EXHIBIT H

GEOLOGY AND SEISMICITY
OAR 345-021-0010(1)(h)

TABLE OF CONTENTS

TABLES

APPENDICES

H.1 INTRODUCTION

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

H.2 GEOLOGICAL AND TOPOGRAPHIC FEATURES

OAR 345-021-0010(1)(h)(A) *A description of the geological features and topography of the site and vicinity*.

Response: The project is located in the Deschutes-Columbia Plateau physiographic province. This province is a north-sloping, volcanic plateau that measures over 60,000 square miles in Oregon, Washington, and Idaho. Volcanic rocks mapped as Columbia River Basalt Group underlie nearly the entire province. These rocks are middle Miocene in age (approximately 6 to 17 million years old) and principally consist of basalt that erupted from vents in central and northeast Oregon, southeast Washington, and Idaho and flowed westward to the Pacific Ocean (Beeson et al. 1989). Flood gravels deposited by the catastrophic Pleistocene floods in the Columbia River valley overlie the basalt in the region. In late Pleistocene time, a surficial layer of wind-derived, fine-grained sediment referred to as "loess" was also deposited in the province along the Columbia River drainage.

On a regional scale, the project vicinity lies on the south bank of the Columbia River, in the northeast portion of the Port of Morrow Boardman Industrial Park. Figure 3 in Appendix H-1 shows the location of the facility and regional geology. The site is located about 1,500 feet southeast of the riverbank along the south channel of the river. At this location, the river is impounded by the John Day Dam as Lake Umatilla.

H.3 SITE-SPECIFIC GEOLOGIC AND GEOTECHNICAL WORK

OAR 345-021-0010(1)(h)(B) *A description of site specific geological and geotechnical work performed or planned to be performed before construction. The application shall include:*

(i) A proposed schedule for geotechnical work;

Response: Geotechnical and seismic designs have been completed for the project, which is under construction. An April, 2006 report for the facility, prepared by Professional Services Industries, Inc. (PSI), included 12 exploration borings that ranged from 26 to 61 feet deep (PSI 2006 as referenced in GRI 2006). On June 16, 2006, GRI Geotechnical and Environmental Consultants (GRI) completed a geologic reconnaissance of the project area to investigate the subsurface and foundation support conditions at the locations of facility structures. The intent of the geologic reconnaissance was to document surficial conditions of interest and to field-verify characterization of the soil, rock, and geologic conditions. Emphasis was placed on identifying features or geologic hazards that could

significantly impact design, construction, and performance of planned facilities. The results of this investigation are included as Appendix H-1.

(ii) A description of the nature and extent of the work with a discussion of the methods used to assess the expected ground response, including amplification, at the site;

Response: Existing information, including local, state, and federal government documents and maps, were reviewed and used to characterize the existing geologic conditions and potential seismic hazards in the vicinity of the project. This task included the review of available aerial photographs of the project site. Representatives of the Oregon Department of Geology and Mineral Industries (DOGAMI) were then contacted for information regarding local conditions or current research that may affect the project.

A reconnaissance of the project site was performed to document surficial conditions of interest and to field-verify characterization of the soil, rock, and geologic conditions. Emphasis was placed on examination of mapped features or geologic hazards that could significantly impact design, construction, and performance of the planned facilities.

A seismic hazard assessment was conducted to characterize seismicity in the vicinity of the project and evaluate the potential seismic hazards. The work was based on the potential for regional and local seismic activity as described in the existing scientific literature, and on the subsurface conditions within the lease boundary, interpreted from geotechnical explorations made by others at, and in the vicinity of, the project. Specifically, the seismic hazard assessment included the following tasks:

1) A detailed review of the literature.

2) Compilation, examination, and evaluation of existing subsurface data gathered at, and in the vicinity of, the site. This information was used to prepare a generalized subsurface profile for the site.

3) Identification of the potential seismic events appropriate for the site and characterization of those events in terms of a series of generalized design events.

4) Office studies, based on the generalized subsurface profile and the generalized design earthquakes, resulting in conclusions and recommendations concerning:

a) Specific seismic events that might have a significant effect on the site;

b) The potential for seismic energy amplification at the site;

c) A site-specific acceleration response spectrum for the site; and

d) The potential for earthquake-induced fault displacement, landslides, liquefaction, settlement, subsidence, and damage by tsunamis and/or seiches (a standing wave in an enclosed or partially enclosed body of water typically caused by an earthquake) at the site.

(iii) A list of professional literature relied on in characterizing the site; and

Response: Section H.12 identifies the professional literature that was used in characterizing the site.

(iv) The names of the personnel responsible for the work and a description of their relevant experience.

Response: Geotechnical work was conducted by the following:

Dwight J. Hardin, PE, served as principal-in-charge and principal geotechnical engineer. He has 34 years of geotechnical engineering experience and has directed the geotechnical services for numerous industrial facilities, tower structures, and marine facilities – including numerous marine terminals along the Columbia River.

Tova R. Peltz, PE, RG, served as project engineer and geologist. She has six years of experience and has completed seismic hazard studies and site response analysis for at least 30 projects in Oregon.

H.4 TRANSMISSION LINES

OAR 345-021-0010(1)(h)(C) *For all transmission lines, a description of locations along the proposed route where the applicant proposes to perform site specific geotechnical work, including but not limited to railroad crossings, major road crossings, river crossings, dead ends, corners, and portions of the proposed route where 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 to the plant will be supplied by the Umatilla Electric Cooperative via a 1,700 foot long 13.5 kV power line on single wooden poles. No existing landslides or marginally stable slopes were noted in the project vicinity. Therefore, no additional geotechnical work is planned.

H.5 PIPELINES

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

Response: Two pipelines are proposed as part of the facility. A 1,700-foot-long pipeline will be installed to carry natural gas from the Cascade Natural Gas pipeline to the plant. A 2,500-foot-long pipeline will be constructed from the facility to the barge loadout dock. Geological reconnaissance has revealed no landslides or marginally stable slopes; therefore no additional geotechnical site investigations are anticipated.

H.6 SOIL STABILITY MAP

OAR 345-021-0010(1)(h)(E) *A map showing the location of existing and significant potential geological and soil stability hazards and problems, if any, on the site and in its vicinity that could adversely affect, or be aggravated by, the construction and operation of the proposed facility*;

Response: No significant potential geological or soil stability hazards were identified. Potential mapped hazards (regional faults) are shown in Figure 4 of Appendix H-1.

Geologic observations made during the site visit indicate the majority of the project area is mantled by brown, fine-grained, silty soils, referred to as loess. An April 2006 report by PSI for the facility included 12 exploration borings that ranged from 26 to 61 feet deep. In general, the borings disclosed up to about 8 feet of wind-blown loose, silty sand to sandy silt that is underlain by silty sand and sand. The sand is generally dense or very dense below about 10 feet. The borings encountered dense, sandy gravel and sand below depths of 20 to 25 feet. Water well reports on file with the Oregon Water Resources Department (OWRD) for the site vicinity indicate that basalt occurs at depths of about 40 to 117 feet and is generally overlain by gravel. The units beneath the site are mapped as catastrophic flood gravel (Qfg) and Columbia River Basalt Group (Farooqui et al. 1981). The underlying Columbia River Basalt unit is approximately 15 million years old, and is typically on the order of 500 feet thick or more. The unit generally consists of fine- to medium-grained basalt. Exposures of this basalt unit are mapped along the riverbank, both east and west of the site.

Landslide deposits are not mapped within the project boundary (Farooqui et al. 1981; scale 1:250,000). A geologic map of the project area is provided on Figure 3 of Appendix H-1.

Obvious surficial evidence of large-scale, deep-seated slope instability, or evidence of faulting or ground rupture, was not observed during the June 16, 2006, reconnaissance. Review of available aerial photography did not reveal obvious evidence of slope instability, faulting, or ground rupture.

The borings completed by PSI typically encountered groundwater at elevation 263 to 266 feet which is very close to the level of the adjacent river or pool. In this regard, it is anticipated that the groundwater level will typically occur at about the same elevation as the pool level.

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 Oregon Building Code Seismic Zone designation for the site;

Response: With adoption of the 2003 International Building Code (ICC 2003), Oregon no longer identifies a seismic zone designation.

(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 and the MPE;

Response: The geologic and seismologic information available for identifying the potential seismicity at the project site is incomplete, and uncertainties are associated with any estimates of the probable magnitude, location, and frequency of occurrence of earthquakes that might affect the project. The information that is available indicates the potential seismic sources that may affect the project vicinity or site can be grouped into *subduction zone events* and *local crustal events* (Table H-1), as described below.

Subduction Zone Event. Since subduction zone events have not occurred in the Pacific Northwest in historic times, estimates of their probable size, location, and frequency are generally based on comparisons of the Cascadia Subduction Zone with active convergent plate margins in other parts of the world and on evidence that suggests these seismic events have likely occurred in the Pacific Northwest in the geologic past. For the purpose of this analysis, based on the location of the project and available published information, a subduction zone event was evaluated with an earthquake of MW = 8.8 at a focal distance of 150 miles. This corresponds to a sudden rupture of half of the length of the Juan de Fuca-North American plate interface, placed at the closest approach of the interface, due west of Portland. It should be noted that this choice of a design earthquake is based primarily on an estimate of the capability of the subduction zone to produce a large earthquake, not on a probabilistic analysis of a demonstrated seismic history. Based on the attenuation relationship published by Youngs et al. (1997), a subduction zone event of this size and location would result in a peak horizontal bedrock acceleration of approximately 0.08 g at the site.

Local Crustal Event. Sudden crustal movements along relatively shallow, local faults in the Columbia-Deschutes Plateau area, though rare, have been responsible for local crustal earthquakes. The precise relationship between specific earthquakes and individual faults is not well understood, since few of the faults in the area are expressed at the ground surface, and the foci of the observed earthquakes have not been located with precision.

The history of local seismic activity is commonly used as a basis for determining the size and frequency to be expected of local crustal events.

Table H-1. Deterministic Seismic Hazard Assessment Peak Bedrock Acceleration

Earthquake source	Attenuation relationships for target spectra	Magnitude (Mw)	Epicentral distance (miles)	Focal depth (miles)	Peak bedrock acceleration (g)	Assumed peak bedrock acceleration(g)
Subduction Zone	Youngs, et al., 1997	8.8	150	15	0.05	0.05
Subcrustal	Youngs, et al., 1997	7	100	30	0.04	.02
	Atkinson and Boore, 1997	7	100	NA	0.007	
Local Crustal	Sadigh, et. al., 1997	6.5	10	NA	0.21	0.12
	Boore, et al., 1997	6.5	10	NA	0.19	
	Abrahamson and Silva 1997	6.5	10	NA	0.20	

(iii) A description of any recorded earthquake 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: See Tables H-2 and H-3, below.

Table H-2. Local Earthquakes of Northern Hood River, Wasco, and Sherman Counties, Oregon (Beaulieu, 1977)

Date	Intensity	Magnitude (Richter) M_R	Location
November 24, 1866	IV	3.7	The Dalles
December 1866	III	3.0	The Dalles
February 29, 1892	IV	3.7	The Dalles
July 1893	II	2.3	Pleasant Ridge
December 5, 1902	II	2.3	Hood River
November 28,1920	IV	3.7	Hood River
April 12, 1976	IV-V	4.8	Maupin, Tygh Valley

Beaulieu, J.D., 1977, Geologic Hazards of Parts of Northern Hood River, Wasco, and Sherman Counties, Oregon: Oregon Department of Geology and Mineral Resources Bulletin B-91.

Table H-3. Large Earthquakes Greater than 50 Miles from the Project Site (Niewendorp and Neuhaus, 2003)

Date	Intensity	Magnitude (Richter), MR	Location	Comments
January 26, 1700	NA	9.0	Offshore, Cascadia Subduction Zone	
December 15, 1872	IV-IX	5.7	Southwest British Columbia	Intensity of I-II in Gilliam County
October 12, 1877	VII	NA	Troutdale-Corbett area, OR	Not felt at The Dalles
March 7, 1893	VIII	5.7	Umatilla, OR	
September 14, 1921	VI	5.0	Walla Walla, WA	Intensity of IV in Gilliam County
July 15, 1936	VII+	5.8	Milton-Freewater, OR	IV at The Dalles, V at Rufus
April 13, 1949	VIII	7.1	Olympia, WA	V at The Dalles
January 7, 1951	V	4.3	McNary, OR	Maupin, Tygh Valley
1959	VIII	6.3	Hebgen Lake, MT	I - II in Gilliam County
November 5, 1962	NA	5.5	Portland, OR Vancouver, WA	
1968	NA	5.1	Adel, OR	
April 25, 1992	NA	7.1	Cape Mendocino, CA	
March 25, 1993	NA	5.6	Scotts Mill, OR	
September 20, 1993	NA	5.9 and 6.0	Klamath Falls, OR	
February 28, 2001		6.8	Near Olympia, WA	

NA = Not Available

Response: The probability of an earthquake of a specific magnitude occurring at a given location is commonly expressed by its return period, i.e., the average length of time between successive occurrences of an earthquake of that size or larger at that location. The return period of a design earthquake can be calculated once a project design life and some measure of the acceptable risk that the design earthquake might occur or be exceeded are specified. These expected earthquake recurrences are expressed as a probability of exceedance during a given time period or design life. The recently adopted International Building Code (ICC 2003) develops a design spectrum by using two-thirds of the Maximum Considered Earthquake (MCE) ground motion. The MCE earthquake combines probabilistic earthquakes with a 2% probability of exceedance in 50 years (return period of about 2,500 years) with modifications for deterministic ground motions, where necessary (Leyendecker et al. 2000). The change to a MCE was an effort to reduce the risk of building collapse in portions of the country where the earthquake with a 2,500-year recurrence interval is significantly larger than the standard code recurrence interval of 475 years.

It is important to recognize that the origin of the two-thirds reduction factor incorporated in the IBC code is a function of the "seismic margin" identified in the 1997 National Earthquake Hazards Reduction Program commentary. The seismic margin of 1.5 is

recognized as the inherent factor of safety in the code. In this regard, if a structure is subjected to a ground motion of 1.5 times the design level, the structure should still have a low likelihood of collapse.

The effect of a specific seismic event on the site is related to the type and thickness of soil overlying the bedrock and to the type and quantity of seismic energy delivered to the bedrock beneath the site by the earthquake. A generalized model of the subsurface profile beneath the site was developed by GRI based on subsurface explorations in the project area by PSI (2006, as referenced in GRI 2006), water well logs available from the OWRD, and shear wave velocities measured for similar soil and rock conditions at other sites. The generalized soil profile developed by GRI is summarized in Table H-4.

Table H-4. General Soil Profile

Soil type	Thickness (feet)	Unit Weight (pcf)	Shear Wave Velocity (feet/second)
Silt	10	100	825
Weathered basalt	20	135 to 140	825 to 2,115
Basalt	undefined	160	4,000

Based on the generalized subsurface profile described above, the peak bedrock accelerations estimated for the design events, and the strong-motion records listed in the preceding tables, pseudoacceleration response spectra have been prepared using PROSHAKE. The spectra were produced for a ground surface elevation corresponding to the proposed building foundations, damped at 5% of critical damping from the larger horizontal component of each of the strong-motion records, and scaled to match the estimated peak horizontal bedrock accelerations of the earthquake events.

The results of the site response model indicate that for the existing site conditions, peak horizontal ground accelerations would be generated by the local crustal model. In addition, the response study indicates that the input of seismic energy into the bedrock beneath the site will result in some amplification of the energy at the ground surface. To reduce this effect, the applicant is excavating the upper 7.5 feet of loose soil and replacing it with compacted structural fill. Based on the subsurface conditions encountered at the site and the placement of structural fill, the site can be described as IBC Class C, in accordance will Table 1615.1.1 of the IBC. An assessment of seismic hazards expected to result from reasonably probable seismic events. As used in this rule "seismic hazard" includes ground shaking, landslide, lateral spreading, liquefaction, tsunami inundation, fault displacement, and subsidence;

Response: Based on review of local geology, there are no mapped faults on the project site, and the risk of ground rupture due to fault displacement in the project vicinity is low. The proposed Columbia Ethanol project is located on relatively flat terrain. In addition, dense sand and gravel are present at shallow depths, and the groundwater table is deep. Considering these site conditions, the potential for earthquake-induced landslides, lateral spreading, liquefaction and settlement/subsidence at the site are low.

The project is not located near the ocean and therefore the risk of damage by tsunamis is absent. There is limited information available about the risk of seiche on dam-impounded rivers. The project is located approximately 30 feet above the average pool level of Lake Umatilla, and therefore the risk of damage is considered low.

The risk of seismic hazards, such as slope instability, ground rupture, liquefaction, and settlement or subsidence, is low. As a result, mitigation measures to address these hazards in the siting, design, and construction of the project are not necessary.

H.8 NON-SEISMIC GEOLOGIC HAZARDS

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

Response: The facility, as shown on Figure 2 of Appendix H-2, has been sited on relatively flat ground about 1,500 feet from the riverbank. In addition, the regional groundwater table is located within the dense sand and gravel at the site. Considering these conditions, slope instability and landslides are not geologic hazards that will impact the ethanol project and associated infrastructure and facilities.

