EAST 400 FEET; THENCE  
 7 LINE OF SAID HIGHWAY NO. 74;  
 Y TO THE POINT OF BEGINNING.  
 1/4 OF STATE HIGHWAY NO. 74  
 SECTION 21 DESCRIBED AS  
 1/4 LINE OF THE RIGHT OF WAY  
 100 FEET SOUTH AND 300 FEET  
 THENCE EAST 300 FEET;  
 BOUNDARY LINE OF SAID HIGHWAY  
 1 THE POINT OF BEGINNING.

EAST OF THE WILLAMETTE  
 MERIDIAN AS FOLLOWS:

10, 21, 22, 23 AND 24 AND  
 THE NORTHWEST QUARTER  
 EAST QUARTER THEREOF AND  
 THEREOF OF THE FOLLOWING

1 LINE OF SECTION 7,  
 1012, 5686.17 FEET, MORE OR  
 TERMINUS OF SAID LINE, SAID

NORTHERLY, WESTERLY AND  
 BEGINNING AT POINT "C"  
 10°05'57"30"E, 528.05  
 7°0' 24'58"E, 4874.85 FEET,  
 0 THE TERMINUS OF SAID  
 POINT "D".

SOUTHEASTERLY OF THE  
 FOREMENTIONED, THENCE  
 2833.64 FEET, MORE OR LESS,  
 1/4 OF SAID LINE.

OF THE WILLAMETTE MERIDIAN  
 FOLLOWS:

7 PORTION OF SECTIONS 21

ON 28 WITNESSED BY A  
 39°27'03"W, 1486.38 FEET TO  
 1294.03 FEET; THENCE N  
 5 FEET; THENCE N 15°32'15"E,

1.48 FEET; THENCE N  
 1 FEET; THENCE N 62°07'27"E,

14.50 FEET; THENCE N  
 WITH LINE OF SECTION 21  
 HEREFTER REFERRED TO AS

SAID TOWNSHIP 3 NORTH,  
 10 DESCRIBED LINE; BEGINNING  
 2442.38 FEET, MORE OR  
 TERMINUS OF SAID LINE.

NO 15, TOWNSHIP 3 NORTH  
 7 OF THE FOLLOWING

WITH 82°02' 01 " EAST, A  
 ON 15 AND THE TRUE POINT  
 82° 02' 01" EAST, A  
 A 1 MILE RADIUS CURVE TO  
 57 FROM THE CENTER POINT  
 FEET EAST OF THE CORNER  
 OF SAID CURVE.  
 10; THENCE NORTH 89° 44'  
 11 THE BEGINNING OF A ONE  
 SOUTH 00° 06' 00" EAST  
 1/4 OF SECTION 14, 400 FEET  
 AND 141 THENCE  
 1.04 FEET, TO THE NORTH  
 A DISTANCE OF 546.31 FEET  
 TERMINUS OF THIS LINE.

## PARCEL 2

THAT PORTION OF TOWNSHIP 4 NORTH, RANGE 24 EAST OF THE WILLAMETTE MERIDIAN IN  
 MORROW COUNTY, STATE OF OREGON, DESCRIBED AS FOLLOWS:

THE SOUTH HALF OF SECTION 25 AND THE NORTH HALF OF SECTION 36,

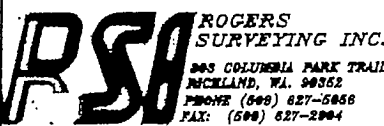
ALL BEING SUBJECT TO ROAD AND RAILROAD RIGHTS OF WAY, EXISTING EASEMENTS,  
 RESTRICTIONS AND RESERVATIONS OF RECORD.

PARCEL CONTAINS 843.8 ACRES MORE OR LESS.

## PARCEL 3

ALL THAT PORTION OF THE ENTIRE PROPERTY DESCRIBED ON THIS PARTITION PLAT NOT  
 INCLUDED IN PARCELS 1 AND 2 OF THIS PARTITION PLAT.

08-27-02

	CLIENT	B.A.I.C., INC.	JOB	30801
	PROJECT	PARTITION PLAT THREE MILE CANYON FARMS		
DATE	08/27/02	SCALE	1" = 400'	F. B. NO. NONE
APPROVED	DATE	08/27/02	VERSION	ACAD14
			FILE	34801-11
			SHEET	4
			OF	5

LEGAL DESCRIPTION  
ENTIRE PROPERTY

TOWNSHIP 2 NORTH, RANGE 23, EAST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF MORROW AND STATE OF OREGON.  
ALL OF SECTIONS 1, 2, 3, 4, 5, 10, 11, 12, 13, 14, 15, 22, 23, AND 24.  
SECTION 8: SE 1/4 NW 1/4; SE 1/2 NE 1/4; NE 1/4 SE 1/4; AND GOVERNMENT LOTS 1, 2, 3, 4, AND 5.  
SECTION 11: NE 1/4; N 1/2 NW 1/4; AND E 1/2 SE 1/4.  
SECTION 16: ALL THAT PORTION LYING EASTLY OF STATE HIGHWAY NO. 74, AS IT IS NOW SITUATED.  
EXCEPTING THEREFROM STARTING FROM A POINT ON THE EAST BOUNDARY LINE OF RIGHT OF WAY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED 400 FEET NORTH AND 400 FEET EAST OF THE SOUTHWEST CORNER OF SAID SECTION 16; THENCE EAST 400 FEET; THENCE NORTH 800 FEET; THENCE WEST TO THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF STATE HIGHWAY NO. 74; THENCE SOUTH ALONG THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF STATE HIGHWAY NO. 74 TO THE PLACE OF BEGINNING, ALL BEING IN THE SW 1/4 SW 1/4 OF SAID SECTION 16.  
SECTION 21: ALL THAT PORTION LYING EASTLY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED.  
EXCEPTING THEREFROM STARTING FROM A POINT ON THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED 1200 FEET NORTH AND 300 FEET EAST OF THE NW CORNER OF SAID SECTION 21; THENCE EAST 300 FEET; THENCE SOUTH 800 FEET; THENCE WEST TO THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF SAID STATE HIGHWAY NO. 74; THENCE NORTH ALONG SAID EAST BOUNDARY LINE TO THE PLACE OF BEGINNING, ALL BEING LOCATED IN THE W 1/2 NW 1/4 OF SAID SECTION 21.  
TOWNSHIP 3 NORTH, RANGE 23, EAST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF MORROW AND STATE OF OREGON.  
ALL OF FRACTIONAL SECTIONS 13, 14, 22, 23, AND THE E 1/2 AND E 1/2 W 1/2 OF FRACTIONAL SECTION 21, AND ALL OF SECTION 24, EXCEPT THE RELOCATED RIGHTS OF WAY FOR OREGON-WASHINGTON RAILWAY AND NAVIGATION COMPANY (UNION PACIFIC RAILROAD) AND FOR RELOCATED UNITED STATES HIGHWAY NO. 30, ALL OF THAT PORTION OF SECTIONS 20, 30 AND THE W 1/2 W 1/2 OF SECTION 21 LYING SOUTHERLY OF THE RIGHT OF WAY FOR RELOCATED UNITED STATES HIGHWAY NO. 30.  
ALL OF FRACTIONAL SECTION 15.  
ALL OF SECTIONS 25, 26, 27, 28, 29, 31, 33, 34, 38, AND 39.  
TOWNSHIP 2 NORTH, RANGE 24, EAST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF MORROW AND STATE OF OREGON.  
ALL OF SECTIONS 1 THROUGH 24, INCLUSIVE.  
TOWNSHIP 3 NORTH, RANGE 24, EAST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF MORROW AND STATE OF OREGON.  
ALL OF SECTIONS 1 THROUGH 38, INCLUSIVE.  
TOWNSHIP 4 NORTH, RANGE 24, EAST OF THE WILLAMETTE MERIDIAN, IN THE COUNTY OF MORROW AND STATE OF OREGON.  
ALL OF FRACTIONAL SECTIONS 7, 8, 9, AND 10.  
ALL OF FRACTIONAL SECTIONS 15, 16, 17, AND 18, EXCEPT THE RELOCATED RIGHTS OF WAY FOR OREGON-WASHINGTON RAILWAY AND NAVIGATION COMPANY (UNION PACIFIC RAILROAD) AND FOR RELOCATED UNITED STATES HIGHWAY NO. 30.  
ALL OF SECTIONS 19, 20, 21, 22, 27, 28, 29, 30, 31, 32, 33, 34, 38, AND 39, 1/2 OF SECTION 25 AND 5 1/2 OF SECTION 26.  
EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO THE UNITED STATES OF AMERICA IN DEED RECORDED JULY 25, 1970, AS MICROFILM NO.M-2988 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO THE STATE OF OREGON, BY AND THROUGH ITS STATE HIGHWAY COMMISSION IN DEED RECORDED MARCH 20, 1964 IN BOOK 70, PAGE 384, MORROW COUNTY DEED RECORDS.  
EXCEPTING BY DEED RECORDED JUNE 30, 1970 AS MICROFILM NO. M-2277, MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO PORTLAND GENERAL ELECTRIC COMPANY IN DEED RECORDED AS MICROFILM NO.M-8487 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO THE UNITED STATES OF AMERICA IN DEED RECORDED DECEMBER 27, 1963 AS MICROFILM NO.M-2588 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO THE UNITED STATES OF AMERICA IN DEED RECORDED MAY 6, 1972 AS MICROFILM NO.M-4709 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND CONVEYED TO THE PORT OF MORROW IN DEED RECORDED FEBRUARY 15, 1991 AS MICROFILM NO.M-38283 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM THAT TRACT OF LAND DESCRIBED IN DEED TO THE CITY OF BEND, OREGON, RECORDED JULY 14, 2000, AS MICROFILM NO.M-2000-1542 MORROW COUNTY MICROFILM RECORDS.  
ALSO EXCEPTING THEREFROM PARCEL 1 AND PARCEL 2 OF PARTITION PLAT 2001-8, RECORDED JUNE 13, 2001, RECORDS OF MORROW COUNTY, OREGON

IN GILLIAM COUNTY, OREGON

IN TOWNSHIP 3 NORTH RANGE 22 EAST OF THE WILLAMETTE MERIDIAN

SECTION 11: THAT PORTION OF THE EAST 1/2 LOCATED EASTERLY OF OLD HIGHWAY NO. 74 WHICH HIGHWAY HAS BEEN VACATED.  
12: EAST 1/2 OF THE EAST 1/2  
14: ALL  
25: ALL  
28: EAST 1/2 OF THE EAST 1/2; NORTHEAST 1/4 OF THE NORTHWEST 1/4  
38: THAT PART OF THE EAST 1/2 OF THE NORTHEAST 1/4 LYING EASTERLY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED.  
39: NORTH 1/2 SE 1/4; AND THAT PART OF THE NORTH 1/2 OF THE SOUTHWEST 1/4 LYING EASTERLY OF STATE HIGHWAY 74 AS IT IS NOW SITUATED.

IN TOWNSHIP 4 NORTH RANGE 22 EAST OF THE WILLAMETTE MERIDIAN

SECTION 23: ALL OF THAT PORTION LYING EASTLY OF STATE HIGHWAY NO. 74 AND LYING SOUTHERLY OF THE RIGHT OF WAY FOR RELOCATED U.S. HIGHWAY NO. 30.  
39: THAT PORTION OF THE E 1/2 AND THE E 1/2 NW 1/4 LYING EASTERLY OF STATE HIGHWAY NO. 74.

EXCEPT THEREFROM ANY PORTION THEREOF LYING WITHIN THE PROPERTY DESCRIBED AS TRACT 2389 IN THAT CERTAIN JUDGMENT OF THE RECLAMATION OF TAKING AND ORDER OF REVERSE POSSESSION ISSUED BY THE UNITED STATES DISTRICT COURT FOR THE DISTRICT OF OREGON ON SEPTEMBER 20, 1963 IN CIVIL CASE NO. 63-438.

PARCEL 1

ALL THAT PORTION OF TOWNSHIP 2 NORTH, RANGE 23 EAST OF THE WILLAMETTE MERIDIAN IN MORROW COUNTY, STATE OF OREGON, DESCRIBED AS FOLLOWS:

ALL OF SECTIONS 13, 14, 15, 16, 21, 22, 23, 24, AND THE SOUTHWEST 1/4 OF SOUTHWEST 1/4 OF SECTION 8 AND THE SOUTH HALF OF THE SOUTHWEST 1/4 OF SECTION 9 AND THE SOUTHWEST QUARTER OF THE SOUTHWEST QUARTER OF SECTION 9 AND THAT PORTION OF SAID SECTION 9 LYING SOUTHEASTERLY OF AN EXISTING FENCE DESCRIBED AS FOLLOWS: COMMENCING AT THE NORTHEAST CORNER OF SECTION 7 TOWNSHIP 2 NORTH, RANGE 23 EAST WITNESSED BY A 2-1/2" G.L.O. BRASS CAP STAMPED '1938'; SAID POINT BEARS N 89°44'33"E, 10,451.11 FEET FROM THE NORTHWEST CORNER OF SECTION 3 OF SAID TOWNSHIP; THENCE S01°02'40"E, 110 FEET ALONG THE EAST LINE OF SECTIONS 4 AND 5, TO AN EXISTING FENCE LINE THE TRUE POINT OF BEGINNING; SAID POINT BEING HEREINAFTER REFERRED TO AS "A"; THENCE S 82°04'58"W, ALONG SAID FENCE, 81.5 FEET MORE OR LESS TO THE SOUTH LI SAID SECTION 9 AND THE TERMINUS OF SAID LINE.

TOGETHER WITH ALL THESE PORTIONS OF SECTIONS 10, 11 AND 12 OF SAID TOWNSHIP 2 NORTH, RANGE 23 EAST, LYING SOUTHERLY OF THE FOLLOWING DESCRIBED LINE: AT POINT "A" AFOREMENTIONED; THENCE NORTHEASTERLY ALONG AN EXISTING FENCE THE FOLLOWING COURSE: N 52°04'58"E, 87.22 FEET; N 34°49'20"E, 741.39 FEET; S7°48'02"E, 2982.79 FEET; N 58°20'14"E, 377.09 FEET; THENCE S 82°41'12"E, 433.05; LEAVING SAID FENCE N 82°41'12"E, 844.17 FEET; THENCE S 89°57'50"E, 11.59 MORE OR LESS TO THE EAST LINE OF SECTION 12; AND THE TERMINUS OF SAID POINT BEING HEREINAFTER REFERRED TO AS POINT "B" AND BEARS N 89°57'50"E, 2826.82 FEET FROM THE SOUTHWEST CORNER OF SAID SECTION 1 WITNESSED BY A 3-WAY FENCE INTERSECTION.

EXCEPTING THEREFROM THAT PORTION OF SECTION 18 LYING WESTERLY OF STATE NO. 74, AS IT IS NOW SITUATED, AND EXCEPT THAT PORTION OF SECTION 18 DE AS FOLLOWS: BEGINNING AT A POINT ON THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED, 400 FEET NORTH AND EAST OF THE SOUTHWEST CORNER OF SAID SECTION 18; THENCE EAST 400 FEET NORTH 800 FEET; THENCE WEST TO THE EAST BOUNDARY LINE OF SAID HIGHWAY THENCE SOUTHERLY ALONG SAID EASTERN RIGHT OF WAY TO THE POINT OF BEGINNING AND EXCEPT THAT PORTION OF SECTION 21 LYING WESTERLY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED; AND EXCEPT THAT PORTION OF SECTION 21 DESCRIBED FOLLOWS: BEGINNING AT A POINT ON THE EAST BOUNDARY LINE OF THE RIGHT OF WAY OF STATE HIGHWAY NO. 74 AS IT IS NOW SITUATED, 1200 FEET SOUTH AND 300 FEET EAST OF THE NORTHWEST CORNER OF SAID SECTION 21; THENCE EAST 500 FEET THENCE SOUTH 800 FEET; THENCE WEST TO THE EAST BOUNDARY LINE OF SAID NO. 74; THENCE NORTH ALONG SAID EAST BOUNDARY TO THE POINT OF BEGINNING

ALL THAT PORTION OF TOWNSHIP 2 NORTH, RANGE 24 EAST OF THE WILLAMETTE MERIDIAN IN MORROW COUNTY, STATE OF OREGON, DESCRIBED AS FOLLOWS:

ALL OF SECTIONS 1, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23 AND 24 THE EAST HALF OF SECTION 2. ALL OF SECTION 11 EXCEPT THE NORTHWEST QUARTER THEREOF; AND ALL OF SECTION 10 EXCEPT THE NORTHEAST QUARTER THEREOF; A TOGETHER WITH THAT PORTION OF SECTION 7 LYING SOUTHERLY OF THE FOLLOWING DESCRIBED LINE:

BEGINNING AT POINT "B" AFOREMENTIONED ON THE WEST LINE OF SECTION 7, TOWNSHIP 2 NORTH, RANGE 24 EAST; THENCE S 89°57'50"E, 5484.17 FEET, MORE OR LESS, TO THE EAST LINE OF SAID SECTION 7 AND THE TERMINUS OF SAID LINE POINT BEING HEREINAFTER REFERRED TO AS POINT "C".