The project site is mantled with wind-deposited silt soil known as loess. The silt particles are of relatively uniform size and the silt usually has sufficient cohesion, or undrained shear strength, so that excavations made in the material can stand on near-vertical slopes. True loess soils have never been submerged. When loaded by conventional spread footings and subsequently saturated, the bond between the soil particles becomes weakened and the soil structure altered, which can result in large settlements at the ground surface.

H.9 SEISMIC HAZARD MITIGATION

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

Response: The risk of seismic hazards, such as ground rupture, liquefaction, settlement, or subsidence, is low. As a result, mitigation measures to address these hazards in the siting, design, and construction of the project are not necessary.

H.10 NON-SEISMIC HAZARD MITIGATION

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

Response: With the possible exception of the presence of loess soils, the work comleted by GRI has not identified non-seismic geologic hazards that will require special consideration in the siting, design, and construction of the Columbia Ethanol project.

The applicant has begun site preparation, including removal of the upper 7.5 feet soil to be replaced with compacted structural fill over the site's entire load bearing areas. Recompaction was accomplished in 8 inch lifts, with compaction exceeding 95%, as specified. No other non-seismic mitigation is anticipated.

H.11 CONCLUSION

Based on the above information, the applicant has satisfied the required OAR 345-021-0010(1)(h), and the Council may find that the standard contained in OAR 345-022-0020 is satisfied.

H.12 REFERENCES

Barr Engineering Company, 2004, Geotechnical Engineering Report, Klondike Wind Power II Project, Wasco, Oregon: prepared for PPM Energy, Portland, Oregon.

Beaulieu, J.D., 1977, Geologic Hazards of Parts of Northern Hood River, Wasco, and Sherman Counties, Oregon: Oregon Department of Geology and Mineral Resources Bulletin B-91.

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Bela, J.L., 1982, Geologic Compilation Map of The Dalles 1° by 2° Quadrangle, Oregon and Washington: Oregon Department of Geology and Mineral Resources Geologic Map Series GMS-27.

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Niewendorp, C.A. and Neuhaus, M.E., 2003, Map of Selected Earthquakes for Oregon, 1841-2002: Oregon Department of Geology and Mineral Resources Open-File Report OFR-03-02.

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APPENDIX H-1

Recorded Earthquakes within 50 miles

APPENDIX H-2

Preliminary Geotechnical Site Report

Geologic and Seismic Evaluation

Pacific Ethanol Project
Morrow County, Oregon

Prepared by:

GRI
Geotechnical & Environmental Consultants
Beaverton, Oregon

August 14, 2006

Geologic and Seismic Evaluation for Pacific Ethanol Project

I. INTRODUCTION

At the request of David Evans and Associates, Inc. (DEA), GRI Geotechnical & Environmental Consultants (GRI) has completed an assessment of the geologic and seismic conditions at the location of the proposed Pacific Ethanol project. The purpose of the study was to characterize, on a preliminary basis, the geology and seismicity of the project area and immediate vicinity, identify associated potential hazards that could impact the project, and identify potential mitigation measures.

GRI's scope of work included review of relevant available information and publications regarding geologic and seismic conditions; examination of aerial photographs; a limited ground-level reconnaissance; geologic, seismic, and geotechnical analyses. The scope of work did not include a detailed geologic reconnaissance and mapping of the project area or site-specific subsurface or geophysical investigations. In this regard, the level of effort and scope of work were appropriate to evaluate the geology, seismicity, and associated hazards of the project area.

Project Description

The Pacific Ethanol Project is located on approximately 24 acres in Morrow County, as shown on the Vicinity Map and Site Plan, Figures 1 and 2, respectively. The Project will produce 42 million gallons of ethanol per year. The project will include three related and supporting facilities: a gas pipeline from Columbia Avenue to the plant site, an ethanol pipeline, and a power supply line. The majority of ethanol produced at this plant will be shipped to market using existing rail and barge facilities. Construction of the plant began in May 2006 under an exemption approved by the State of Oregon Energy Facility Siting Council (EFSC).

II. BACKGROUND

The purpose of this report is to provide a technical basis to fulfill the requirements for the completion of Appendix H, Geology and Seismicity, as outlined in OAR 345-021-0010(1)(h) for provision of evidence to support the findings by the State of Oregon, Energy Facility Siting Council.

A previous geotechnical investigation and seismic site hazard report for the proposed Pacific Ethanol facility was completed by Professional Service Industries, Inc. (PSI, 2006). A copy of the PSI report was provided to GRI for use in completing this report. GRI also obtained, reviewed, and relied upon published reports addressing local and regional geology and seismicity, as discussed in subsequent sections of this report.

III. EXISTING CONDITIONS

General

The site is located on the south bank of the Columbia River, in the northeast portion of the Port of Morrow Industrial Park, in Boardman, Oregon. The site is located about 1,500 ft southeast of the riverbank along the south channel of the river. At this location the river is impounded by the John Day Dam as Lake Umatilla. The normal operating level of the pool is about elevation 265 ft (NGVD). A Union Pacific rail

loop track was recently constructed north, east, and west of the site. The Port is currently constructing a road between the site and the riverbank. A grain terminal is located along the riverbank west of the site.

Prior to the recent start of earthwork and grading for the facility, the site was undeveloped and used for irrigated crop production.

Topography

The project area is located along the floodplain of the Columbia River. The ground surface ranges from about elevation 290 to 310 ft (NGVD).

Regional Geology

The project is located in the Deschutes-Columbia Plateau physiographic province. This province is a north-sloping, volcanic plateau that measures over 60,000 square miles in Oregon, Washington, and Idaho. Volcanic rocks mapped as Columbia River Basalt Group (CRBG) underlie nearly the entire province. These rocks are middle Miocene in age (approximately 6 to 17 million years old) and principally consist of basalt that erupted from vents in central and northeast Oregon, southeast Washington, and Idaho and flowed westward to the Pacific Ocean (Beeson and others, 1989). Flood gravels deposited by the catastrophic Pleistocene floods in the Columbia River valley overlie the basalt in the region. In late Pleistocene time, a surficial layer of wind-derived, fine-grained sediment referred to as "loess" was also deposited in the province along the Columbia River drainage.

IV. METHODS

GRI completed a scope of work to evaluate the geology and seismicity of the project, which is outlined below.

Geological Assessment Methodology

GRI reviewed existing information, including local, state, and federal government documents and maps, to characterize the existing geologic conditions and potential seismic hazards related with the project area.

GRI contacted representatives of the Oregon Department of Geology and Mineral Industries for information regarding local conditions or current research that may affect the project. GRI did not contact Federal or Local regulatory agencies.

On June 16, 2006, a geotechnical engineer and engineering geologist from GRI completed a geologic reconnaissance of the project area to document surficial conditions of interest and to field-verify characterization of the soil, rock, and geologic conditions. Emphasis was placed on identifying features or geologic hazards that could significantly impact design, construction, and performance of the planned facilities.

Seismic Hazard Assessment Methodology

The purpose of the seismic hazard assessment was to characterize the seismicity of the project area and evaluate the potential seismic hazards associated with regional and local seismicity, and estimate the effect those hazards might have on the site. The work was based on the potential for regional and local seismic

activity as described in the existing scientific literature, and on the subsurface conditions within the project boundary, interpreted from geotechnical and water well explorations made by others at and in the vicinity of the project. Specifically, the seismic hazard assessment included the following tasks:

1) A detailed review of the literature, including published papers, maps, open-file reports, seismic histories and catalogs, works in progress, and other sources of information regarding the tectonic setting, regional and local geology, and historical seismic activity that might have a significant effect on the site. Review of available aerial photographs.

2) Compilation, examination, and evaluation of existing subsurface data gathered at and in the vicinity of the site. This information was used to prepare a generalized subsurface profile for the site.

3) Identification of the potential seismic events appropriate for the site and characterization of those events in terms of a series of generalized design events.

4) Office studies, based on the generalized subsurface profile and the generalized design earthquakes, resulting in conclusions and recommendations concerning:

   a) specific seismic events that might have a significant effect on the site;

   b) the potential for seismic energy amplification at the site;

   c) a site-specific acceleration response spectrum for the site; and

   d) the potential for earthquake-induced hazards, including fault displacement, landslides, liquefaction, settlement, subsidence, and damage by tsunamis and/or seiches at the site.

V. RESULTS

Site Geologic Conditions

Pacific Ethanol Project Area Geology

Geologic observations made during the site visit indicate the majority of the project area is mantled by brown, fine-grained, silty soils, referred to as loess. The April 2006 report by PSI for the facility included 12 exploration borings that ranged from 26 to 61 ft deep. In general, the borings disclosed up to about 8 ft of wind-blown loose, silty sand to sandy silt that is underlain by silty sand and sand. The sand is generally dense or very dense below about 10 ft. The borings encountered dense, sandy gravel and sand below depths of 20 to 25 ft. Water well reports on file with the Oregon Water Resources Department (OWRD) for the site vicinity indicate basalt occurs at depths of about 40 to 117 ft and is generally overlain by gravel. The units beneath the site are mapped as catastrophic flood gravel (Qfg) and Columbia River Basalt Group (Tcr) (Farooqui, et al., 1981). The underlying Columbia River Basalt unit is approximately 15 million years old, and is typically on the order of 500 ft thick or more. The unit generally consists of fine- to medium-grained basalt. Exposures of this basalt unit are mapped along the riverbank, both east and west of the site.

Landslide deposits are not mapped within the project boundary (Farooqui, et al., 1981; scale 1:250,000). A geologic map of the project area is provided on Figure 3.

Obvious surficial evidence of large-scale, deep-seated slope instability, or evidence of faulting or ground rupture, was not observed during the June 16, 2006, reconnaissance. Review of available aerial photography did not reveal obvious evidence of slope instability, faulting, or ground rupture.

The borings completed by PSI typically encountered groundwater at elevation 263 to 266 ft which is very close to the level of the adjacent river or pool. In this regard, it is anticipated that the groundwater level will typically occur at about the same elevation as the pool level.

Structural Geology Setting

On a regional scale, the project area lies along the southwest boundary of the Yakima Fold Belt, a structural portion of the Deschutes-Columbia Plateau which has been deformed by regional north-south compression into a series of shallow east-west-trending folds. The location and extent of local faults identified in this study are shown on Figure 4. These faults have been mapped on the basis of geomorphology, stratigraphic offsets, and geophysical evidence, and they are reasonably well-defined and generally considered seismogenic (Geomatrix/ODOT, 1995, US Geological Survey [USGS], 2002). At present, studies have not indicated any activity in the last 8,000 years (Holocene epoch) on the faults in closest vicinity of the site (DOGAMI, Personal Communication, 2006).

The project area lies approximately 325 km inland from the surface expression of the Cascadia Subduction Zone (CSZ), the broad, eastward-dipping megathrust contact between the upper portion of the subducting slabs of the Gorda, Juan de Fuca, and Explorer plates and the over-riding North America Plate along the Oregon coast.

Historic Seismicity

Precise, quantitative information regarding historic seismic activity in the Pacific Northwest and eastern Oregon is sparse. Events that may have occurred in the region prior to settlement of the Oregon Territory in the mid-nineteenth century are speculative and have not been clearly identified in terms of location, magnitude, or frequency. From the mid-nineteenth century to the time of the installation of the first dependable seismometers in the area (about 1940), reliable information regarding location and magnitude is not available, although rough estimates of these parameters have been based on records of eyewitness accounts. Since about 1940, seismographic records of increasing sophistication and accuracy are available for local events larger than about Richter (local) magnitude 3.5 (M_L). Review of the Advanced National Seismic System catalog of earthquakes indicates that since 1944 there have been 39 earthquakes of M3.0 or greater within 50 km of the site. Four of those earthquakes were between M4.0 and 4.5, but none were above M4.5.

In this study, size is expressed in Richter (local) magnitude (M_L) or moment magnitude (M_W); location is expressed as epicentral or focal distance, measured radially from the subject site in kilometers; and peak horizontal bedrock accelerations are expressed in gravities (1 g = 32.2 ft/sec^2 = 980.6 cm/sec^2). The term "intensity" as used in Tables 1 and 2 refers to the Modified Mercalli Intensity Scale, which is a measure of an earthquake's effects on humans and surface features. The scale ranges from I to XII, where I is a measurement of an earthquake that is not felt by humans, and XII is an earthquake that causes near total damage to structures in the area of observation. Local seismic events that may have generated measurable accelerations in the vicinity of the project site are shown in Table 1. Historic earthquakes that may have affected the site, occurring at a distance greater than 50 miles, are shown in Table 2.

Table 1
Local Earthquakes of Gilliam, Morrow, Umatilla, and Walla Walla Counties
(Niewendorp and Neuhaus, 2003; ANSS database)

Date	Intensity	Magnitude (Richter), M_L	Location	Comments
March 7, 1893	VIII		Umatilla, OR	
September 14, 1921	VI	5.0	Walla Walla, WA	Intensity of IV in Gilliam County
July 15, 1936	VII+	5.8	Milton-Freewater	IV at The Dalles, V at Rufus
January 7, 1951	V	4.3	McNary, OR	Maupin, Tygh Valley
January 15, 1964	NA	4.2	45.9°, 120°	
April 13, 1976	NA	4.5	45.2°, 120.8°	
October 9, 1998	NA	4.0	46.2°, 120.7°	
January 30, 2000	NA	4.1	45.2°, 120.1	

Table 2
Historic Earthquakes Greater than 50 km from the Project Site
(Niewendorp and Neuhaus, 2003; Beaulieu, 1977)

Date	Intensity	Magnitude (Richter), M_L	Location	Comments
January 26, 1700	NA	9.0	Offshore, Cascadia Subduction Zone	
November 24, 1866	IV	3.7	The Dalles, OR	
December 1866	III	3.0	The Dalles, OR	
December 15, 1872	IV-IX	5.7	Southwest British Columbia	Intensity of I-II in Gilliam County
October 12, 1877	VII	NA	Troutdale-Corbett area, OR	Not felt at The Dalles
February 29, 1892	IV	3.7	The Dalles, OR	
November 28,1920	IV	3.7	Hood River	
April 13, 1949	VIII	7.1	Olympia, WA	V at The Dalles
1959	VIII	6.3	Hebgen Lake, MT	I - II in Gilliam County
November 5, 1962	NA	5.5	Portland, OR Vancouver, WA	
1968	NA	5.1	Adel, OR	
April 12, 1976	IV-V	4.8	Maupin, Tygh Valley	
April 25, 1992	NA	7.1	Cape Mendocino, CA	
March 25, 1993	NA	5.6	Scotts Mill, OR	
September 20, 1993	NA	5.9 and 6.0	Klamath Falls, OR	
February 28, 2001	NA	6.8	Near Olympia, WA	

NA = Not Available

Seismicity

The geologic and seismologic information available for identifying the potential seismicity at the project area is incomplete, and large uncertainties are associated with any estimates of the probable magnitude, location, and frequency of occurrence of earthquakes that might affect the project. The information that is available indicates the potential seismic sources that may affect the project area can be grouped into three independent categories: subduction zone megathrust events related to sudden slip between the upper surface of the Juan de Fuca plate and the lower surface of the North American plate, subcrustal events related to deformation and volume changes within the subducted mass of the Juan de Fuca plate, and local crustal events associated with movement on shallow, local faults within and adjacent to the Deschutes-Columbia Plateau. Based on review of currently available information, generalized design earthquakes have been developed for both subduction zone and local crustal events. Each of these sources is considered capable of producing damaging earthquakes in the Pacific Northwest. Wong (2005) notes a historic absence of intraslab earthquakes along the central CSZ (in Oregon) and hypothesizes that due to subduction zone geometry, geophysical conditions and local geology, Oregon may not be subject to intraslab earthquakes. Based on this observation and review of historic records, this evaluation includes two primary types of seismic sources: the megathrust and local crustal faults.
The design earthquakes are characterized by three important properties: size, location relative to the subject site, and the peak horizontal bedrock accelerations produced by the event.

Subduction Zone Event. The CSZ is a megathrust structure that forms the convergent plate boundary between the subducting Explorer, Juan de Fuca, and Gorda plates and the overriding North America Plate, and extends from offshore northern California to southern British Columbia. Subduction is driven by eastward movement of the Explorer, Juan de Fuca, and Gorda plates due to sea-floor spreading at the Gorda-Juan de Fuca-Explorer Mid-Ocean Ridge System. The subduction plates are the remnants of the Farallon Plate, which once underlay most of the eastern Pacific and has been converging with the North America Plate since at least the Jurassic period (Atwater, 1970; Duncan and Kulm, 1989). Tectonic elements associated with the subduction zone include: 1) an accretionary wedge of sediments deformed by a broad fold and thrust belt and east-striking strike-slip faults; 2) a forearc basin of sedimentary and igneous rocks that accumulated during plate collision, broken in places by minor Quaternary faults and folds; and 3) a volcanic arc (Cascade Range) consisting of Eocene through Quaternary volcanic rocks, active andesitic volcanoes, and numerous, mostly extensional, Quaternary faults. The historic seismicity on the CSZ is limited. There are numerous records of intraplate events on the Gorda block and in the Puget Sound area; however, there are few or no records of these in Central CSZ. Geological studies show that great megathrust earthquakes have occurred repeatedly in the past 7,000 years (e.g., Atwater and others, 1995; Clague, 1997; Goldfinger, 2003; and Kelsey, 2005), and geodetic studies (e.g., Hyndman and Wang, 1995; Savage, et al., 2000) indicate rate of strain accumulation consistent with the assumption that the CSZ is locked beneath offshore northern California, Oregon, Washington, and southern British Columbia (Fluck and others, 1997; Wang, et al., 2001). Numerous geological and geophysical studies suggest the CSZ may be segmented (Hughes and Carr, 1980; Weaver and Michaelson, 1985; Guffanti and Weaver, 1988; Goldfinger, 1994; Kelsey, et al., 1994; Mitchell, et al., 1994; Personius, 1995; Witter, 1999), but the most recent studies suggest that for the last great earthquake in 1700, most of the subduction zone ruptured in a single M_w 9 earthquake (Satake, et al., 1996; Atwater and Hemphill-Haley; Clague, et al., 2000).