TOGETHER WITH THAT PORTION OF SECTION 8 LYING SOUTHERLY, WESTERLY AND SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE: BEGINNING AT POINT "C" AFOREMENTIONED ON THE WEST LINE OF SECTION 8; THENCE S 89°57'50"E, 529. FEET; THENCE S 60°11'52"E, 1442.04 FEET; THENCE N 7° 24'58"E, 4874.85 FEET MORE OR LESS TO THE EAST LINE OF SAID SECTION AND THE TERMINUS OF SAID LINE; SAID POINT BEING HEREINAFTER REFERRED TO AS POINT "D".

TOGETHER WITH ALL THAT PORTION OF SECTION 9 LYING SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE: BEGINNING AT POINT "D" AFOREMENTIONED; THENCE N 7° 24'58"E, 2834.32 FEET; THENCE N 19°34'48"E, 2833.86 FEET, MORE OR TO THE NORTH LINE OF SAID SECTION 9 AND THE TERMINUS OF SAID LINE.

THAT PORTION OF TOWNSHIP 3 NORTH, RANGE 24 EAST OF THE WILLAMETTE MERIDIAN IN MORROW COUNTY, STATE OF OREGON, DESCRIBED AS FOLLOWS:

ALL OF SECTIONS 22, 23, 24, 25, 27, 34 AND ALL THAT PORTION OF SECTIONS AND 28 LYING EASTERLY OF THE FOLLOWING DESCRIBED LINE:

COMMENCING AT THE SOUTHWEST CORNER OF SAID SECTION 28 WITNESSED BY A 2-1/2" G.L.O. BRASS CAP STAMPED '1938'; THENCE S 89°27'03"W, 1488.38 FEET THE TRUE POINT OF BEGINNING; THENCE N 30°27'45"E, 1296.02 FEET; THENCE N 21°38'44"E, 871.87 FEET; THENCE N 42°32'11"W, 837.85 FEET; THENCE N 19°33'40.90 FEET; THENCE N 87°34'58"W, 618.46 FEET; THENCE N 82°38'56"W, 861.48 FEET; THENCE N 39°48'52"E, 802.95 FEET; THENCE N 61°44'14"E, 424.63 FEET; THENCE N 82°07'247.58; THENCE N 17°27'44"W, 471.91 FEET; THENCE N 49°34'58"W, 1674.30 FEET; THENCE N 00°50'28"W, 4870.80 FEET, MORE OR LESS, TO THE NORTH LINE OF SECTION 2 AND THE TERMINUS OF SAID LINE. SAID POINT BEING HEREINAFTER REFERRED TO AS POINT "E".

TOGETHER WITH ALL THAT PORTION OF SECTION 18 OF SAID TOWNSHIP 3 NORTH, RANGE 24 EAST LYING SOUTHEASTERLY OF THE FOLLOWING DESCRIBED LINE: BEGIN AT POINT "E" AFOREMENTIONED; THENCE N 61°26'11"E, 2862.36 FEET, MORE OR LESS, TO THE EAST LINE OF SAID SECTION 18 AND THE TERMINUS OF SAID LINE.

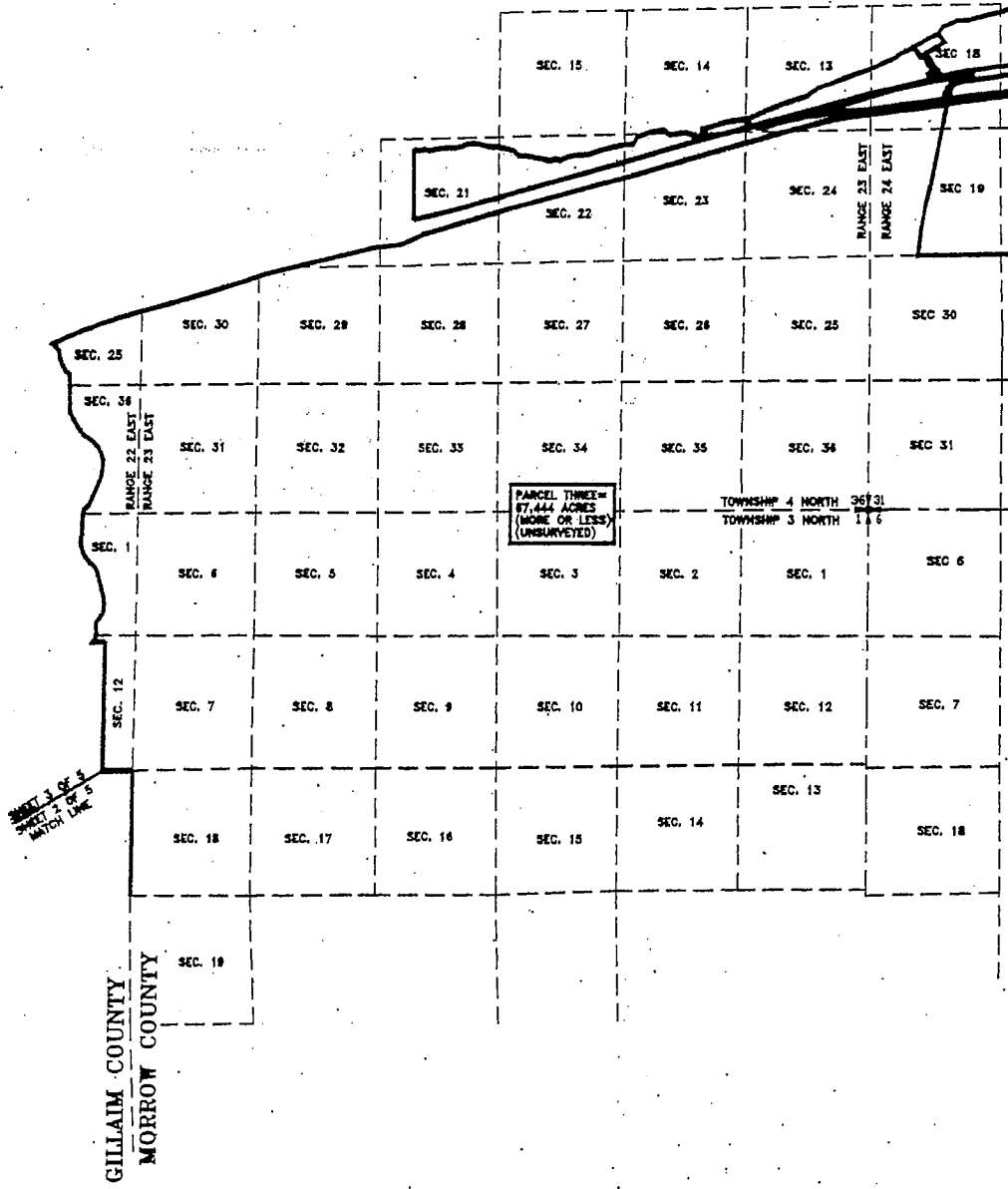
TOGETHER WITH THOSE PORTIONS OF SECTIONS 13, 14 AND 15, TOWNSHIP 3 NORTH, RANGE 24 EAST, WILLAMETTE MERIDIAN, LYING SOUTHERLY OF THE FOLLOWING DESCRIBED LINE:

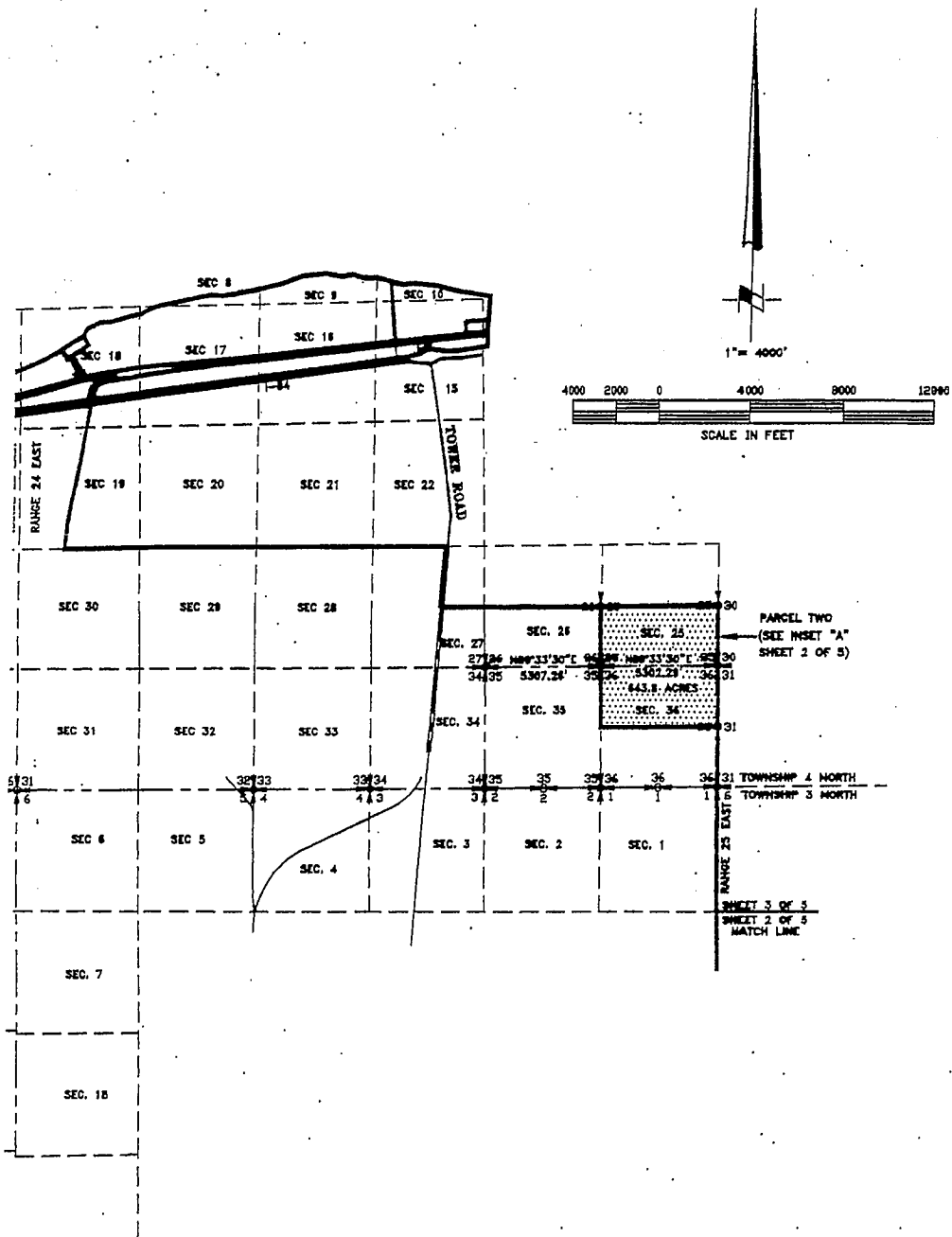
COMMENCING AT POINT "E" AFOREMENTIONED; THENCE NORTH 62°52' 01 " EAST, A DISTANCE OF 2862.36 FEET TO THE WEST LINE OF SECTION 18 AND THE TRUE P OF BEGINNING OF THIS LINE; THENCE CONTINUING NORTH BY BE 91" EAST, A DISTANCE OF 2879.88 FEET TO A POINT ON THE ARC OF A 1 MILE RADIUS CURVE THE LEFT, SAID POINT BEARING SOUTH BY 24' 47" EAST FROM THE CORNER N WHICH LIES ON THE NORTH LINE OF SECTION 14, 1000 FEET ONE OF THE CORN CORNER OF SECTIONS 13, 14 AND 15; THENCE ALONG SAID CURVE, SOUTHWESTERLY, A DISTANCE OF 2862.36 FEET TO A POINT; THENCE NORTH 89° 18" EAST A DISTANCE OF 2862.79 FEET, TO A POINT. AT THE BEGINNING OF A MILE RADIUS CURVE TO THE LEFT, SAID POINT BEARING SOUTH BY 24' 47" EAST FROM THE CORNER POINT WHICH LIES ON THE NORTH LINE OF SECTION 14, 400 FEET WEST OF THE CORNER BEARING TO BEARING 111°12'12" EAST FROM THE NORTH LINE OF SECTION 14; THENCE NORTH BY 21' 47" EAST, A DISTANCE OF 2862.36 FEET, TO THE NORTH CORNER OF SECTION 15 AND THE TERMINUS OF THIS LINE.

PARCEL CONTAINS 22.842 ACRES MORE OR LESS.

# PARTITION PLAT 2002-6

A PORTION OF PARCEL 3, PARTITION PLAT 2001-06  
 LOCATED IN PORTIONS OF TOWNSHIPS 2 & 3 & 4 NORTH  
 RANGES 22, 23 & 24 EAST OF THE WILLAMETTE MERIDIAN  
 MORROW COUNTY AND GILLIAM COUNTY, OREGON





REV: 08-27-02

**RSA** ROGERS SURVEYING INC.  
 803 COLUMBIA PARK TRAIL  
 RICHLAND, WA 99352  
 PHONE (509) 827-5868  
 FAX: (509) 827-2894

CLIENT		B.A.I.C., INC.		JOB 39801	
PROJECT		PARTITION PLAT THREE MILE CANYON FARMS			
DRN. BY	QBW	SCALE	1" = 4000'	F. S. NO.	NONE
APPROVED	new	DATE	08-18-02	VERSION	-ACAD14
				SHEET 3	OF 5

# PARTITION PLAT 2002-6

A PORTION OF PARCEL 3, PARTITION PLAT 2001-06  
 LOCATED IN PORTIONS OF TOWNSHIPS 2 & 3 & 4 NORTH  
 RANGES 22, 23 & 24 EAST OF THE WILLAMETTE MERIDIAN  
 MORROW COUNTY AND GILLIAM COUNTY, OREGON

**E:**

DECEMBER, 2000 AT THE REQUEST OF R.D. OFFUTT-

TO SEGREGATE TWO PARCELS FOR CONSERVATION  
 ITTY, AND TO PROVIDE AN OVERALL MAP FOR THE  
 FROM THE STATE OF OREGON TO R.D. OFFUTT.

SURVEY IS THE OREGON COORDINATE SYSTEM,  
 THE SURVEY WAS PERFORMED WITH A 2 MAN SURVEY  
 L. FREQUENCY OPS RECEIVERS, FAST STATIC AND RTK  
 BLISH PROJECT CONTROL, AND POSITIONS OF G.I.D.  
 HTAL CONTROL WAS ESTABLISHED FROM NATIONAL  
 "L" AND "WILLOW".

E BORDERING THE EXISTING CULTIVATED FIELDS WAS  
 0 FEET WITH 2"x2"x12" WOOD HUMS MARKED WITH A  
 ITS ALONG THE BOUNDARY WERE STAKED WITH  
 W/ PLASTIC CAPS STAMPED LS02817. THE SECTION  
 NES AROUND P.O.I. OWNERSHIP IN SECTIONS 34, 35  
 RANGE 24 EAST ARE FENCED AND THUS WERE NOT

**OWNER'S DECLARATION**

WE, THE OWNERS OF THE REAL PROPERTY SHOWN ON THIS PARTITION PLAT, DO STATE THAT WE  
 HAVE CAUSED THIS PARTITION PLAT TO BE PREPARED IN ACCORDANCE WITH ORS CHAPTER 32.  
 WE HEREBY DEDICATE TO THE PUBLIC, THE TOWER ROAD EXTENSION AS SHOWN HEREON.