Studies indicate coastal subsidence, tsunamis, liquefaction, and turbidite triggering consistent with a massive earthquake on the CSZ about 300 years ago. Tree rings in cedars rooted in the youngest buried soil beneath wetlands in southwestern Washington date tree death from submergence to between August AD 1699 and May AD 1700 (Atwater, et al., 1991; Atwater and Yamaguchi, 1991; Yamaguchi, et al., 1997; Jacoby, et al., 1997; Benson, et al., 2001). Historical documents from Japanese harbors inundated by a tsunami and trans-Pacific tsunami modeling are interpreted to show that a tsunami from a Cascadia

megathrust earthquake was generated by a M_w 9 earthquake on the subduction zone around 9 PM January 26, 1700 (Satake, et al., 1996; 2003).

The total structure length is approximately 754 km and is expected to produce an earthquake with an estimated maximum magnitude (M_{max}) of M_w 8.3 to 9.0. Based on the attenuation relationship published by Youngs, et al. (1997), a megathrust event of this size would result in a peak horizontal bedrock acceleration of approximately 0.08 g at the site.

Local Crustal Event. Sudden crustal movements along relatively shallow, local faults in the Columbia-Deschutes Plateau area, though rare, have been responsible for local crustal earthquakes. The precise relationship between specific earthquakes and individual faults is not well understood, since few of the faults in the area are expressed at the ground surface, and the foci of the observed earthquakes have not been located with precision. The history of local seismic activity is commonly used as a basis for determining the size and frequency to be expected of local crustal events. Although the historical record of local earthquakes is reltively short (the earliest reported seismic event in the region occurred in 1866), it can serve as a guide for estiamating the potential for seismic activity in the area.

Another method of estimating the magnitude to be expected of local crustal events involves an analysis of the lengths of local faults. The empirical relationship between fault rupture length and the magnitude of the resulting earthquake has been studied extensively (Matthiesen, 1984; Wells and Coppersmith, 1994). Based on the fault mapping of Quaternary faults conducted by Geomatrix for the Oregon Department of Transportation (1995) and the USGS Quaternary Fault and Fold database (2002) the closest mapped faults to the project (see Figure 4) are shown on Table 3. There is definitive evidence of Quaternary movement (in the last 1.8 million years) on Class A faults, and the closest Class A fault is 50 km from the site.

Table 3
Quaternary Local Faults

Fault	Fault Class	Distance From, Project, km	Mapped Length, km	Slip Rate, mm/yr
Columbia Hills structures	B	8	161	<0.2
Service Anticline structures	B	25	7	<0.2
Horse Heaven Hills structures	B	40	179	<0.2
Rattlesnake Hills structures	B	45	108	<0.2
Arlington-Shutler Butte faults	A	50	52	<0.2
Wallula fault system	A	55	63	<0.2
Toppenish Ridge structures, Mill Creek	A	65	19	<0.2
Luna Butte fault	A	70	31	<0.2
Umtanum Ridge structures, Central Gable Mountain	A	80	2	<0.2
Hite fault system, Thorn Hollow	A	85	44	<0.2
Hite fault system, Agency	A	95	28	<0.2

The range of characteristic earthquake magnitudes depends on the geometry of the faults at depth and the degree to which the faults are segmented, neither of which is well understood. Based on the attenuation relationships of Boore, et al. (1997), Sadigh, et al. (1997), and Abrahamson and Silva (1997) for an earthquake of M6.5 at a distance of 8 km, the estimated peak horizontal bedrock accelerations at the site would be approximately 0.41 g.

Summary of Deterministic Earthquake Parameters

In summary, we conclude that earthquakes of two different types, subduction zone and local crustal, affect the seismicity of the project area. Due to a lack of reliable historic record of local earthquakes, the seismic capability of the earthquake sources was used rather than a probabilistic evaluation of the individual faults. Published attenuation relationships were used to estimate the peak bedrock accelerations at the site, as shown on the following table.

Earthquake Source	Attenuation Relationships for Target Spectra	Magnitude, M_w	Epicentral Distance, km	Focal Depth, km	Peak Bedrock Acceleration, g
Subduction Zone	Youngs, et al., 1997	9.0	325	130	0.08
Local Crustal	Sadigh, et. al., 1997	6.5	8	NA	0.47
	Boore, et al., 1997	6.5	8	NA	0.50
	Abrahamson and Silva 1997	6.5	8	NA	0.25

The relationships used to estimate local crustal earthquakes include site effects and are typically biased toward larger magnitude earthquakes. For this site response study, in keeping with the intent of the 2003 International Building Code (IBC), an assumed peak horizontal bedrock acceleration of 0.13 g was used, which is obtained by using two-thirds of the Maximum Considered Earthquake (MCE) based on the 2002 USGS probabilistic mapping effort, rather than the peak bedrock acceleration estimates from the attenuation relationships.

Probabilistic Considerations

The probability of an earthquake of a specific magnitude occurring at a given location is commonly expressed by its return period, i.e., the average length of time between successive occurrences of an earthquake of that size or larger at that location. The return period of a design earthquake can be calculated once a project design life and some measure of the acceptable risk that the design earthquake might occur or be exceeded are specified. These expected earthquake recurrences are expressed as a probability of exceedance during a given time period or design life. Historically, building codes have adopted an acceptable risk level by identifying ground acceleration values that have a probability of exceedance of 10% in 50 years or less. A 10% probability of exceedance in 50 years corresponds to an earthquake with a computed recurrence interval of 475 years. The International Building Code (IBC, 2003) defines the design spectrum by using two-thirds of the Maximum Considered Earthquake (MCE) acceleration response spectrum. The MCE earthquake combines probabilistic earthquakes with a 2% probability of exceedance in 50 years (return period of 2,475 years) with modifications for deterministic earthquakes, where necessary (Leyendecker, et al., 2000). The concept of the MCE was adopted in an effort to reduce the risk of building collapse in portions of the country where the 2,475-year recurrence interval earthquake is significantly larger than the Uniform Building Code's earthquake with a recurrence interval of 475 years. The IBC design response spectrum incorporates the two-thirds factor to adjust the MCE level of ground motion to a more traditional "life safety" level, which was previously represented by the 475-year recurrence interval earthquake (Holmes, 2000). The intent of the IBC is to prevent collapse of a structure subjected to 1.5 times the design acceleration response spectrum. This generally means that a structure designed and constructed in accordance with the design spectrum should not collapse during the MCE.

The design response spectrum parameters for the IBC were based on the 2002 USGS probabilistic mapping effort. The USGS mapping proportions the likelihood of movement for all identified seismic sources (i.e.,

local crustal and subduction zone earthquakes) and probabilistically averages the results into a single acceleration response spectrum. The USGS seismic work provides response spectra for both the 2% and 10% probability of exceedance in 50-year earthquakes. The peak bedrock accelerations at the site are approximately 0.20 g and 0.09 g for the 2% and 10% in 50-year earthquakes, respectively. As described below, earthquake time histories were also chosen to match the spectral shapes from this probabilistic work for a comparison to the deterministic shapes developed from the chosen attenuation relationships.

Estimated Site Response

A series of acceleration-time histories (commonly referred to as "accelerograms") of well-studied earthquakes have been selected to represent each of the seismic events described above. These events were selected from the current inventory of the National Geophysical Data Center (NGDC) in Boulder, Colorado, and from the records available from the California Division of Mines and Geology in Sacramento, California. From the available records, corrected free-field and basement/ground floor accelerograms were chosen to match the spectral shape of the aforementioned attenuation relationships or probabilistic spectra. Wherever possible, earthquakes of similar magnitude and duration were chosen to match the target spectra for each respective earthquake type. These records were checked for obvious errors, missing data points, and other anomalies and were transformed into a uniform data format. The selected strong-motion records are as follows:

SUBDUCTION ZONE EVENT

Earthquake	Recording Station	Magnitude	Focal Distance, mi	Peak Bedrock Acceleration, g
El Salvador	San Miguel	7.6 (Ms)	55	0.12
Michoacan	La Union	8.1 (Ms)	50	0.17
Nihonkai	Frofushi	7.7 (M_{JMA})	44	0.23
Santiago	Univ of Chile	7.9 (Ms)	80	0.16
Valparaiso	Llolleo	7.8 (Ms)	44	0.45

LOCAL CRUSTAL EVENT

Earthquake	Recording Station	Magnitude	Focal Distance, mi	Peak Bedrock Acceleration, g
Imperial Valley	El Centro	5.2 (Mw)	17	0.15
Lima, Peru	Arequipa	7.6 (Mw)	50	0.18
Morgan Hill	Mission Trails	6.2 (M_L)	24	0.21
Whittier Narrows	4407 Jasper St.	6.1 (M_L)	7	0.22

The effect of a specific seismic event on the site is related to the type and thickness of soil overlying the bedrock and to the type and quantity of seismic energy delivered to the bedrock beneath the site by the earthquake. A generalized model of the subsurface profile beneath the site was developed by GRI based on subsurface explorations in the project area by PSI (2006), water well logs available from the OWRD, and estimates of shear wave velocities measured for similar soil and rock conditions at other sites. The generalized soil profile developed by GRI is summarized below.

Soil Type	Thickness, ft	Unit Weight, pcf	Shear Wave Velocity, ft/sec
Silty Sand	10	100	825
Gravel	90	135 to 140	1,700 to 3,770
Basalt	undefined	150	4,000

Based on the generalized subsurface profile described above, the peak bedrock accelerations estimated for the design events, and the strong-motion records listed in the preceding tables, pseudoacceleration response spectra have been prepared using PROSHAKE. The spectra were produced for a ground surface elevation corresponding to the proposed building foundations, damped at 5% of critical damping, from the larger horizontal component of each of the strong-motion records, and scaled to match the estimated peak horizontal bedrock accelerations of the earthquake events.

The results of the site response model indicate that for the existing site conditions, the peak horizontal ground accelerations are generated by the local crustal model. In addition, the response study indicates that the input of seismic energy into the bedrock beneath the site will result in some amplification of the energy at the ground surface. We understand that the upper 7.5 ft of loose soil will be excavated and replaced as compacted structural fill. Based on the subsurface conditions encountered at the site and the placement of structural fill, the site can be described as IBC Site Class C, in accordance with Table 1615.1.1 of the IBC. However, the results of our site-specific seismic study indicate the selected design earthquakes result in a mean response spectrum that exceeds the IBC design spectrum for Site Class C at periods less than 0.3 seconds. Consequently, we recommend using a 0.0-second period spectral acceleration (Peak Ground Acceleration, or PGA) of 0.20 g for the design response spectrum.

Seismic Hazard Conclusions

Based on review of local geology, there are no mapped faults within the site boundaries, and in GRI's opinion, the risk of ground rupture due to fault displacement in the project area is low.

The proposed ethanol plant is located on relatively flat terrain. In addition, dense sand and gravel are present at shallow depths. Considering these site conditions, it is GRI's opinion that the potential for earthquake-induced landslides, lateral spreading, liquefaction and settlement or subsidence at the site are low.

The project area is not located near the ocean and therefore the risk of damage by tsunamis is absent. A seiche is a standing wave in an enclosed or partially enclosed body of water typically caused by an earthquake. However, there is limited information available about the risk of seiche on dam-impounded rivers. The project is located approximately 30 ft above the average pool level for Lake Umatilla, and therefore it is GRI's opinion that the risk of damage by a seiche is low.

As discussed in the previous section, it is GRI's opinion that the risk of seismic hazards, such as slope instability, ground rupture, liquefaction, and settlement or subsidence, is low. As a result, it is GRI's opinion that mitigation measures to address these hazards in the siting, design, and construction of the project are not necessary.

Non-Seismic Geologic Hazards

As shown on Figure 2, the planned facility has been sited on relatively flat ground about 1,500 ft from the riverbank. In addition, the regional groundwater table is located within the dense sand and gravel at the site. Considering these conditions, it is GRI's opinion that slope instability and landsliding are not geologic hazards that will impact the project and associated infrastructure.

The project area is mantled with wind-deposited fine-grained sand and silt soil known as loess. The silt particles are of relatively uniform size and the silt usually has sufficient cohesion, or undrained shear strength, so that excavations made in the material can stand on near-vertical slopes. True loess soils have never been submerged. When loaded by conventional spread footings and subsequently saturated, the

bond between the soil particles becomes weakened and the soil structure altered which can result in large settlements at the ground surface.

Mitigation of Non-Seismic Geologic Hazards

With the possible exception of the presence of loess soils, the work completed by GRI has not identified non-seismic geologic hazards that will require special consideration in the siting, design, and construction of the Pacific Ethanol facility.

The presence of loess soils can be readily accommodated during foundation design by several conventional methods that include: (1) establishing spread foundations below the loess, (2) drilled shaft foundations that develop support in the materials below the loess; (3) removal of the loess and replacement as compacted fill; and (4) in situ improvements of the loess soils. In the opinion of GRI, one or more of these approaches should be considered for the final design and construction of the foundations for the Pacific Ethanol facility improvements.

VI. LIMITATIONS

This report has been prepared to aid in the preliminary assessment of this project. The scope is limited to the specific project and location described herein, and GRI's description of the project represents their understanding of the significant aspects of the project relevant to the feasibility of constructing the proposed ethanol facility.

With respect to the work performed by others, GRI did not participate in the implementation of the work and did not independently verify the accuracy or completeness of the information provided. GRI makes no representations or warranty regarding instruments of service completed by others.

The information provided herein is for preliminary assessment only and is not intended for design or construction of the project. Additional geotechnical investigations will be necessary to develop guidelines for final design of this project.

VII. LIST OF PREPARERS

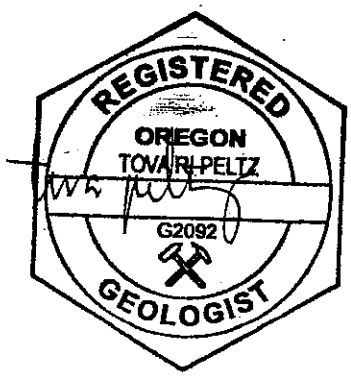
This report was prepared by the following GRI personnel.

Dwight J. Hardin, PE, served as principal-in-charge and principal geotechnical engineer. He has 34 years of geotechnical engineering experience and has directed the geotechnical services for numerous industrial facilities, tower structures, and marine facilities including numerous marine terminals along the Columbia River.

Tova R. Peltz, PE, RG, served as project engineer and geologist. She has six years of experience and has completed seismic hazard studies and site response analysis for at least 30 projects in Oregon.