James G. Wainwright  
 AUTHORIZED REPRESENTATIVE:  
 STATE OF OREGON, DEPT. OF GENERAL SERVICES



**ACKNOWLEDGMENT**

STATE OF OREGON } S.S.  
 COUNTY OF Morrow

THIS IS TO CERTIFY THAT ON THIS 28<sup>th</sup> DAY OF August, 2002, PERSONALLY APPEARED BEFORE  
 ME, Pamela Branson, AUTHORIZED REPRESENTATIVE, STATE OF OREGON, DEPT.  
 OF GENERAL SERVICES, TO ME KNOWN TO BE THE INDIVIDUALS IN AND WHO EXECUTED THE FOREGOING  
 "OWNER'S DECLARATION", AND ACKNOWLEDGED TO ME THAT THEY SIGNED THE SAME AS THEIR  
 VOLUNTARY ACT AND DEED, IN WITNESS WHEREOF, I HAVE SET MY HAND AND OFFICIAL SEAL, THE DAY  
 AND YEAR FIRST ABOVE WRITTEN.

Pamela Branson  
 NOTARY PUBLIC IN AND FOR THE STATE OF OREGON  
 RESIDING AT Salem, Oregon  
 MY COMMISSION EXPIRES: 3-11-05

**APPROVALS**

[Signature] Aug 23, 2002  
 MORROW COUNTY SHERIFF DATE

[Signature] 9-2-02  
 MORROW COUNTY ASSESSOR DATE

[Signature] 9-03-02  
 MORROW COUNTY PLANNING DIRECTOR DATE

I HEREBY CERTIFY THAT ALL TAXES AND ASSESSMENTS AGAINST THE LAND DESCRIBED HEREON  
 HAVE BEEN PAID IN FULL THIS 2 DAY OF September, 2002 A.D.  
 AT 10:00 O'CLOCK A. AND RECORDED AS FILE NO. \_\_\_\_\_

[Signature] 9-2-02  
 MORROW COUNTY TAX COLLECTOR DATE

STATE OF OREGON } S.S.  
 COUNTY OF MORROW

I HEREBY CERTIFY THAT THE WITHIN INSTRUMENT WAS RECEIVED AND FILED FOR RECORD ON  
 THE 3 DAY OF Sept, 2002 A.D. AT 10:50 O'CLOCK A. M.  
 AND RECORDED AS FILE NO. 2002-5337.

Barbara Bloodworth  
 MORROW COUNTY CLERK

[Signature]  
 DEPUTY



EVERYOR IN THE STATE OF OREGON  
 DIRECTLY REPRESENTS A SURVEY  
 DRAUGHT AUGUST 2002, AND FURTHER  
 RECORDED AND MONUMENTED AS REQUIRED  
 BY, IN CONFORMANCE WITH THE  
 LAWS, AS ESTABLISHED BY ORS

D  
 HAL  
 YOR  
 \_\_\_\_\_  
 GNER  
 3/04  
 AS RECORDED

**PSA** ROGERS SURVEYING INC.  
 883 COLUMBIA PARK TRAIL  
 RICHLAND, WA. 98362  
 PHONE (509) 827-6868  
 FAX: (509) 827-2884

CLIENT	B.A.I.C., INC.	JOB	30801
PROJECT	PARTITION PLAT THREE MILE CANYON FARMS		
DRN. B.	GNW	SCALE 1"= 4000'	F. B. NO. HOME
APPROVED	GNW	DATE 06/07/02.	VERSION - AGAD14 REV: 30801-PP
			SHEET 3 OF 5

08-27-02



**LEGAL DESCRIPTION**  
**OWNER ROAD EXTENSION**

1 STRIP OF LAND SIXTY FEET WIDE, LYING THIRTY FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

COMMENCING AT THE CORNER OF SECTIONS 16, 17, 20, 21 IN TOWNSHIP 3 NORTH, RANGE 24 EAST, W.M., MORROW COUNTY, OREGON BEING WITNESSED BY A 1939 OLD BRASS CAP; THENCE S88°51'40"W, ALONG THE NORTH LINE OF SAID SECTION 20, 327.37 FEET AND THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE S00°50'07"E, 8259.79 FEET TO A POINT ON THE SOUTH LINE OF SAID SECTION 20; THENCE S00°50'09"E, 5077.11 FEET; THENCE S00°50'22"E, 8804.82 FEET TO A POINT OF CURVE CONCAVE TO THE NORTHWEST; THENCE S00°50'22"E, 7484.83 FEET ALONG THE ARC OF A 1,030.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 41°34'18" TO A POINT OF TANGENT; THENCE S40°39'58"W, 5888.18 FEET TO THE NORTH LINE OF SECTION 5, TOWNSHIP 2 NORTH, RANGE 24 EAST, W.M.; THENCE CONTINUING S40°39'58"W, 311.90 FEET TO A POINT OF CURVE CONCAVE TO THE NORTHWEST; THENCE SOUTHWESTERLY, 874.39 FEET ALONG THE ARC OF A 1,030.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 48°58'33" TO A POINT OF TANGENT; THENCE S89°18'18"W, 331.00 FEET TO A POINT ON THE WEST LINE OF SAID SECTION 5; SAID POINT BEARS S00°11'52"E, 582.38 FEET FROM THE NORTHWEST CORNER OF SAID SECTION 5; THENCE S89°18'01"W, PARALLEL WITH AND SIXTY FEET NORTHERLY OF THE SOUTH LINE OF THE P.E.L. TRANSMISSION LINE RIGHT OF WAY A DISTANCE OF 24,319.53 FEET; THENCE S63°40'27"W, 89.32 FEET TO SAID SOUTH RIGHT OF WAY; THENCE CONTINUING S43°40'27"W, 638.86 FEET TO A POINT OF CURVE CONCAVE TO THE SOUTHWEST; THENCE SOUTHWESTERLY 461.18 FEET ALONG THE ARC OF A 500.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 51°41'51" TO A POINT OF TANGENT; THENCE S11°58'58"W, 448.82 FEET TO A POINT OF CURVE CONCAVE TO THE NORTHWEST; THENCE SOUTHWESTERLY, 129.08 FEET ALONG THE ARC OF A 100.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 73°54'55" TO A POINT OF TANGENT; THENCE S82°58'31"W, 275.75 FEET TO A POINT OF CURVE CONCAVE TO THE SOUTHWEST; THENCE SOUTHWESTERLY 68.17 FEET ALONG THE ARC OF A 100.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 38°01'34" TO A POINT OF TANGENT; THENCE S47°54'17"W, 1,871.79 FEET; THENCE S87°44'54"W, 1,006.81 FEET TO A POINT OF CURVE CONCAVE TO THE NORTHWEST; THENCE SOUTHWESTERLY, 487.20 FEET ALONG THE ARC OF A 2,000.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 14°12'36" TO A POINT OF TANGENT; THENCE S71°57'24"W, 1,103.82 FEET TO A POINT OF CURVE CONCAVE TO THE SOUTHWEST; THENCE SOUTHWESTERLY, 478.83 FEET ALONG THE ARC OF A 1,575.00 FEET RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 17°25'08" TO A POINT OF TANGENT; THENCE S4°32'15"W, 2,581.78 FEET TO A POINT OF CURVE CONCAVE TO THE NORTHWEST; THENCE SOUTHWESTERLY, 277.41 FEET ALONG THE ARC OF A 1,800.00 FEET RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 09°54'01" TO A POINT OF TANGENT; THENCE S47°26'17"W, 282 FEET MORE OR LESS TO THE WEST LINE OF SECTION 8, SAID POINT BEING SOUTHWESTERLY ALONG THE WEST SECTION LINES OF SECTIONS 8 & 5, 5758.50 FEET FROM THE NORTHWEST CORNER OF SAID SECTION 8, T. 2 N., R. 23 E. SAID SECTION CORNER IS MARKED BY A 1939 O.L.D. BRASS CAP, TOWNSHIP 2 NORTH, RANGE 25 EAST, W.M. AND THE TERMINUS OF SAID CENTERLINE.

ALL BEARINGS AND DISTANCE HEREIN ARE "ORD" VALUES, OREGON COORDINATE SYSTEM, NORTH BEARING, NAD83/91 DATUM. TO OBTAIN TRUE DISTANCES MULTIPLY BY A CORRECTION FACTOR OF 1.000106118.