VIII. SIGNATURES

Dwight J. Hardin, PE
Principal



Tova R. Peltz, PE, RG
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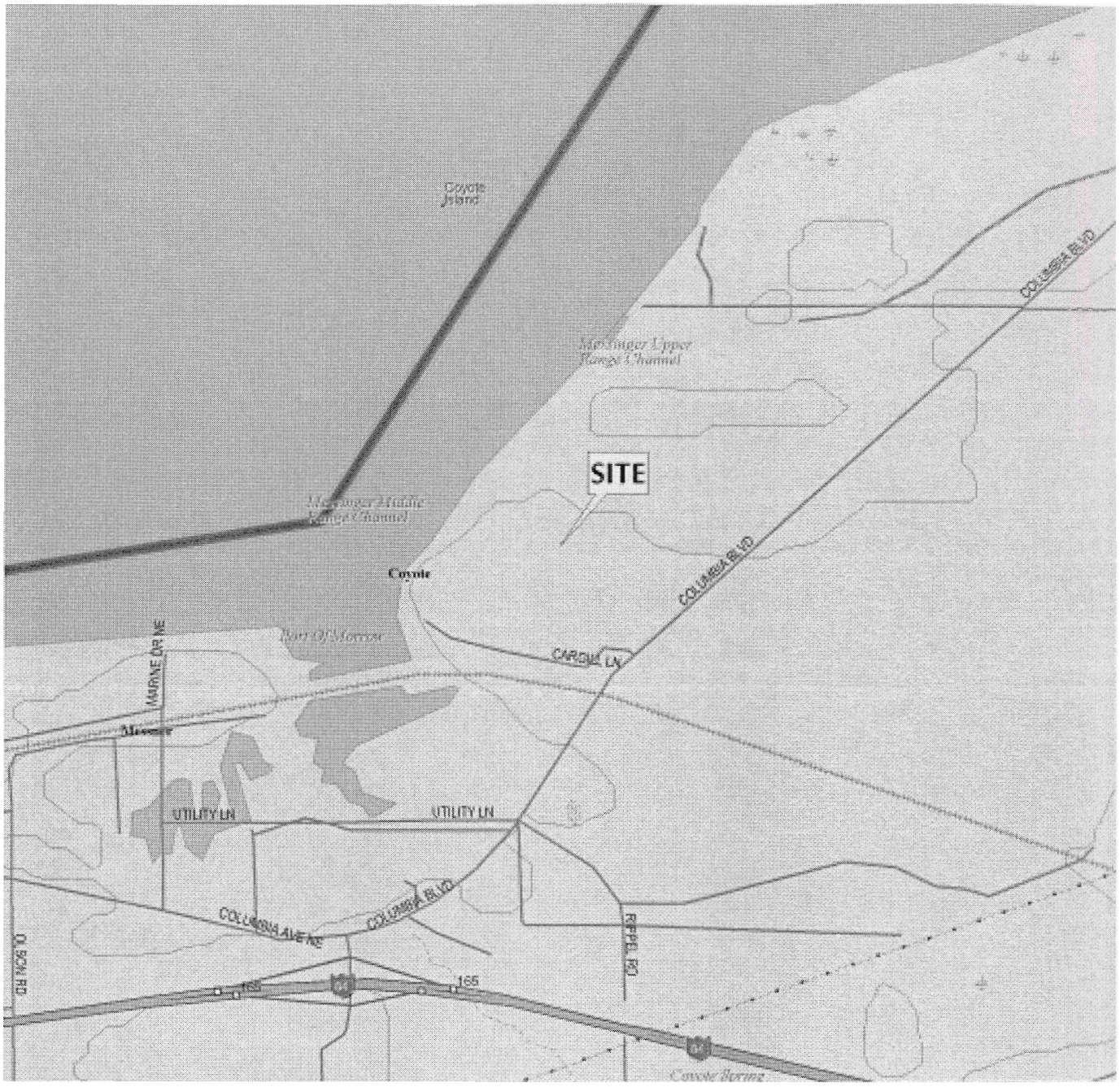


DELORME 3-D TOPOQUADS, OREGON
BOARDMAN, OREG. (1ac) 2004

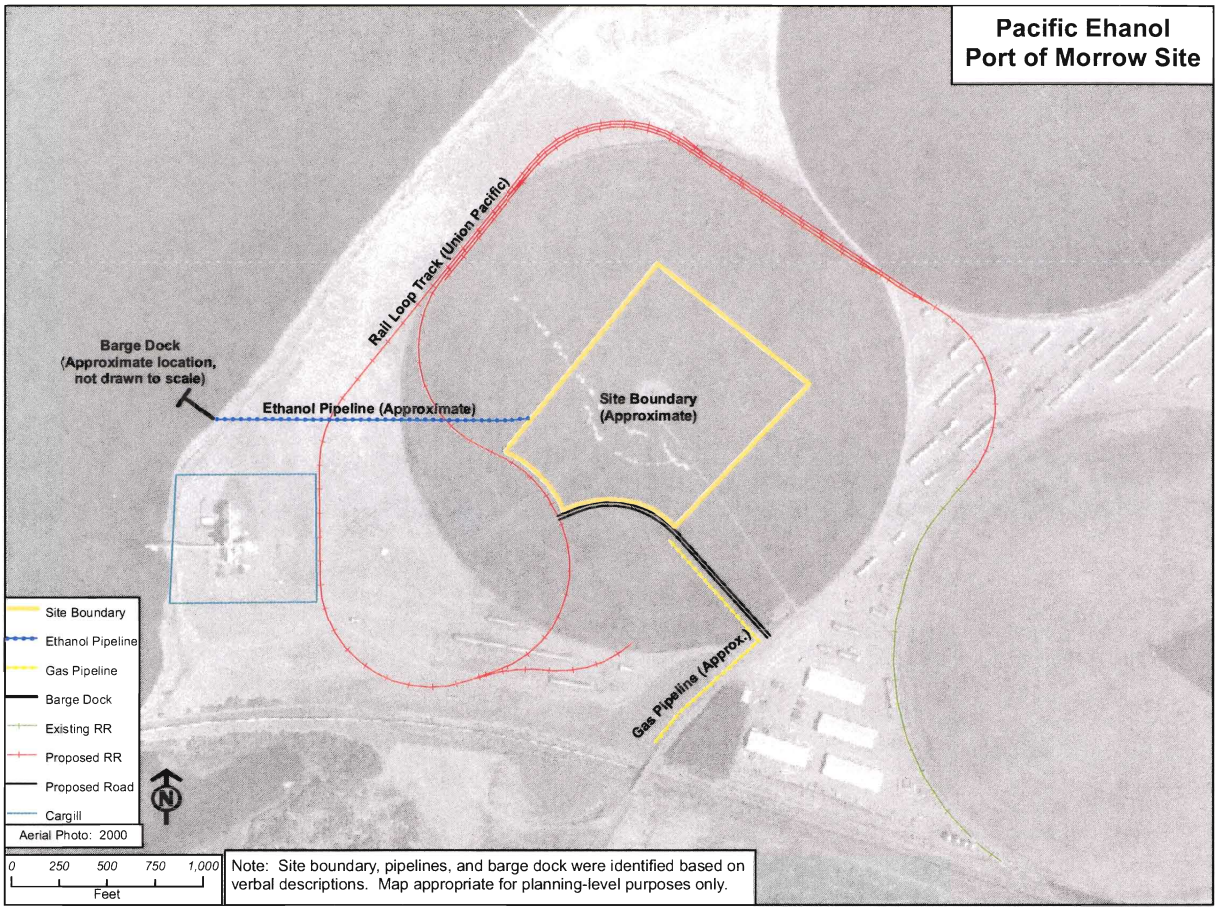
North

0 1/2 1 MILE

GRI DAVID EVANS AND ASSOCIATES, INC.
PACIFIC ETHANOL FACILITY

VICINITY MAP

JULY 2006 JOB NO. 4506 FIG. 1



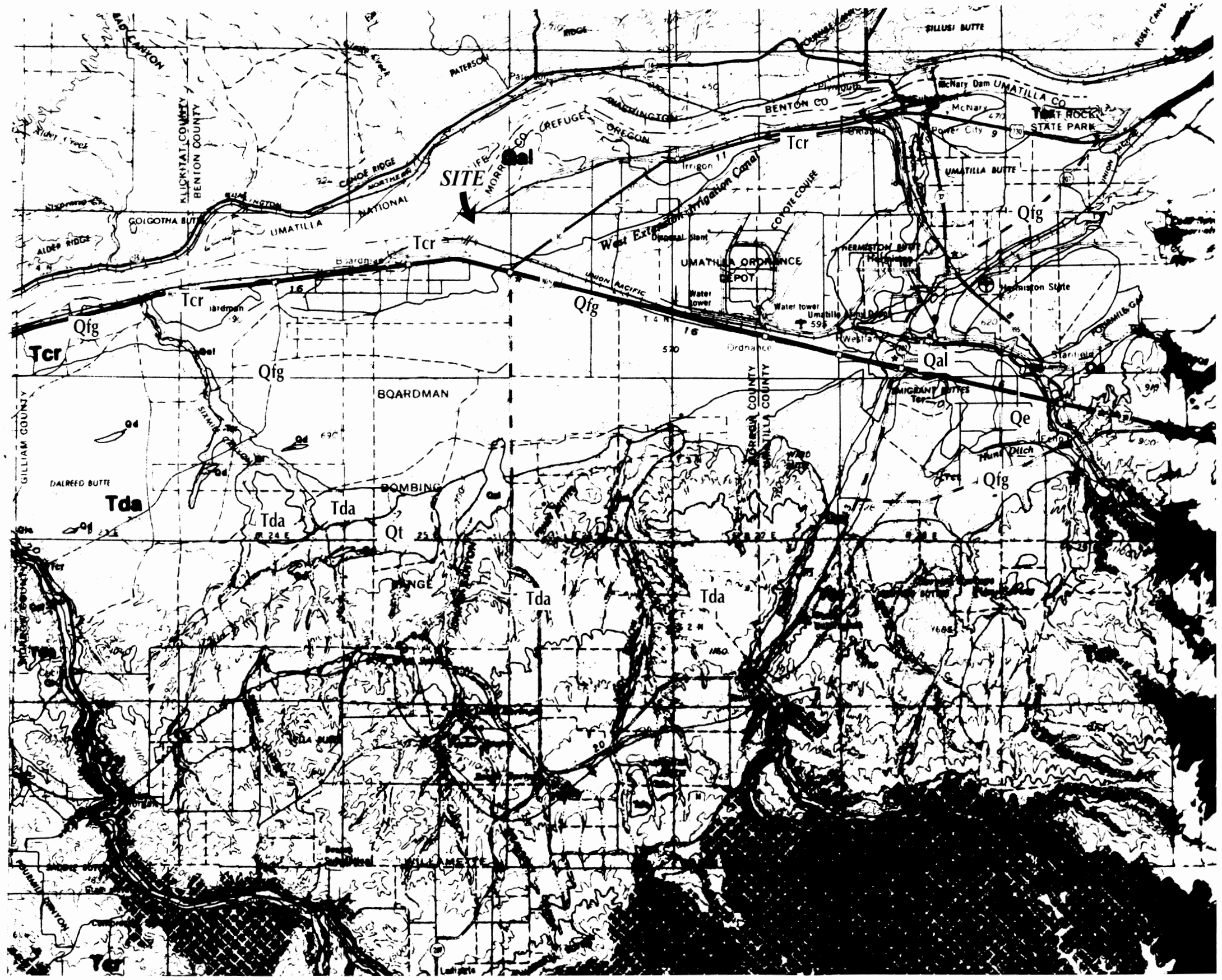
North

0 1,000 2,000 FT

GRI DAVID EVANS AND ASSOCIATES, INC.
PACIFIC ETHANOL FACILITY

SITE PLAN

JULY 2006 JOB NO. 4506 FIG. 2



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EXPLANATION

Qal	ALLUVIUM
Qf	ALLUVIAL FAN DEPOSITS
Qe	EOLIAN DEPOSITS
Qfg	CATASTROPHIC FLOOD GRAVEL
Qt	TOUCHET BEDS
Tda	DALLES GROUP, ALKALI CANYON FORMATION
Tcr	COLUMBIA RIVER BASALT GROUP

North

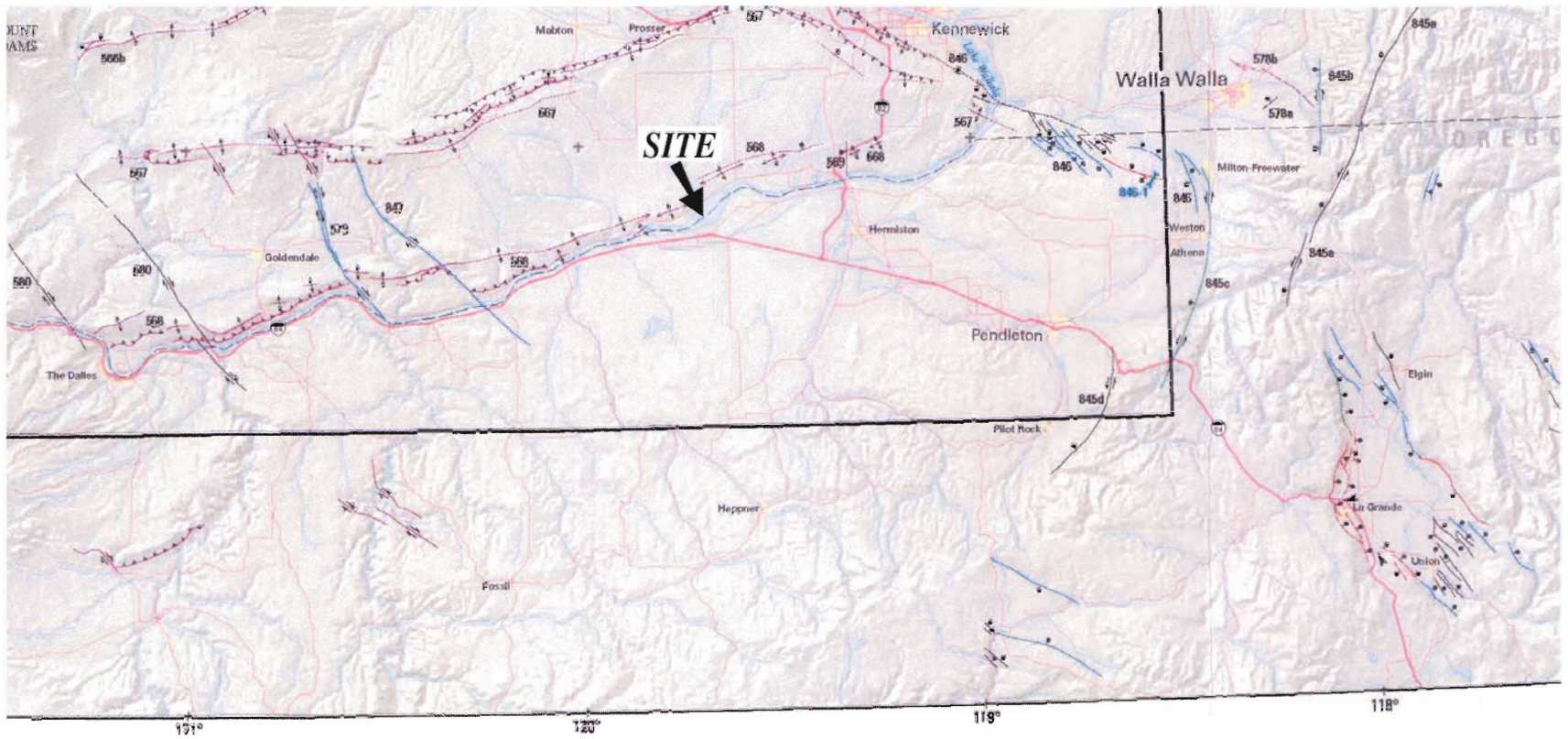
0 5 10 MILES

0 5 10 KILOMETERS

GRI DAVID EVANS AND ASSOCIATES, INC.
PACIFIC ETHANOL FACILITY

GEOLOGIC MAP

JULY 2006 JOB NO. 4506 FIG. 3



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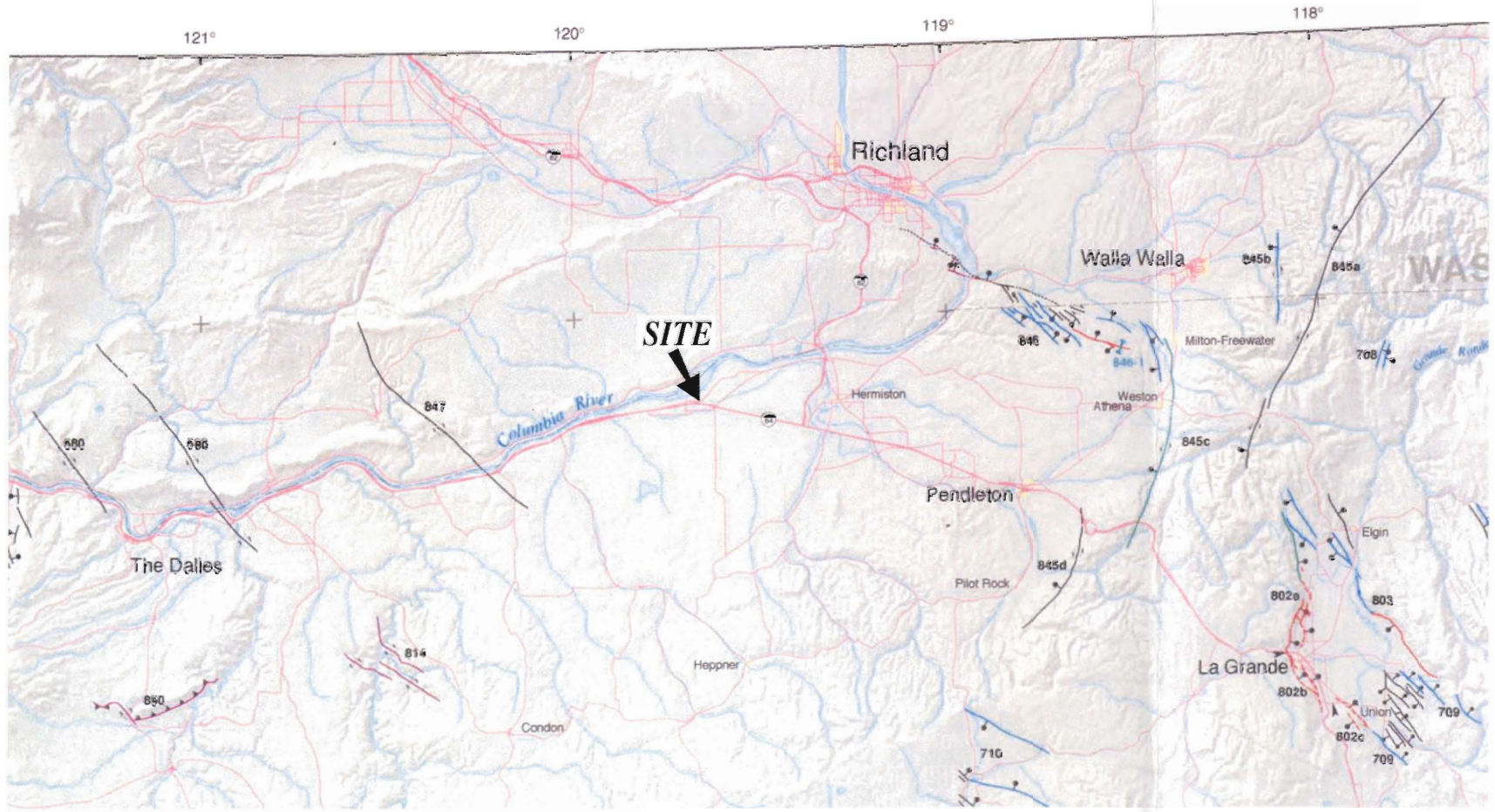

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MAP EXPLANATION

TIME OF MOST RECENT SURFACE RUPTURE
- Holocene (<10,000 years) or post last glaciation (<15,000 years; 15 ka); no historic ruptures in Oregon to date
- Late Quaternary (<130,000; post penultimate glaciation)
- Late and middle Quaternary (<750,000 years; 750 ka)
- Quaternary, undifferentiated (<1,600,000 years; <1.6 Ma)
- Class B structure (age or origin uncertain)

SLIP RATE
- >5 mm/year
- 1.0-5.0 mm/year
- 0.2-1.0 mm/year
- <0.2 mm/year

TRACE
- Mostly continuous at map scale
- Mostly discontinuous at map scale
- Inferred or concealed

STRUCTURE TYPE AND RELATED FEATURES
- Normal or high-angle reverse fault
- Strike-slip fault
- Thrust fault
- Anticlinal fold
- Synclinal fold
- Monoclinal fold
- Plunge direction of fold
- Fault section marker

DETAILED STUDY SITES
- 731-2 Trench site
- 781-2 Subduction zone study site

CULTURAL AND GEOGRAPHIC FEATURES
- Divided highway
- Primary or secondary road
- Permanent river or stream
- Intermittent river or stream
- Permanent or intermittent lake

QUATERNARY FAULTS INCLUDED IN STUDY:

FAULT NO.	NAME
568	COLUMBIA HILLS
569	SERVICE ANTICLINE
567	HORSE HEAVEN HILLS
565	RATTLENSNAKE HILLS
847	ARLINGTON-SHUTLER
846	WALLULA
566a	TOPPENISH RIDGE
579	LUNA BUTTE
563a	UMTANUM RIDGE
845c	HITE FAULT, AGENCY
845d	HITE FAULT, THORN HOLLOW

North

0 25 50 MILES

GRI DAVID EVANS AND ASSOCIATES, INC.
PACIFIC ETHANOL FACILITY

REGIONAL FAULT MAPS

JULY 2006 JOB NO. 4506 FIG. 4

EXHIBIT I

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

TABLE OF CONTENTS

APPENDICES

I.1 INTRODUCTION

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

Response: The evidence below demonstrates that facility construction and operation will not result in significant adverse impacts to soils. The potential for erosion during facility construction will be minimized by adhering to an erosion control plan and NPDES 1200-C construction permit. Further, all areas of temporary soil disturbance and vegetation removal will be reclaimed through reseeding of native vegetation or crops to protect against loss of soil to erosion.

I.2 IDENTIFICATION AND DESCRIPTION OF SOIL TYPES

OAR-345-021-0010(1)(i)(A) *Identification and description of the major soil types at the site and its vicinity;*

Response: The near surface soils at the project site were identified using the U.S. Department of Agriculture (USDA), Soil Survey of Morrow County, Oregon (USDA 1983). Figure I-1 shows the soil series map with project foot print. The entire project site is located in areas mapped as Quincy loamy fine sand, 2 to 12 percent slope (mapping unit 40C).

I.3 IDENTIFICATION AND DESCRIPTION OF LAND USES

OAR-345-021-0010(1)(i)(B) *Identification and description of any land uses on the proposed site and its vicinity, such as growing crops, that require or depend on productive soils;*

Response: The project site is zoned as Port Industrial Land and is currently experiencing construction activities associated with the Pacific Ethanol Plant. No crop growing or other land uses dependent on productive soils occurs at the site.

I.4 IDENTIFICATION AND ASSESSMENT OF IMPACTS TO SOILS

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

Response: Unavoidable impacts to soils will result from placement of permanent project facilities on approximately 9.5 acres of soil. Additionally, facility construction will temporarily disturb 10.7 acres (i.e. staging areas, excavation for underground utilities, etc.). An Erosion and Sediment Control Plan has been prepared for the project and approved by Oregon Department of Environmental Quality via issuance of a 1200-C permit (Appendix I-2). The plan provides measures for minimizing impacts to soil

resources as a result of project construction. Similar measures would be utilized upon project decommissioning. Temporarily disturbed areas would be revegetated to limit soil exposure to wind and water erosion.

An application for an amendment of the existing 1200-C permit to construct the ethanol pipeline is included as Appendix I-3. Impacts to soils from cooling towers are anticipated to be negligible (see Exhibit Z for additional detail). Land application of liquid effluent is proposed under the existing Port of Morrow WPCF permit. Potential impacts to soils via chemical spills will be minimized by compliance with federal and state rules and regulations for transport, storage, and use of such materials. A Hazardous Waste Emergency Response/Contigency Plan for the project will be developed to aid with management of chemical supplies and outline procedures for spill containment and cleanup should one occur (See Exhibits G and Z for further detail).

I.5 DESCRIPTION OF PROPOSED MITIGATION MEASURES

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

Response: Due to the facility footprint, direct permanent impacts to soil will be unavoidable. Construction of all features of the project will be in compliance with an erosion control plan and NPDES 1200-C construction permit (See Exhibit I-2) that requires Best Management Practices (BMPs) to minimize possible impacts from erosion. Sediment and erosion control measures to be installed during construction include: construction of a bioswale system, sediment barrier fence, ditch checks, catch basin inlet protection, and construction site entrance/exit treatments.

All areas disturbed that are not permanently paved or covered by new building construction will be planted with turf or native land cover.

I.6 MONITORING PROGRAM

OAR 345-021-0010(1)(i)(E) *The applicant's proposed monitoring program, if any, for impact to soils.*

Response: All erosion and sediment control measures will be inspected and maintained regularly as detailed in the Erosion and Sediment Control Plan (Appendix I-2). The inspections will verify that the structural BMPs described in the plan are in good condition and are minimizing erosion. The inspections will also verify that the procedures used to prevent storm water contamination from construction materials and petroleum products are effective.

As outlined in the Erosion and Sediment Control Plan, the following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- The stabilized construction entrance will be inspected for sediment tracked on the road and to determine that all traffic uses the stabilized entrance when leaving the site.

- Sediment barrier fence will be inspected, and accumulated sediments will be removed when they reach one-third the height of the sediment barrier fence.

- A maintenance inspection report will be made after each inspection that details corrective actions needed.

- An employee training program will be developed and implemented to educate employees about the requirements of the Erosion and Sediment Control Plan.

I.7 CONCLUSION

The information provided in this exhibit describes soils on the site and potential impacts in detail. The applicant will minimize impacts to soil by using sediment and erosion control Best Management Practices as described in the Erosion and Sediment Control Plan, which is part of the 1200-C permit. Temporarily disturbed areas will be revegetated to protect soils from long term erosion potential. These measures will ensure the impacts on soils are insignificant. Therefore, the applicant has met this standard, and the Council may find that the standard contained in OAR 345-022-0022 is satisfied.

REFERENCES

U.S. Department of Agriculture (USDA). 1983. Soil Survey of Morrow County, Oregon. Soil Conservation Service.

Appendix I-1

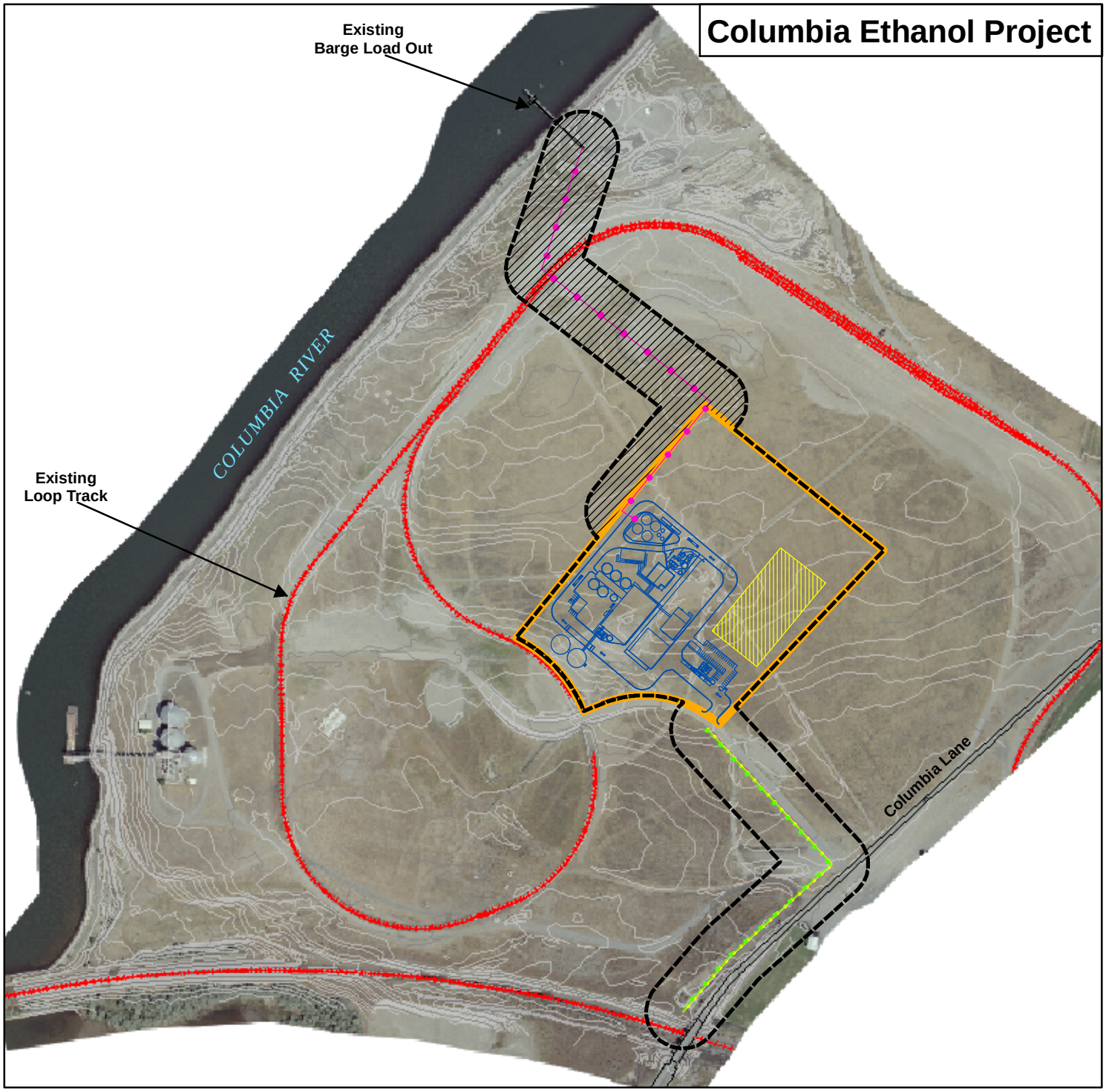
Soil Map

Appendix I-2

1200-C Permit and Supporting Application Materials

Appendix I-3

1200-C Permit Application for Ethanol Pipeline



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Existing Features

- Paved Road
- Railroad
- Major Contour
- Minor Contour

Proposed Features

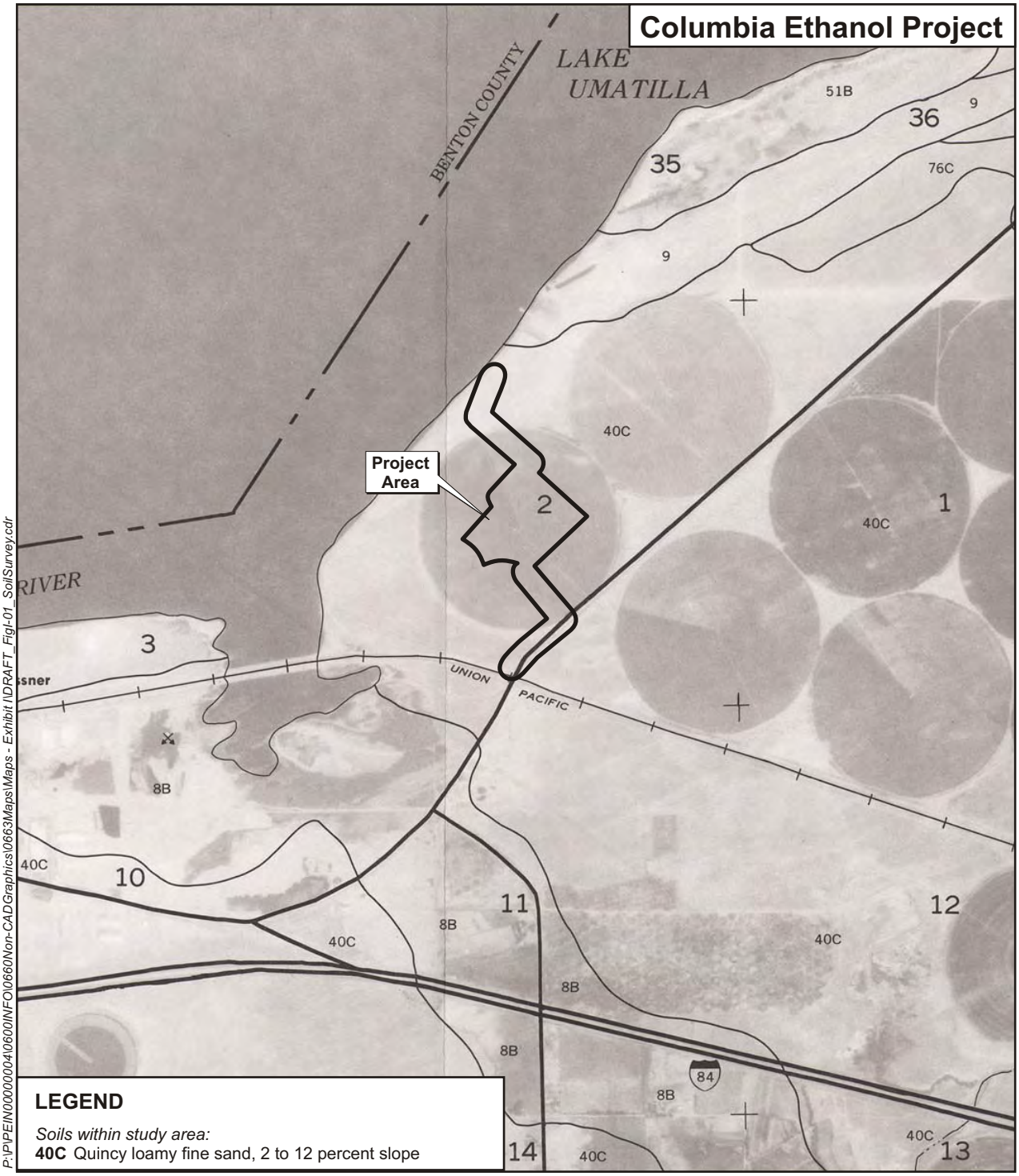
- Lease Boundary
- Site Boundary
- Ethanol Plant Footprint
- Power (Umatilla Electric Coop)
- Gas (Cascade Natural Gas)
- Barge Loadout
- Staging Area
- Permit Area for Ethanol Pipeline

1200-C Permit Application
for Ethanol Pipeline

N

0 300 600 1,200

Feet



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Soil Survey of Morrow County, Oregon 1983

Figure I-1
Soil Survey

Scale - 1 : 20 000

Erosion and Sediment Control Plan (ESCP)

for

Pacific Ethanol Boardman Plant

Morrow County, Oregon

Prepared for Pacific Ethanol

April 14, 2006

Prepared by
TKDA
1500 Piper Jaffray Plaza
444 Cedar Street
St. Paul, Minnesota 55101-2140
Project Number 13560.006

Oregon
Theodore R. Kulongoski, Governor

Department of Environmental Quality
Eastern Region
700 SE Emigrant
Suite 330
Pendleton, OR 97801
(541) 276-4063 Voice/TTY
FAX (541) 278-0168

May 5, 2006

COPY 13560.006
PJM

Terry Kulesa
Pacific Ethanol Columbia, LLC
PO Box 581
Windsor, CO 80550

Re: Construction Stormwater Control Permit - 1200-C
File No. 115352
Site: Pacific Ethanol - Boardman Plant
2 Marine Drive, Boardman, Oregon
County: Morrow

The Oregon Department of Environmental Quality (DEQ) has received your application and fees for registration for coverage under the National Pollutant Discharge Elimination System (NPDES) Construction Stormwater Discharge Permit 1200-C (permit). DEQ is approving your registration under the permit. Please be aware that in addition to the fees submitted with this application, you will be assessed an annual fee for each additional year of construction activity.