**LEGAL DESCRIPTION**  
**40 FOOT EMERGENCY ACCESS EASEMENT**

A STRIP OF LAND FORTY FEET WIDE, LYING TWENTY FEET ON EACH SIDE OF THE FOLLOWING DESCRIBED CENTERLINE:

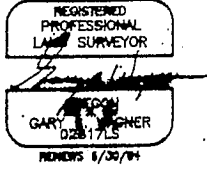
COMMENCING AT THE NORTH QUARTER CORNER OF SECTION 8, TOWNSHIP 2 NORTH, RANGE 24 EAST, W.M., MORROW COUNTY, OREGON, BEING WITNESSED BY A 1939 OLD BRASS CAP; THENCE S88°29'07" W ALONG THE NORTH LINE OF SAID SECTION 8, 3022.02 FEET TO THE NORTHWEST CORNER OF SAID SECTION 8, BEING WITNESSED BY A 1939 OLD BRASS CAP; THENCE S00°01'07" E ALONG THE WEST LINE OF SAID SECTION 8, 434.72 FEET; THENCE N89°19'01" E, 444.87 FEET TO THE TRUE POINT OF BEGINNING OF THIS DESCRIPTION; THENCE S00°21'51" E, 1836.08 FEET TO A POINT OF CURVE; THENCE ALONG A 300.00 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 89°46'48" AN ARC DISTANCE OF 315.01 FEET; THENCE S40°08'40" E, 1148.29 FEET TO A POINT OF CURVE; THENCE ALONG A 300.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 80°08'28" AN ARC DISTANCE OF 314.72 FEET; THENCE S89°08'14" E, 1124.88 FEET TO A POINT OF CURVE; THENCE ALONG A 300.00 FOOT RADIUS CURVE TO THE RIGHT THROUGH A CENTRAL ANGLE OF 57°38'10" AN ARC DISTANCE OF 312.88 FEET; THENCE S39°33'54" W, 1150.88 FEET TO A POINT OF CURVE; THENCE ALONG A 300.00 FOOT RADIUS CURVE TO THE LEFT THROUGH A CENTRAL ANGLE OF 56°38'14" AN ARC DISTANCE OF 312.33 FEET; THENCE S00°05'18" E, 2182.54 FEET AND THE TERMINUS OF SAID CENTERLINE.

**SURVEYOR'S NARRATIVE:**

THIS SURVEY WAS UNDERTAKEN IN DECEMBER, 2000 AT THE REQUEST OF THE COMPANY-NORTHWEST. THE PURPOSE OF THE SURVEY IS TO SEGREGATE TWO PARCELS AREAS FROM THE OVERALL PROPERTY, AND TO PROVIDE AN OVE CONVEYANCE OF SAID PROPERTY FROM THE STATE OF OREGON TO THE BASIS OF BEARINGS FOR THIS SURVEY IS THE OREGON COO NORTH ZONE, NAD 83/91 DATUM. THE SURVEY WAS PERFORMED BY CREW USING TRIMBLE 4000MM DUAL FREQUENCY GPS RECEIVERS. PROCEDURES WERE USED TO ESTABLISH PROJECT CONTROL AND SECTION MONUMENTS. THE HORIZONTAL CONTROL WAS ESTABLISHED GEODETIC SURVEY STATIONS "CASTLE" AND "WILLOW". THE CONSERVATION BOUNDARY LINE BORDERING THE EXISTING CI STAKED AT INTERVALS OF 300-400 FEET WITH 2"x2"x12" WOOD "STAKE CHASER". ALL ANGLE POINTS ALONG THE BOUNDARY WEL 5/8" DIA. STEEL PINS WITH YELLOW PLASTIC CAPS STAMPED LS LINES WHICH DEFINE THE BOUNDARIES AROUND P.O.E. OWNERSHIP AND 28 OF TOWNSHIP 3 NORTH, RANGE 24 EAST ARE FENCED ; STAKED AS DESCRIBED ABOVE.

**SURVEYOR'S CERTIFICATION**

I, GARY B. WAGNER, A PROFESSIONAL LAND SURVEYOR IN THE STATE OF ORE HEREBY CERTIFY THAT THE FOREGOING PLAT CORRECTLY REPRESENTS A SURVEY CONDUCTED UNDER MY DIRECT SUPERVISION THROUGH AUGUST 2000, AND I DO CERTIFY THAT ALL PARCELS HAVE BEEN SURVEYED AND DEMONSTRATED AS PER FOR LOTS WITHIN A LAND DIVISION OR PARTITION, IN CONFORMANCE WITH THE REQUIREMENTS OF THE SURVEY RECORDING LAW, AS ESTABLISHED BY ORC CHAPTER 92.



EXACT REPLICATES OF ORIGINAL AS RECORDED



**EXHIBIT L**

**PROTECTED AREAS**

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

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## L.1 INTRODUCTION

**OAR 345-022-0040(1)** *Except as provided in sections (2) and (3), the Council shall not issue a Site Certificate for a proposed facility located in the areas listed below. To issue a Site Certificate for a proposed facility located outside the areas listed below, the Council must find that, taking into account mitigation, the design, construction and operation of the facility are not likely to result in significant adverse impact to the areas listed below. References in this rule to protected areas designated under federal or state statutes or regulations are to the designations in effect as of May 11, 2007.*

**OAR 245-022-0040 (3)** *The provisions of section (1) do not apply to transmission lines or natural gas pipeline routes within 500 feet of an existing utility right-of-way containing at least one transmission line with a voltage rating of 115 kilovolts or higher or containing at least one natural gas pipeline of 8 inches or greater diameter that is operated at a pressure of 125 psig.*

Response: Figure L-1 shows the location of the Carty Generating Station in relation to protected areas. As depicted in this figure, there is one location where the Site Boundary encompasses land that is included within a protected area: the proposed transmission line component of the Carty Generating Station would pass near the Horn Butte Area of Critical Environmental Concern (ACEC)—noted as a Bureau of Land Management Area of Critical Concern. However, pursuant to Oregon Administrative Rule (OAR) 345-022-0040(3), the transmission corridor (where the Horn Butte ACEC is located) is exempt from the protected areas standard because it would be "*routed within 500 feet of an existing utility right-of-way containing at least one transmission line with a voltage rating of 115 kilovolts or higher....*" The existing transmission line is 500 kilovolts, and when a new transmission line is installed, it would be located approximately 250 feet south of the existing line.

The proposed site for the structures and buildings associated with energy generation do not fall within a protected area. The design, construction, and operation of the Carty Generating Station are not expected to significantly impact protected areas.

## L.2 SUMMARY

The analysis area for Protected Areas extends to 20 miles from the proposed Site Boundary. Within the analysis area, Portland General Electric Company (PGE) identified 11 areas that are defined as Protected Areas under OAR 345-022-0040(1). These 11 areas are the focus of the assessment provided within this exhibit and are further described in Table L-1. Note: This Oregon Administrative Rules (OAR) standard does not reflect all lands that may, under other criteria, be considered or classified as sensitive such as the Boardman Grasslands Preserve or Conservation Areas established in the vicinity of the Boardman Plant and Threemile Canyon Farms.

### L.3 MAP OF CARTY GENERATING STATION LOCATION IN RELATION TO PROTECTED AREAS

**OAR 345-021-0010 (1)(I)(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 following is a list of Protected Areas **within** the Analysis Area:

- Crow Butte State Park
- Horn Butte ACEC
- John Day River (certain sections of the River)
- Willow Creek Wildlife Area
- Boardman Research Natural Area
- Coyote Springs Wildlife Area
- Irrigon Hatchery
- Irrigon Wildlife Area
- Lindsay Prairie Preserve
- Umatilla Hatchery
- Umatilla National Wildlife Refuge

Table L-1 lists each Protected Area, its distance, and its direction from the proposed Carty Generating Station. For reference, this Table includes those Protected Areas within the region of the Carty Generating Station, but outside the Analysis Area.