On December 28, 2005 DEQ adopted a revised permit. This permit has a term of five years and it expires on November 30, 2010, regardless of when you apply for registration.

Important Permit Provisions

Please review your copy of the permit carefully. For all projects the permit:

- Prohibits visible or measurable quantities of sediments from leaving the construction site and entering directly into surface waters, or to conveyance systems that discharge to surfaces waters, and prohibits violations of the state's in-stream water quality standards. If this occurs, permittees are required to take corrective actions to stop the discharge to surface waters and submit an Action Plan outlining the corrective actions taken.
- Requires permittee to implement Erosion and Sediment Control Plan that meets new best management practices.
- Requires daily inspections of erosion control measures when runoff is occurring.
- Requires the permittee to record all monitoring and inspections and to keep all records on site and updated.
- Requires all erosion control measures remain in place throughout the duration of construction project.

For construction projects involving 5 acres or more:

- Beginning June 1, 2006, permit applications and the Erosion and Sediment Control Plans will be subject to a 14-day public review period.

For construction projects that discharge to 303(d) listed water bodies for turbidity (water clarity) or sedimentation or to water bodies covered under state Total Maximum Daily Load pollution limits:

- Beginning October 1, 2006, permittees must meet one of the following requirements:
  - Conduct weekly stormwater runoff sampling for turbidity when runoff is occurring, or
  - Implement additional best management practices on the site to treat, control or prevent sediment discharges to "impaired" water bodies.

A map and table identifying the listed water bodies and affected river miles is available on DEQ's Web site at: http://www.deq.state.or.us/wq/wqpermit/stormwaterhome.htm.

For phased projects:

- Submit a Erosion and Sediment Control Plan for any phases not submitted with your original application to this regional DEQ office (Attention: Stormwater) at least 30 days prior to commencement of construction

Erosion and Sediment Control Plan (ESCP)
for
Pacific Ethanol
Boardman Plant

Morrow County, Oregon

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APPENDICES

ESCP

1.0 INTRODUCTION

1.1 Background

The Erosion and Sediment Control Plan (ESCP) is a requirement of the Oregon Department of Environmental Quality National Pollutant Discharge Elimination System (NPDES) General Permit for Storm Water Discharges From Construction Activity (CGP) and documents that the owner/developer of a site has a plan for storm water discharge that includes erosion prevention measures and sediment controls that, when implemented, will decrease soil erosion and decrease pollution in receiving waters. The ESCP is a combination of narrative, plan sheets, specifications and construction details for erosion and sediment control. Development, implementation, and maintenance of the ESCP will provide the contractor with the framework for reducing soil erosion and minimizing pollutants in storm water during construction of the Pacific Ethanol Boardman Plant.

1.2 ESCP Content

This ESCP includes the following:

- Identification of the ESCP coordinator with a description of that person's duties.
- Identification of the storm water pollution prevention team that will assist in implementation of the ESCP during construction activities.
- Description of the existing site conditions including existing land use for the site (i.e., wooded areas, open grassed areas, pavement, buildings, etc.) and soil types at the site, as well as the location of surface waters which are located on or next to the site (wetlands, streams, rivers, lakes, ponds, etc.).
- Identification of the body of water which will receive runoff from the construction site, including the ultimate body of water that receives the storm water.
- Identification of drainage areas and potential storm water contaminants.
- Description of storm water management controls and various Best Management Practices (BMPs) necessary to reduce erosion, sediment, and pollutants in storm water discharge.
- Identification that the construction process will not negatively impact any federally or state-listed endangered species and critical habitat.
- Documentation that this site will not discharge into a stream with Total Maximum Daily Load (TMDL) limits.
- The completed and certified Application for New NPDES General Permit 1200-C (Appendix G).
- The complete NPDES General Permit for Storm Water Discharges from Construction Activities (Appendix F).
- The Notice of Termination Form (NOT) with instructions (Appendix I).

2.0 ESCP INFORMATION AND RESPONSIBILITIES

2.1 ESCP Construction Site Coordinator and ESCP Team

The construction site ESCP coordinators for the facility are:

Contractor - To Be Determined

Terry Kulesa
Construction Manager
Pacific Ethanol
Front Range Energy
P.O. Box 581
Windsor, Colorado 80550
Email: tkulesa@msn.com

The construction site ESCP coordinators are responsible for the following:

- Implementing the ESCP with the aid of the ESCP team.
- Overseeing maintenance practices identified as BMPs in the ESCP.
- Implementing and overseeing employee training.
- Conducting or providing for inspection and monitoring activities.
- Identifying other potential pollutant sources and making sure they are added to the plan.
- Identifying any deficiencies in the ESCP and making sure they are corrected.
- Ensuring that any changes in construction plans are addressed in the ESCP.

The other member of the ESCP team is:

Brent Paulsen, P.E.
Project Manager
TKDA
1500 Piper Jaffray Plaza
444 Cedar Street
St. Paul, Minnesota 55101
Email: paulsen.bd@tkda.com

2.2 Documentation of Permit Eligibility Related to Endangered Species

A review of the endangered species in the State of Oregon was completed by searching the U.S. Fish and Wildlife Service's endangered species list, available online at http://www.fws.gov/pacific/ecoservices/. There are 56 listings for threatened or endangered species in the State of Oregon. To our knowledge, none of these endangered species are located on the project site. (Refer to Appendix D.)

A critical habitat search was completed through the U.S. Fish and Wildlife Service's interactive critical habitat mapping website at http://criticalhabitat.fws.gov/index.jsp. A search with this mapping utility indicated no critical habitat around the project area. (Refer to Appendix D.)

It is concluded that there are no potential impacts to endangered/threatened species or critical habitat due to storm water from this construction site. The construction will be located within the boundaries of the Port of Morrow industrial park. Storm water rates and patterns will generally remain the same. The storm water system includes bioswales that allow runoff to infiltrate and evaporate. There is no direct outlet to a public water.

The endangered species/critical habitat review was undertaken within the guidelines of Appendix C of the Environmental Protection Agency's NPDES CGP. The review's results support the decision to indicate on the Application for New NPDES General Permit 1200-C that this project meets permit eligibility in regard to the Endangered Species Act (ESA) through Criteria E. Criteria E requires that a project's storm water discharges are not likely to adversely effect any federally or state-listed threatened or endangered species or critical habitat.

2.3 Documentation of Permit Eligibility Related to Total Maximum Daily Loads (TMDLs)

A review of the available state and national TMDL impaired waters lists indicated that this project does not discharge to a water body with an approved or established TMDL plan. Therefore, this project meets permit eligibility in regard to TMDLs.

2.4 Applicable State, Tribal, or Local Programs

No additional state, tribal, or local permit requirements are necessary in addition to the requirements of the Oregon Department of Environmental Quality NPDES CGP.

2.5 Signature, Plan Preview, and Making Plans Available

The CGP requires that a copy of the ESCP must be kept at the construction site from the date of project initiation to the date of final stabilization. If an on-site location is not available, notice of the ESCP location must be posted conspicuously near the main entrance to the construction site. If not feasible, then the notice can be posted at a local public building such as a post office or a library. For linear projects, the notice must be posted at a publicly accessible location near the active part of the construction project. A copy must be made available to inspectors from authorized agencies during normal business hours.

The permit notice must contain the following:

- A copy of the completed Application for New NPDES General Permit 1200-C submitted to the Oregon Department of Environmental Quality.
- The current location of the ESCP.
- The contact person and telephone number for scheduling times to view the ESCP.

The ESCP must be made available to state, local, and tribal authorities upon request. The Oregon Department of Environmental Quality does not require permittees to provide public access to the ESCP, but strongly encourages it. The ESCP must be signed and certified by a responsible corporate person or by a duly authorized person who is knowledgeable in storm water principles and practices.

2.6 Maintaining an Updated Plan

The ESCP must be updated and revised when a change in design, construction method, operation, maintenance procedures, etc., may cause a serious effect on the discharge of pollutants to public waters. The ESCP will be amended, via an Action Plan, if it was determined that the ESCP was ineffective in eliminating or significantly minimizing pollutants in discharges from the construction site. Based on the results of inspections, the ESCP should be modified to reflect additional or modified BMPs designed to correct problems identified by the inspection. Revisions to the ESCP must be done in accordance with Schedule B of the CGP.

2.7 Notice of Termination (NOT)

The last phase of the ESCP process involves completion of the construction activity and termination of permit coverage. A permittee must continue to comply with permit conditions until the permittee no longer meets the definition of an operator of a construction site or until the construction activity is complete, all disturbed soils have been finally stabilized, and temporary erosion and sediment controls have been or will be removed. A permittee should submit a Notice of Termination (NOT) to inform the appropriate regulatory authority that the permittee is no longer an operator of the construction activity. This NOT should be submitted within 30 days after one or more of the following conditions have been met:

- Final stabilization has been achieved on portions of the site.
- Another operator has assumed control of areas of the site that have not been finally stabilized.
- Coverage under an individual or alternative NPDES permit has been obtained.

The NOT must be complete and accurate and include the name and address of both the owner and operator; the NPDES tracking number for storm water discharges; the basis upon which construction activities are considered complete, including that the site has received final stabilization; the construction project name and address; and a certified statement signed and dated by an authorized representative(s). When the permit is terminated, it will relieve the permittees of their responsibility. Refer to Appendix I for the NOT application and directions.

The NOT cannot be submitted until all construction activities for the project have been completed and all areas are finally stabilized. The CGP defines final stabilization as when 70 percent of the native background vegetative cover has been reestablished on all unpaved areas and areas not covered by permanent structures, or when equivalent permanent stabilization measures (such as the use of riprap, gabions, or geotextiles) have been employed. In arid and semi-arid areas only, final stabilization means that temporary erosion control has been installed, along with the appropriate seed base, to provide erosion control for at least three years without direct maintenance by the operator; and that the temporary erosion controls will achieve 70 percent vegetative cover in three years.

3.0 PLANT DESCRIPTION

3.1 Site Location

The construction site is located in the Port of Morrow industrial park. To date, an individual site address has not been identified for the plant; however, the Port of Morrow address of 2 Marine Drive, P.O. Box 200, Boardman, Oregon 97818 should be used. Latitude and longitude are 45 51' 22'' and 119 39' 19'', respectively. Refer to Appendix A for site maps illustrating the general site location.

3.2 Existing Site Conditions

The existing land cover is arid and semiarid rangeland with limited shrub cover. A significant portion of the site is exposed native soils. Storm water from the project area currently flows in a northerly direction and infiltrates and/or evaporates before leaving the site property limits. Refer to Appendices A and B for existing site conditions, storm water flow patterns, and photographs.

3.3 Construction Type

The construction will consist of approximately 19 acres of grading work to prepare and level the site for the ethanol plant. The ethanol plant will be designed and constructed by others. It will consist of buildings which house processing facilities, tank farm(s), and loading facilities. The proposed start for construction is approximately July 1, 2006, continuing for approximately 6 months. In general, on-site soils are suitable for construction materials and it is not anticipated that significant off-site sources for fill will be required.

3.4 Site Plan

The construction will not expand beyond the boundaries of the site and will not significantly change the storm water patterns. All storm water from the site will be collected in a bioswale system which will wrap around a significant portion of the site. The bioswale system will be planted with vegetation as recommended by a local seed manufacturer. The bioswale system has been designed to infiltrate/evaporate all of the storm water runoff from the site for up to the 100-year 24-hour rain event. No public waters exist in close proximity to the site, and it is concluded that there will be no direct

point of discharge to public waters. All areas outside the construction limits will not be disturbed. Appendix B contains the construction plans for the project, which show the location of all proposed features as well as grading contours and the location of the bioswale system.

3.5 Soil Information

The available soil information for the site has been taken from the Morrow County Soil Survey and draft Geotechnical Report. Refer to Appendix C for information from the soil survey and the geotechnical report. Soils indicated in the area of the project include Quincy loamy fine sand (40C).

3.6 Climate Data

The maximum average monthly rainfall in Boardman is approximately 1.3 inches. Refer to Appendix C for climate information.

4.0 IDENTIFICATION OF POTENTIAL STORM WATER CONTAMINANTS

The purpose of this section is to identify possible pollutants that could negatively impact storm water during construction of the plant.

4.1 Significant Material Inventory

Pollutants that result from clearing, grading, excavation, and building materials and that have the potential to enter storm water runoff are listed in Table 1. This table includes information regarding material type, chemical and physical description, and the specific regulated storm water pollutants associated with each material.

Table 1 Potential Construction Site Storm Water Pollutants

Trade Name	Material Chemical/Physical Description[1]	Storm Water Pollutants[1]
Pesticides (insecticides, fungicides, herbicides, rodenticides)	Various colored to colorless liquid, powder, pellets, or grains	Chlorinated hydrocarbons, organophosphates, carbamates, arsenic
Fertilizers	Liquid or solid grains	Nitrogen, phosphorous
Plaster	White granules or powder	Calcium sulphate, calcium carbonate, sulfuric acid
Cleaning solvents	Colorless, blue, or yellow-green liquid	Perchloroethylene, methylene chloride, trichloroethylene,
Asphalt	Black solid	Oil petroleum distillates
Concrete	White solid	Limestone, sand
Glue, adhesives	White or yellow liquid	Polymers, epoxies
Paints	Various colored liquid	Metal oxides, stoddard solvent, talc, calcium carbonate, arsenic
Curing compounds	Creamy white liquid	Naphtha

Trade Name	Material Chemical/Physical Description[1]	Storm Water Pollutants[1]
Wastewater from construction equipment washing	Water	Soil, oil and grease, solids
Wood preservatives	Clear amber or dark brown liquid	Stoddard solvent, petroleum distillates, arsenic, copper, chromium
Hydraulic oil/fluids	Brown oily petroleum hydrocarbon	Mineral oil
Gasoline	Colorless, pale brown or pink petroleum hydrocarbon	Benzene, ethyl benzene, toluene, xylene, MTBE
Diesel Fuel	Clear, blue-green to yellow liquid	Petroleum distillate, oil and grease, naphthalene, xylenes
Antifreeze/coolant	Clear green/yellow liquid	Ethylene glycol, propylene glycol, heavy metals (copper, lead, zinc)
Erosion	Solid Particles	Soil, Sediment

4.2 Potential Areas for Storm Water Contamination

The following potential source areas of storm water contamination were identified and evaluated:

- Cleared and graded areas.
- Building construction materials.
- Construction site entrance and asphalt parking area construction.

4.3 A Summary of Available Preconstruction Storm Water Sampling Data

There is no existing storm water sampling data available at this time.

5.0 STORM WATER MANAGEMENT CONTROLS

This section will identify the types of temporary and permanent erosion and sediment controls that will be used during construction activities. The controls will provide soil stabilization for disturbed areas and structural controls to divert runoff and remove sediment. This section will also address control of other potential storm water pollutant sources such as construction materials (paints, concrete dust, solvents, plaster), waste disposal, control of vehicle traffic, and sanitary waste disposal.

5.1 Sediment Control Plan (SCP)

Temporary erosion control best management practices (BMPs) for this project will include the construction of a bioswale system, sediment barrier fence, ditch checks, catch basin inlet protection, and construction site entrance/exit treatments. The bioswale system will be the final collecting point of all sediment during construction activities. The bioswales will be inspected in accordance with the inspection guidelines outlined in Section 6 of this ESCP and maintained as necessary. The project specifications also

detail final preparation of the bioswale areas for turf establishment. Sediment barrier fence, ditch checks, and inlet protection will be installed according to the plan, inspected in accordance with the inspection guidelines outlines in Section 6 of this ESCP, and maintained as necessary.

The permanent erosion control measure for this site will consist of the bioswale system. All areas disturbed that are not permanently paved or covered by new building construction will be turf or native land cover. The bioswale system must be cleaned out and regraded after all other construction is completed, and reviewed to ensure it has been constructed as shown in the plans. The bioswale system should be inspected yearly for accumulated sediments which should be removed as necessary to keep the system in functioning order per the original plan.

5.2 Construction Practices to Minimize Storm Water Contamination

All waste materials will be collected and stored in metal dumpsters. All trash and construction debris from the site will be deposited in the dumpsters. No construction materials will be buried on site. All personnel will be instructed regarding the correct procedure for waste disposal. All sanitary waste will be collected from portable units in an acceptable manner. Good housekeeping and spill control practices will be followed during construction to minimize storm water contamination from petroleum products, fertilizers, paints, and concrete.

To prevent storm water contamination from the construction site, the following BMPs will be implemented:

- All vehicles on site will be monitored for leaks and receive regular preventive maintenance to reduce the chance of leakage.
- Petroleum products will be stored in tightly sealed containers that are clearly labeled.
- Spill kits will be included with all fueling sources and maintenance activities.
- Any asphalt substances used on site will be applied according to the manufacturer's recommendations.
- Sanitary waste will be collected from portable units a minimum of two times a week to avoid overfilling.
- Dumpsters will be used for all waste materials.
- All paint containers and curing compounds will be tightly sealed and stored when not required for use. Excess paint will not be discharged to the storm system, but will be properly disposed of according to the manufacturer's instructions.

- Materials and equipment necessary for spill cleanup will be kept in the temporary material storage trailer on site. Equipment will include, but not be limited to, brooms, dust pans, mops, rags, gloves, goggles, kitty litter, sand, sawdust, and plastic and metal trash containers.