**Table L-1 Distance to Protected Areas**

Protected Area *	Distance and direction from Carty Generating Station (distances are approximate)	Findings
<b>(d) National and state wildlife refuges</b>		
Cold Springs National Wildlife Refuge	31 miles, northeast	Out of Analysis Area
McNary National Wildlife Refuge	27 miles, northeast	Out of Analysis Area
Umatilla National Wildlife Refuge	8.1 miles, northeast	Discussed in this Exhibit
<b>(g) National recreation and scenic areas</b>		
Columbia River Gorge National Scenic Area	42.7 miles, west	Out of Analysis Area
<b>(h) State parks</b>		
Crow Butte State Park	8.5 miles, north	Discussed in this Exhibit
Hat Rock State Park	32.6 miles, northeast	Out of Analysis Area
JS Burres State Park	21 miles, southwest	
<b>(i) State natural heritage areas</b>		
Lindsay Prairie Preserve	10 miles, southeast	Discussed in this Exhibit
<b>(k) Scenic Waterways</b>		
John Day River (certain River sections)	14.5 miles, southwest	Discussed in this Exhibit
<b>(m) Agricultural experimental stations established by the College of Agriculture, Oregon State University, including, but not limited to:</b>		

**Table L-1 Distance to Protected Areas**

Protected Area *	Distance and direction from Carty Generating Station (distances are approximate)	Findings
Agriculture Research and Extension Center, Hermiston	25.4 miles, northeast	Out of Analysis Area
Columbia Basin Agriculture Research Center, Moro	31.6 miles, southwest	
<b>(o) Bureau of Land Management areas of critical environmental concern (ACEC), outstanding natural areas and research natural areas**</b>		
Boardman RNA (Research Natural Areas)	2 miles, east	Discussed in this Exhibit
Horn Butte ACEC	Varies: at closest proximity 540 feet south	Discussed in this Exhibit
Oregon Trail ACEC	23.2 miles, east	Out of Analysis Area
<b>(p) State wildlife areas and management areas identified in OAR chapter 635, division 8</b>		
Coyote Springs Wildlife Area	11.3 miles, northeast	Discussed in this Exhibit
Irrigon Hatchery	17.5 miles, northeast	
Irrigon Wildlife Area	19 miles, northeast	Out of Analysis Area
Power City Wildlife Area	28 miles, northeast	
Umatilla Hatchery	17.5 miles, northeast	Discussed in this Exhibit
Willow Creek Wildlife Area	4.3 miles, northwest	Discussed in this Exhibit

Notes:

\* Under OAR 345-022-0040 there are no areas meeting criteria (a) through (c), (e), (f), (j), (l), and (n) within the Analysis Area.

\*\* These are exempt under OAR 345-022-0040(3), the transmission line is not subject to the protected areas standard because it will be "routed within 500 feet of an existing utility right-of-way containing at least one transmission line with a voltage rating of 115 kilovolts or higher....."

OAR 345-021-0010 (1)(1)(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: Figure L-1 illustrates the locations of the Protected Areas within the analysis area.

#### **L.4 POTENTIAL IMPACTS**

**OAR 345-021-0010 (1)(1)(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:*

Response: The majority of the listed Protected Areas are located at least 8 miles or more from the proposed facility. The evaluation of all sites within the Analysis Area, described below, shows no significant potential impacts on the Protected Areas identified in Table L-1. Detailed impacts from noise, traffic, water use, wastewater disposal, visual impacts from facility structures and plumes, and visual impacts from air emissions are described below.

(i) *Noise resulting from facility construction or operation;*

Response: As part of the noise assessment described in Exhibit X, noise monitoring data were collected at the nearest residences to the proposed facility. As noted in Exhibit X, the assessment showed that the predicted noise level contributions of the facility would be less than 10 A-weighted decibels (dBA) at a distance of approximately 0.5 miles from the facility. Since the closest Protected Area to the facility is more than 2 miles away, noise would not have a significant potential impact on any Protected Area.

(ii) *Increased traffic resulting from facility construction or operation;*

Response: Based on the distance of the Protected Areas from the routes that would be used for the construction and operation of the facility, no significant potential impacts on protected lands are anticipated.

(iii) *Water use during facility construction or operation;*

Response: As discussed in Exhibit O, the Carty Generating Station would obtain water from the Carty Reservoir currently serving the Boardman Plant. PGE would obtain a secondary water right authorizing use of stored water from the Carty Reservoir at the Carty Generating Station. The water for the Carty Generating Station would be drawn from an existing intake structure in Carty Reservoir, located at least 2 miles from the nearest Protected Area. There would be no significant potential impact on Protected Areas.

(iv) *Wastewater disposal resulting from facility construction or operation;*

Response: Stormwater from roofs and paved areas would be routed to pervious areas to percolate into the shallow groundwater. Wastewater generated during operations would be reused in facility processes at the Carty Generating Station, or discharged to Carty Reservoir or evaporation ponds under a Water Pollution Control Facility permit and would have no significant potential impact on Protected Areas.

(v) *Visual impacts of facility structures or plumes, if any;*

Response: As discussed in Exhibit R, there are no federal, tribal, state, or county land management plans that identify any significant visual or aesthetic sites within a 10-mile radius (the required analysis area for Exhibit R, OAR 345-001-0010[57]) of the Carty Generating Station. An analysis was conducted to determine whether any scenic or aesthetic resources would be affected by the proposed facility. The most prominent visible features of the proposed facility would be the two 200-foot tall exhaust stacks. The two exhaust towers would be in high contrast to the natural flat sagebrush landscape, but would be painted with low-glare paint, and colors would be chosen to best complement the surrounding landscape foreground and background colors.

(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.*

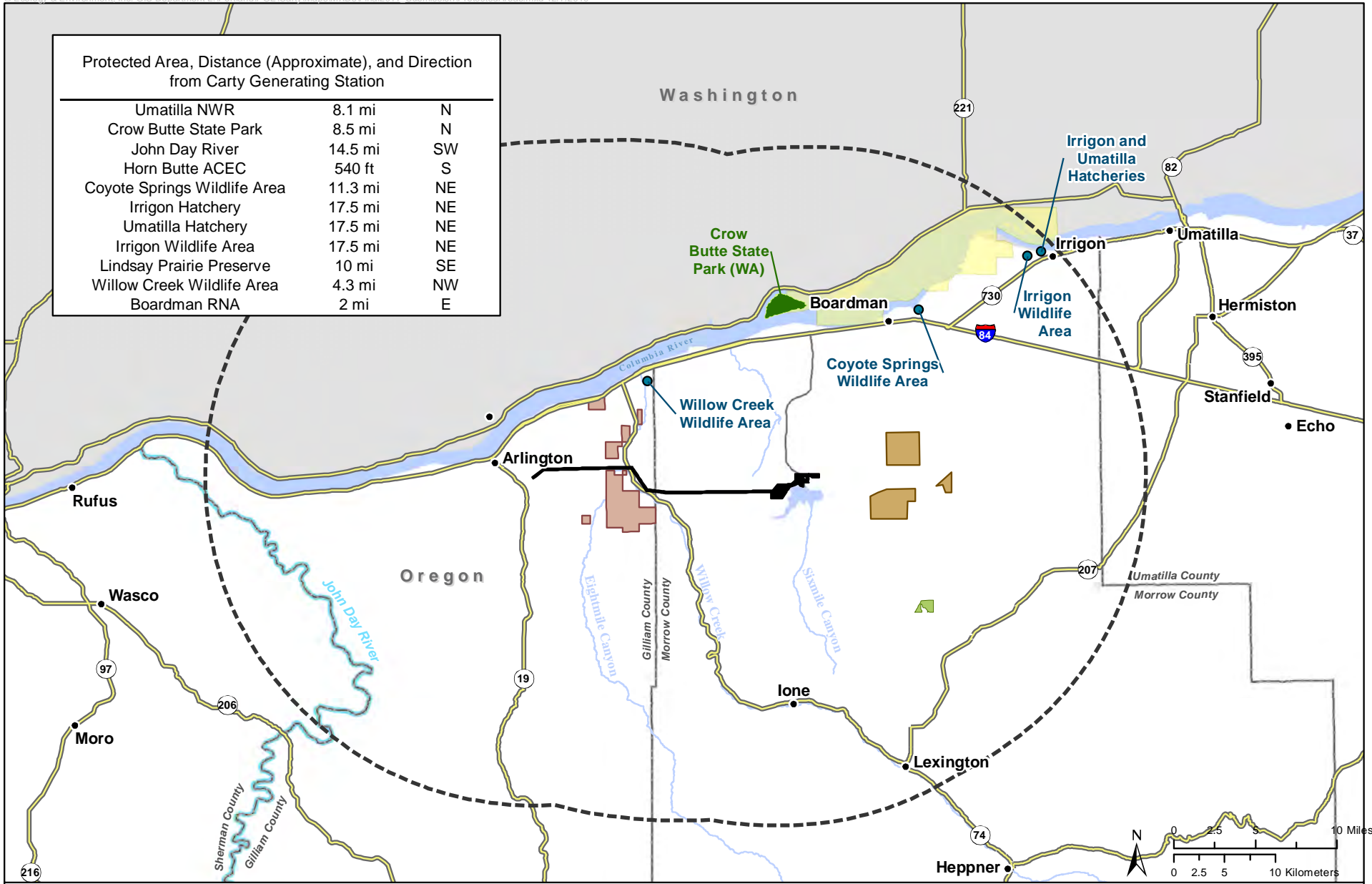
Response: Visual impacts are discussed in Exhibit R. The nearest Oregon Class 1 aesthetic resource to the site is the Mt. Hood Wilderness, approximately 75 miles from the project site. Exhibit Z provides information regarding potential cooling tower plume impacts. To minimize any potential impact that would result from the development of the facility, the proposed

structures would be painted with low-glare paint, and colors would be chosen to best complement the surrounding landscape foreground and background colors. Except for safety and Federal Aviation Administration warning lighting, night lighting fixtures and mounting would be selected to guide light downward, helping to minimize lighting and illumination seen from off site.





Protected Area, Distance (Approximate), and Direction from Carty Generating Station		
Umatilla NWR	8.1 mi	N
Crow Butte State Park	8.5 mi	N
John Day River	14.5 mi	SW
Horn Butte ACEC	540 ft	S
Coyote Springs Wildlife Area	11.3 mi	NE
Irrigon Hatchery	17.5 mi	NE
Umatilla Hatchery	17.5 mi	NE
Irrigon Wildlife Area	17.5 mi	NE
Lindsay Prairie Preserve	10 mi	SE
Willow Creek Wildlife Area	4.3 mi	NW
Boardman RNA	2 mi	E



- Site Boundary
- 20 mile Analysis Area
- John Day Wild & Scenic River
- Boardman Research Natural Area (RNA)
- Lindsay Prairie Preserve
- Umatilla National Wildlife Refuge (NWR)
- Horn Butte Area of Critical Environmental Concern (ACEC)
- Crow Butte State Park
- State Wildlife and Management Areas

**Figure L-1**  
**Protected Areas \***  
**PGE Carty Generating Station**  
**Application for Site Certificate**

\*Protected Areas per OAR 345-022-0040(i)



**EXHIBIT M**

**FINANCIAL CAPABILITY**

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

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- M-1 Legal Opinion on Authority to Construct
- M-2 Financial Assurance Letter from JP Morgan Chase Bank, N.A



## **M.1 INTRODUCTION**

**OAR 345-021-0010(1)(m)** *Information about the applicant's financial capability, providing evidence to support a finding by the Council as required by OAR 345-022-0050(2). Nothing in this subsection shall require the disclosure of information or records protected from public disclosure by any provision of state or federal law.*

Response: Under OAR 345-022-0050(2), the Energy Facility Siting Council (EFSC) must find that the Applicant has a reasonable likelihood of obtaining a bond or letter of credit in a form and amount satisfactory to the Council to restore the site to a useful, non-hazardous condition.

This exhibit contains the relevant information.

## **M.2 OPINION OF LEGAL COUNSEL**

**OAR 345-021-0010(1)(m)(A)** *An opinion or opinions from legal counsel stating that, to counsel's best knowledge, the applicant has the legal authority to construct and operate the facility without violating its bond indenture provisions, articles of incorporation, common stock covenants, or similar agreements.*

Response: Appendix M-1 is an opinion from Portland General Electric Company's (PGE's) legal counsel, conforming to the requirements of the rule.

## **M.3 TYPE AND AMOUNT OF FINANCIAL INSTRUMENT**

**OAR 345-021-0010(1)(m)(B)** *The type and amount of the applicant's proposed bond or letter of credit to meet the requirements of OAR 345-022-0050.*

Response: PGE hereby commits to submit, prior to the commencement of facility construction, to the State of Oregon, through EFSC, a bond or letter of credit in a form satisfactory to EFSC, in an amount required by EFSC of up to \$12 million, which security shall ensure that sufficient funds will be available to adequately retire the facility and restore the site to a useful, non-hazardous condition.

## **M.4 EVIDENCE OF REASONABLE LIKELIHOOD OF OBTAINING SECURITY**

**OAR 345-021-0010(1)(m)(C)** *Evidence that the applicant has a reasonable likelihood of obtaining the proposed bond or letter of credit in the amount proposed in OAR 345-021-0010(1)(B), before beginning construction of the facility.*

Response: Appendix M-2 is a letter from Robert G. Bussa, Managing Director (Mid Corporate Power) of JP Morgan Bank, stating the bank's willingness to furnish or arrange a letter of credit.

# **APPENDIX M-1**

## **Legal Opinion on Authority to Construct**





**Portland General Electric Company**

121 SW Salmon Street • 1WTC1715 • Portland, Oregon 97204  
(503) 464-8860 • Facsimile (503) 464-2222

**J. Jeffrey Dudley**

Vice President  
General Counsel &  
Corporate Compliance Officer

February 11, 2011

Oregon Department of Energy  
625 Marion Street NE  
Salem, OR 97301-3737

Re: Application of Portland General Electric Company ("Applicant") for Site Certificate

Ladies and Gentlemen:

I am Vice President and General Counsel of Portland General Electric Company. In such capacity, I have reviewed or supervised the review of bond indenture provisions, articles of incorporation, common stock covenants, and similar agreements (collectively the "Records").

Based on the foregoing, I am of the opinion, based upon my best knowledge, that subject to Applicant meeting all applicable federal, state and local laws (including all rules and regulations promulgated pursuant thereto), Applicant has the legal authority without violating its bond indenture provisions, Articles of Incorporation, common stock covenant or similar agreements, to construct and operate the Carty Generating Station facility (the "Facility") that Applicant proposes in its Application filed with the Oregon Energy Facility Siting Counsel, which includes this letter.

The foregoing opinion is rendered pursuant to OAR 345-021-0010(1)(m)(A) regarding whether Applicant has the legal authority to construct and operate the Project. I express no opinion as to the applicability of any federal, state and local laws (including all rules and regulations promulgated thereto) to such construction and operation or as the effects of the foregoing laws on such construction and operation.

I am admitted to the Bar of the State of Oregon. In rendering the opinion set forth above, I do not express any opinion concerning the laws of any jurisdiction other than the State of Oregon and Federal law, as applicable.

Sincerely,

A handwritten signature in black ink, appearing to read "Jay Dudley", is written over a horizontal line. The signature is stylized and cursive.

Jay Dudley  
Vice President and General Counsel

# **APPENDIX M-2**

**Letter from JP Morgan Chase Bank, N.A.**



# J.P.Morgan

Robert G. Bussa, Ph.D., CFA  
Managing Director  
Mid Corporate Power

December 15, 2009

Mr. Jaisen Mody  
Portland General Electric Company  
121 SW Salmon Street  
Portland, OR 97204

Re: Carty Generating Station

Att: EFSC Financial Assurance Requirements for proposed Carty Generating Station

JPMorgan Chase Bank, N.A. has a long standing business relationship with, and has acted as both a lead underwriter for Portland General Electric Company ("PGE" or the "Company") in the placement of senior unsecured debt and has participated as a direct lender to PGE under various committed credit agreements.

PGE has always managed its credit relationship with JPMorgan Chase Bank, N.A. in a satisfactory manner and is considered to be a client in good standing. Based upon the Company's current credit profile, and subject to acceptable pricing, terms and requisite internal approvals, J.P. Morgan would be willing to furnish or arrange a letter of credit in an amount up to \$12 million for a period not to exceed three years and six months for the purpose of ensuring the Company's obligation that the site of the Carty Generating Station can be restored to a useful non-hazardous condition.

Sincerely,





## **EXHIBIT N**

### **NEED FOR THE FACILITY**

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

*If the proposed facility is a non-generating facility for which the applicant must demonstrate need under OAR 345-023-0005, information about the need for the facility, providing evidence to support a finding by the Council as required by OAR 345-023-0005.*

Response: Portland General Electric Company (PGE) is proposing a generating facility and related or supporting facilities. Therefore, a demonstration of need under OAR 345-023-0005 is not required.