- Spray guns will be cleaned on a removable tarp.

- All spills will be cleaned up immediately upon discovery. Spills large enough to required assisted cleanup will be reported to the Oregon Emergency Response System 24-Hour Hotline: (800) 452-0311.

- Concrete trucks will not be allowed to wash out or discharge surplus concrete or drum wash water on the site unless done so in an approved containment feature.

- Catch basin and piping systems will be installed to collect and deliver storm water to the sedimentation basin.

- A stabilized construction entrance will be constructed to reduce vehicle tracking of sediments.

- All ruts caused by equipment used for cutting and removing of trees will be graded.

- Good housekeeping practices will be maintained by all construction personnel at all times while on site.

6.0 MAINTENANCE/INSPECTION PROCEDURES

6.1 Inspections

All erosion and sediment control measures will be inspected and maintained per Schedule B of the CGP. The inspections will be conducted by the ESCP coordinator or his designated storm water team members. The inspections will verify that the structural BMPs described in Section 5 of this ESCP are in good condition and are minimizing erosion. The inspections will also verify that the procedures used to prevent storm water contamination from construction materials and petroleum products are effective.

The following inspection and maintenance practices will be used to maintain erosion and sediment controls:

- The stabilized construction entrance will be inspected for sediment tracked on the road and to determine that all traffic uses the stabilized entrance when leaving the site.

- Sediment barrier fence will be inspected, and accumulated sediments will be removed when they reach 1/3 the height of the sediment barrier fence.

A maintenance inspection report will be made after each inspection. A copy of the report form to be completed by the ESCP coordinator is provided in Appendix E. An inspection report is required and must contain at least the following information:

- Inspection date, and names, titles, and qualifications of personnel making the inspection.
- Weather information for the period since the last inspection was performed. This information should contain a best estimate of the beginning of each storm event, duration of the event, approximate storm event rainfall amount, and if discharge occurred.
- Weather and discharge information at the time of the inspection.
- Locations of discharges of sediments or other pollutants.
- Locations of BMPs that need to be maintained, BMPs that failed to operate or proved inadequate at a location, and BMPs that are needed but did not exist at the time of inspection.
- Corrective action required including necessary changes to the ESCP and implementation dates.

The inspection report must also contain any incidents of non-compliance and be retained as part of the ESCP for at least three years from the date the permit expires or terminates. The inspection report must be signed by a responsible corporate person or by a duly authorized inspection person.

Completed forms will be maintained on site during the entire construction project. If construction activities or design modifications are made to the site plan that could impact storm water, this ESCP will be amended appropriately. The amended ESCP will have a description of the new activities that contribute to the increased pollutant loading and the planned source control activities.

6.2 Employee Training

An employee training program will be developed and implemented to educate employees about the requirements of the ESCP. This education program will include background on the components and goals of the ESCP and hands-on training in erosion controls, spill prevention and response, good housekeeping, proper material handling, disposal and control of waste, equipment fueling, and proper storage, washing, and inspection procedures. All employees will be trained prior to their first day on the site.

6.3 Certification

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manages the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Brent D. Paulsen — Signature

4-18-06 — Date

Brent Paulsen, P.E. — Name (Print or Type)

Project Manager — Title

General Contractor Certification

I certify under penalty of law that I understand the terms and conditions of the general National Pollutant Discharge Elimination System (NPDES) permit that authorizes the storm water discharges associated with construction activity from the construction site identified as part of this certification.

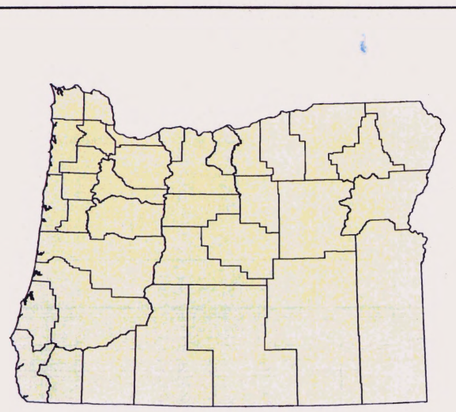
_____ Signature

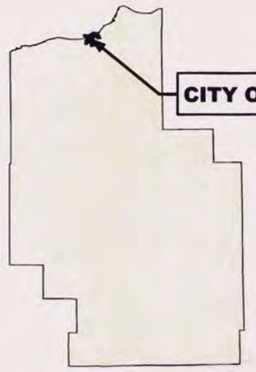
_____ Date

_____ Name (Print or Type)

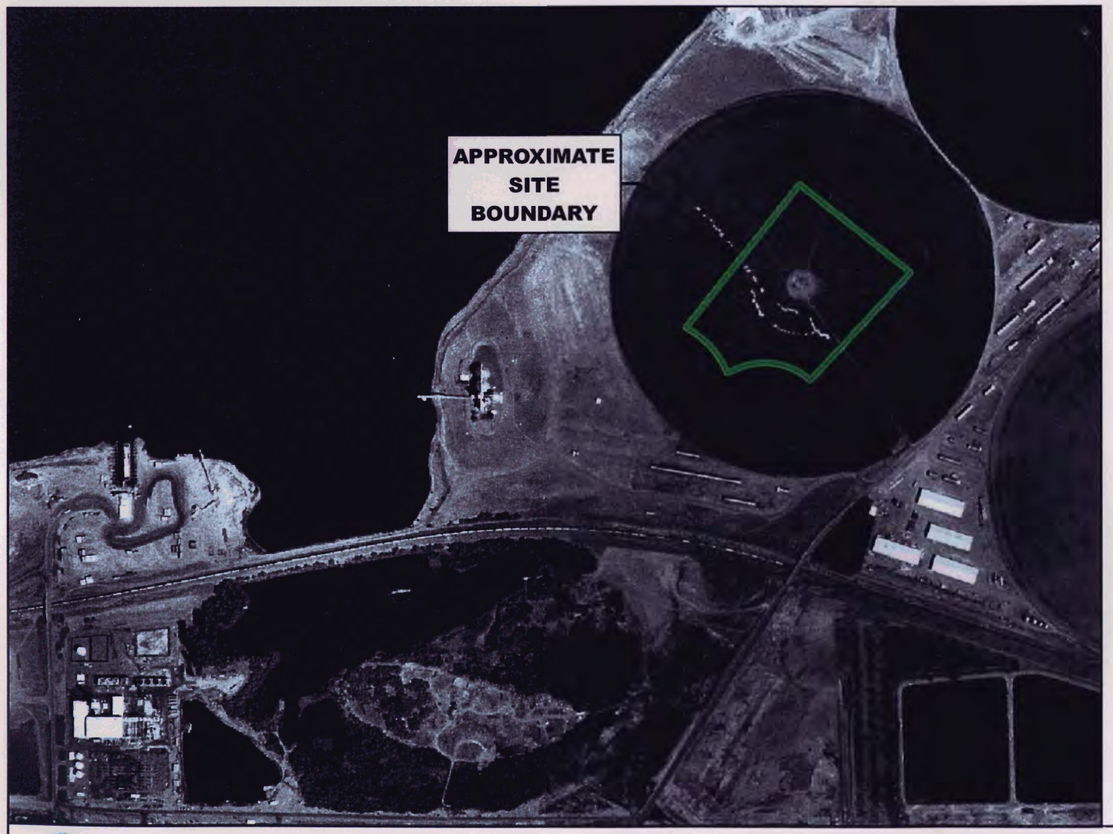
_____ Title

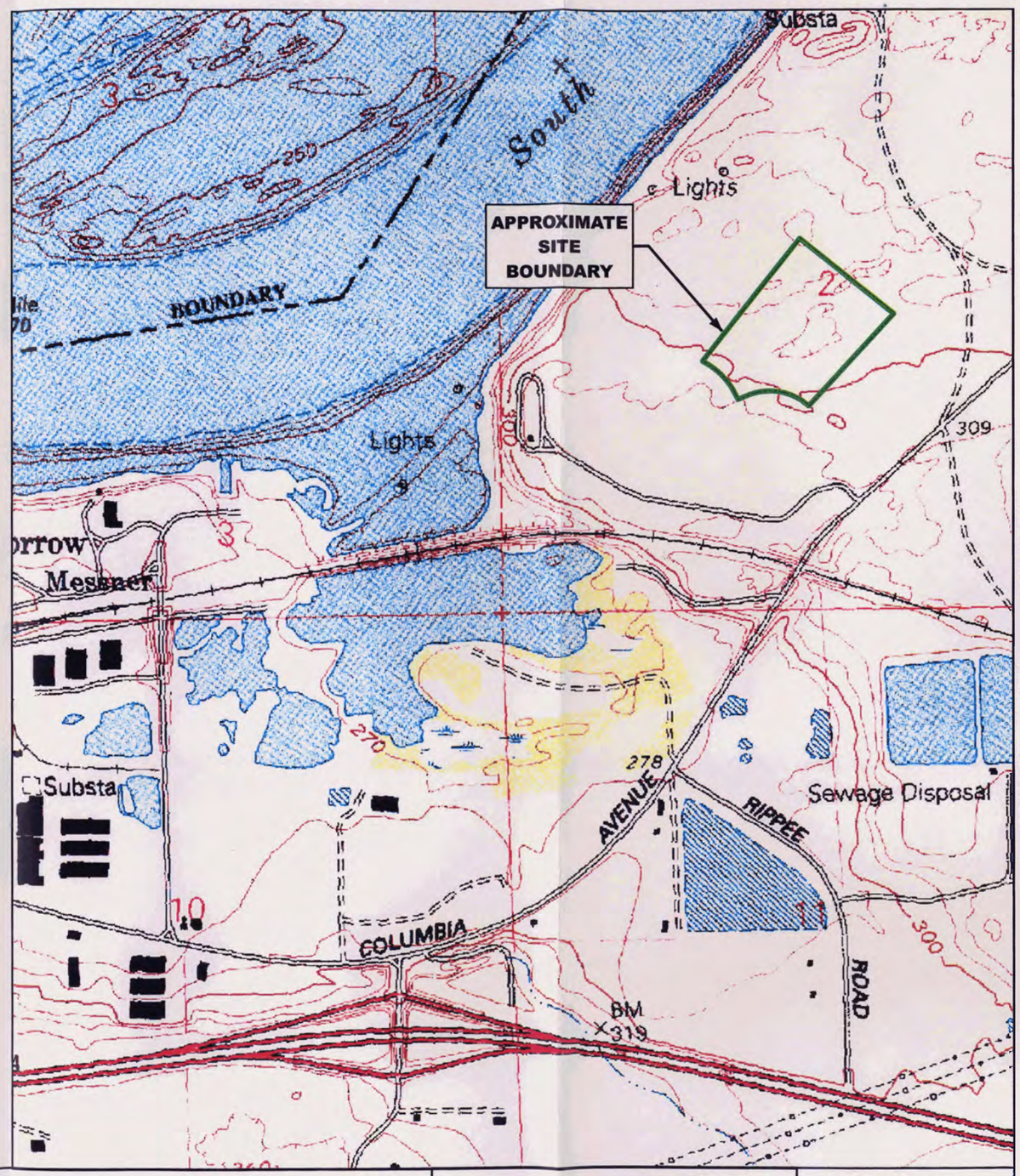
APPENDIX A





MORROW COUNTY
OREGON





PACIFIC ETHANOL, INC.

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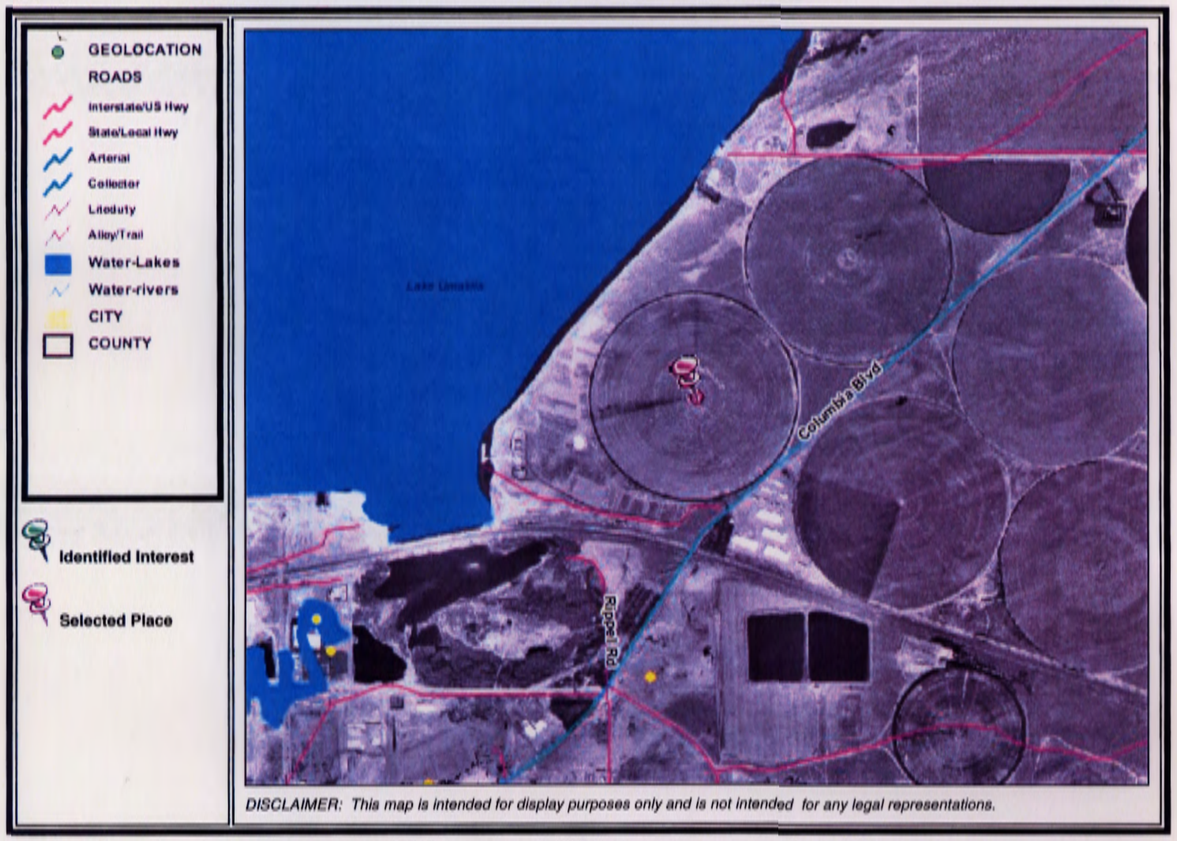
BOARDMAN PLANT

TKDA
ENGINEERS • ARCHITECTS • PLANNERS

Oregon DEQ Location Improvment Tool (LIT) Map



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Oregon DEQ Location Finder

Follow these steps for improved data

Click map to: Identify interests e place Zoom In Zoom Out Re

1 **Locate Place :**
Type in address, or
Type in latitude/longitude, or
Zoom and **Locate** with **Map**.

2 **Save Location:**
Find45.8561 Create

New Location:
[clear] [re-center]
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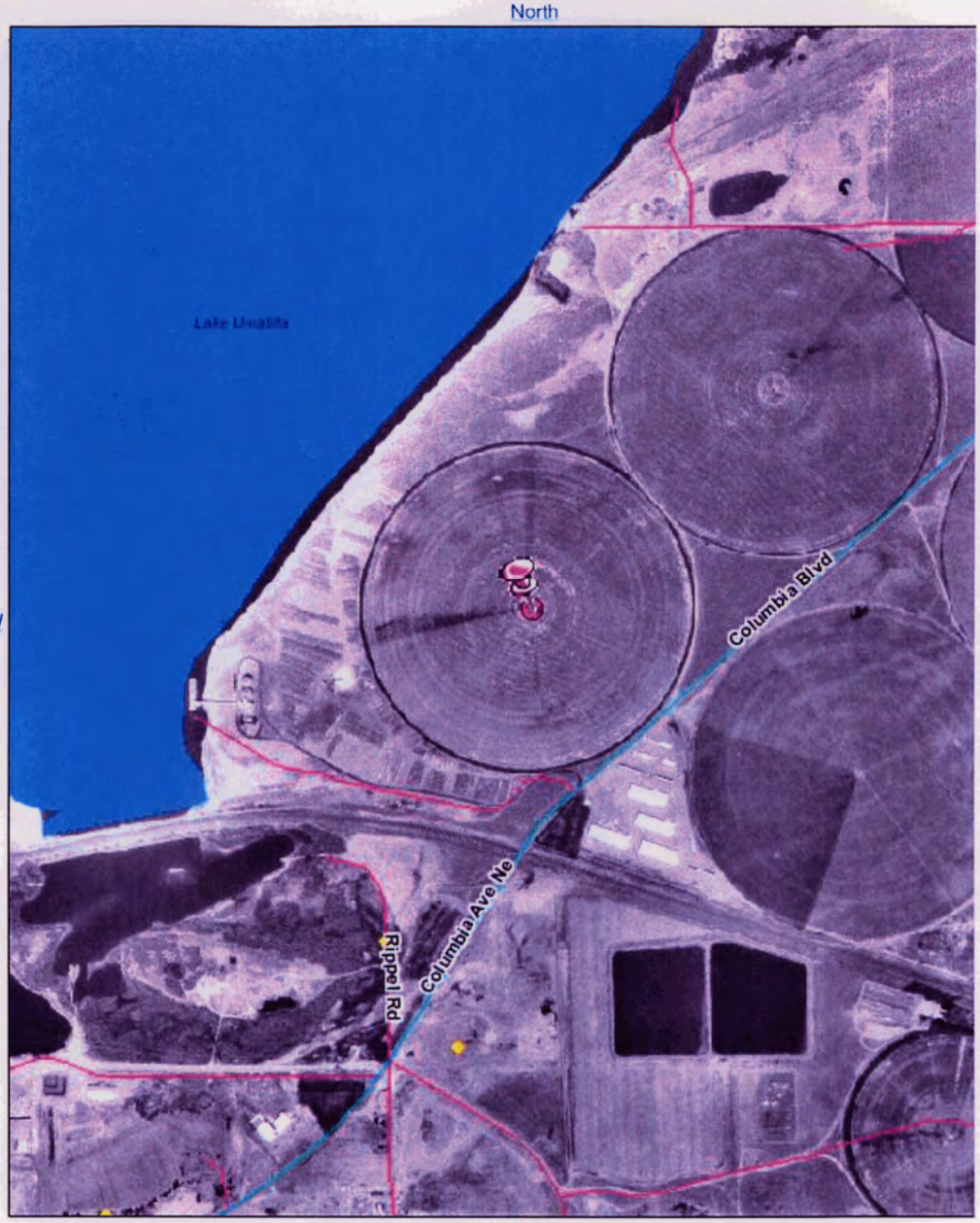
45.8561 -119.6551
County: MORROW
Zip: 97844
HUC Code: 17070101

North



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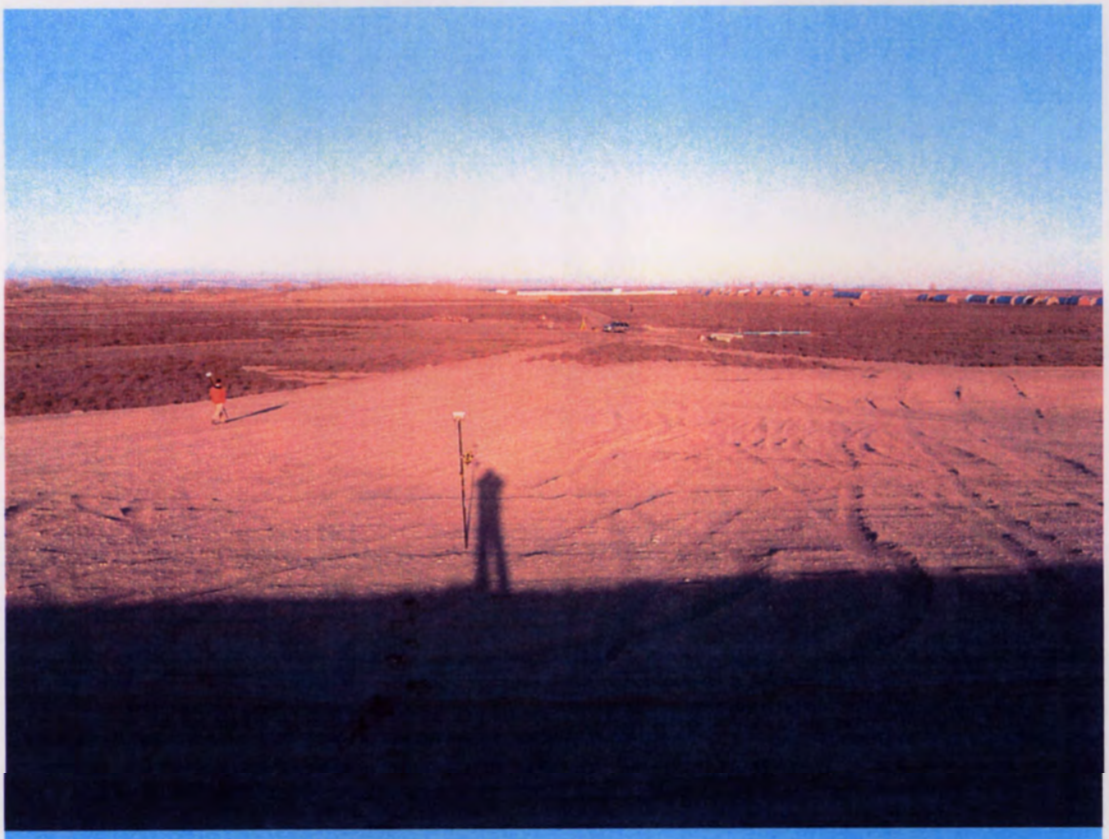
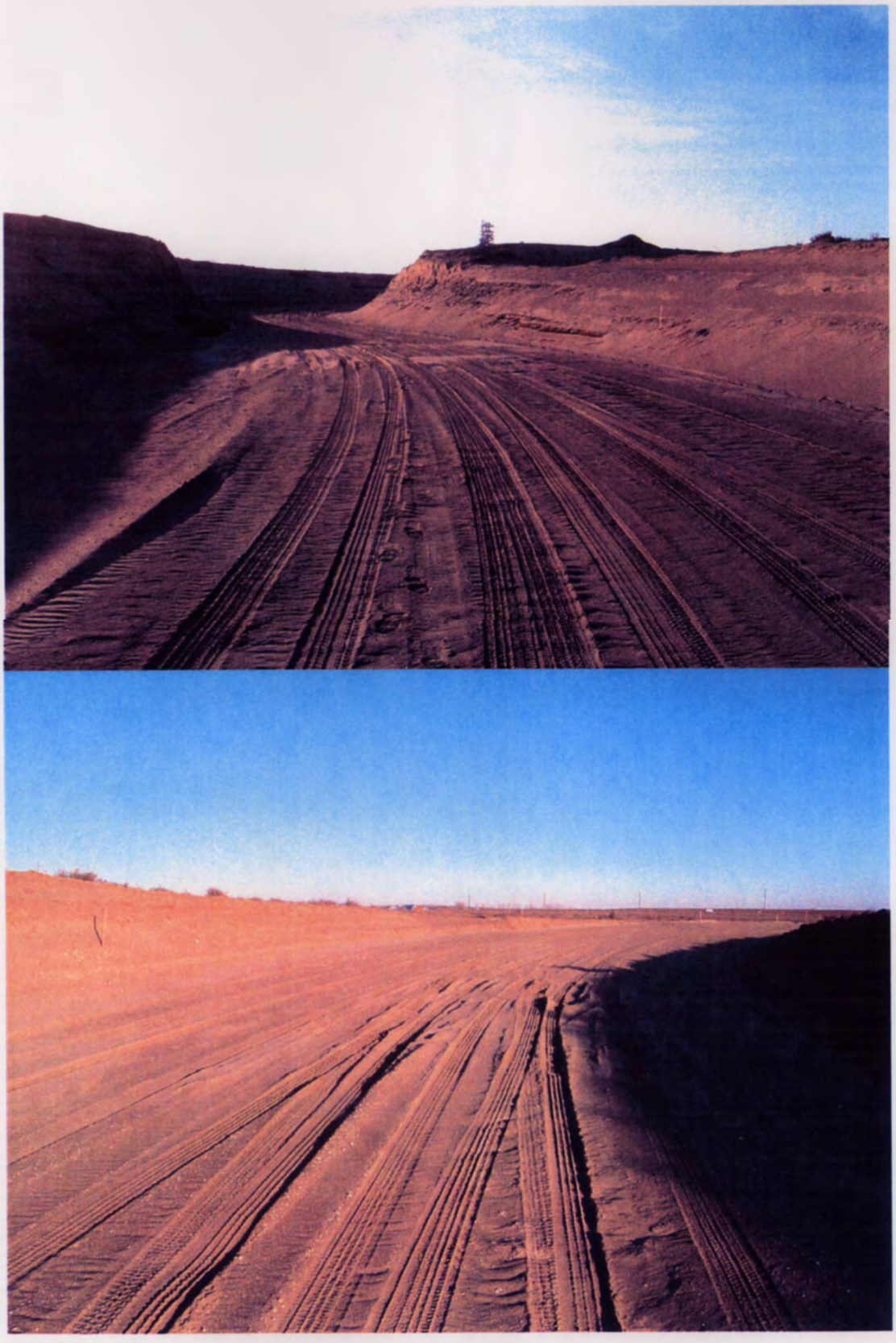
South

Oregon DEQ Location Finder 1.4



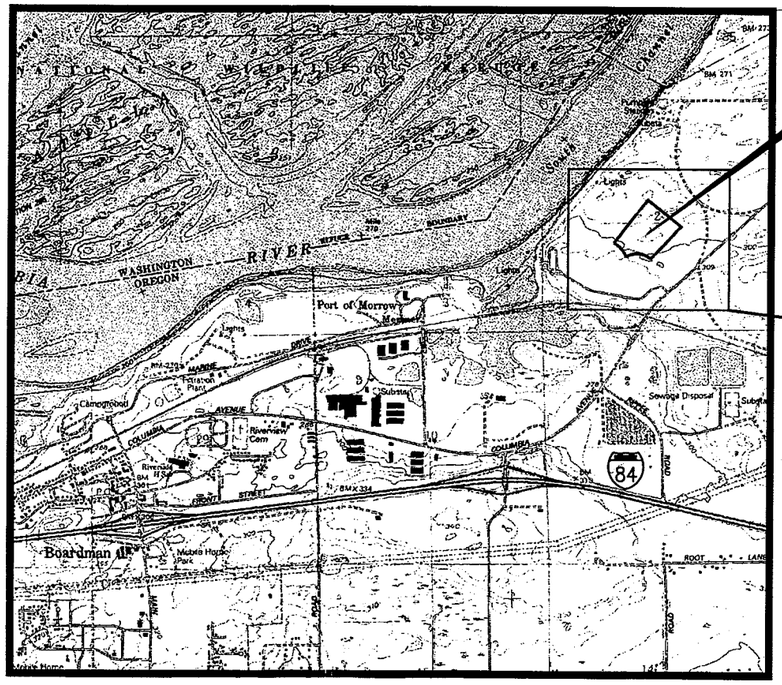


PACIFIC ETHANOL, INC.
COLUMBIA
BOARDMAN, OREGON
SITE AND UTILITY PLAN

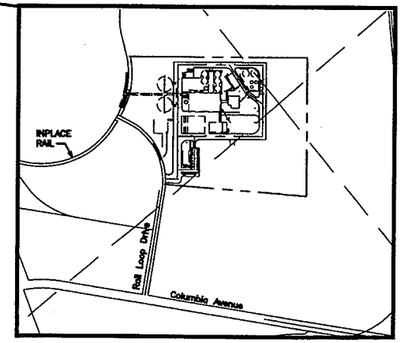
SITE DESCRIPTION

TAX LOT NUMBER 100 AND 115 LOCATED IN SECTION 2, TOWNSHIP 4 NORTH, RANGE 25, EAST OF THE WILLAMETTE MERIDIAN LOCATED WITHIN MORROW COUNTY, OREGON.

SITE AREA: 24.85 ACRES
ZONING DESIGNATION: PORT INDUSTRIAL
FIRE DISTRICT: BOARDMAN FIRE PROTECTION DISTRICT



VICINITY MAP



INDEX OF SHEETS

BID SET

NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA
ENGINEERS • ARCHITECTS • PLANNERS
1500 Piper Jaffray Plaza
444 Cedar Street
Saint Paul, MN 55101-2140
(651) 292-4400
Fax: (651) 292-0083
www.tkda.com

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BDP	RRC	BDP

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Pacific Ethanol, Inc.
5711 N. West Avenue
Fresno, CA 93711
office: (559) 435-1771
fax: (559) 435-1478
www.pacificethanol.net

PEI - COLUMBIA
TITLE SHEET

PROJECT. NO. 13560.006
DRAWING NO. 1

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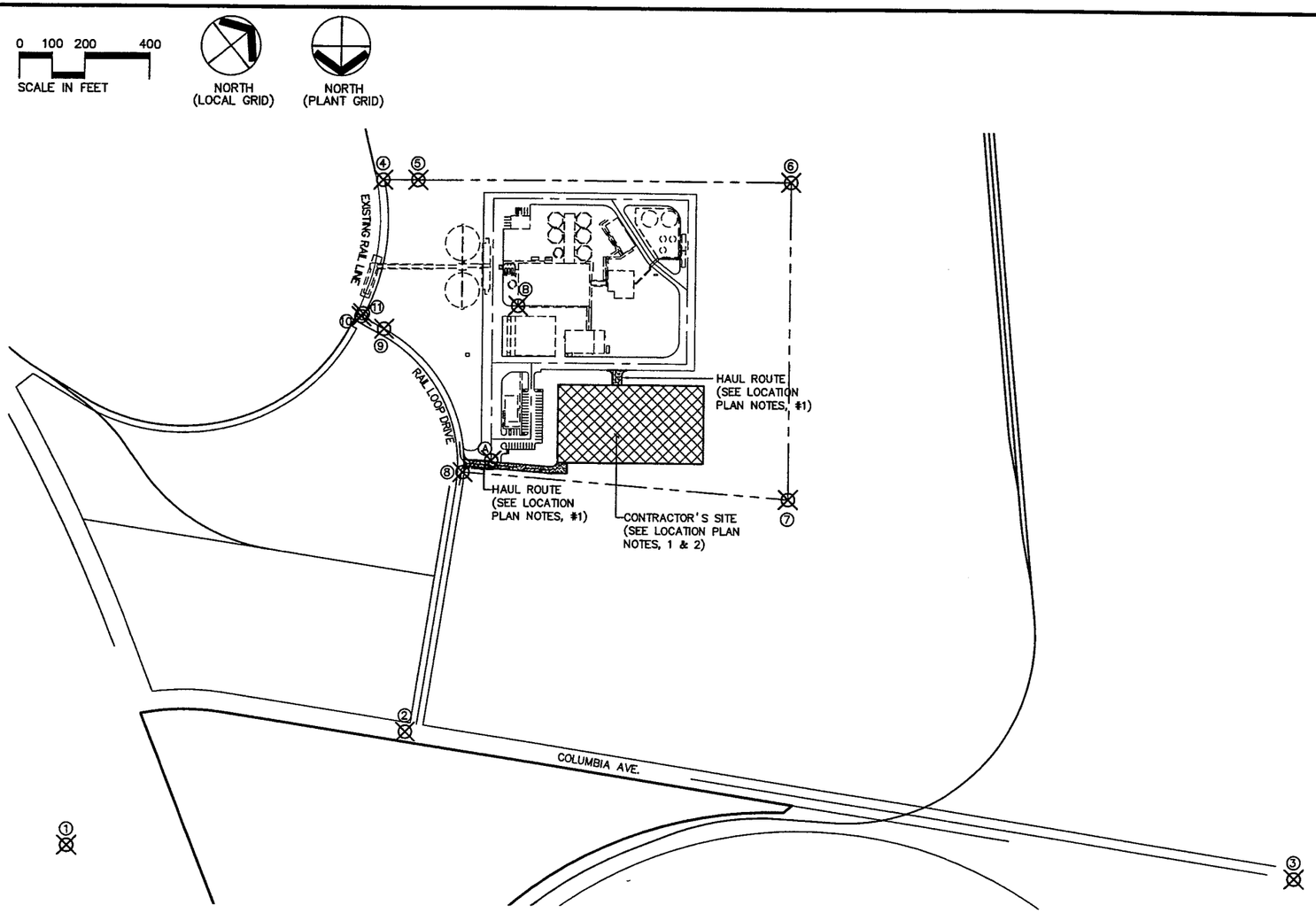

GENERAL NOTES:

1. ALL WORK ON THIS PROJECT SHALL CONFORM TO THE REQUIREMENTS OF THE LATEST EDITION OF THE FOLLOWING
   A. NATIONAL BUILDING CODE
   B. RULES OF THE NATIOAL BOARD OF FIRE UNDERWRITERS
   C. STANDARD SPECIFICATIONS OF THE AMERICAN SOCEITY FOR TESTING AND MATERIALS
   D. STANDARD SPECIFICATIONS OF THE AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORATION OFFICIALS
   E. APPLICABLE STATE LAWS OF OREGON
   F. APPLICABLE LOCAL AND COMMISSION ORDINANACES AND CODES
   G. NATIONAL ELECTRICAL CODE
   8. OCCUPATIONAL SAFETY AND HEALTH ADMINISTRATION
2. ALL WORK ON THIS PROJECT SHALL BE IN CONFORMANCE WITH THE STATE OF OREGON STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, LATEST EDITION, AND ANY MODIFICATIONS THERETO BY THESE CONTRACT DOCUMENTS.
3. ALL EXISTING IMPROVEMENTS AND UTILITIES OUTSIDE THE LIMITS OF PROPERTY LINE, OR DESIGNATED TO BE PRESERVED OR PROTECTED, THAT ARE REMOVED, DAMAGED, OR UNDERCUT, SHALL BE REPAIRED OR REPLACED.
4. THE CONTRACTOR IS RESPONSIBLE FOR OBTAINING AND HAVING ON-SITE THE LATEST UPDATED AND SIGNED PLANS PRIOR TO CONSTRUCTION.
5. CONTRACTOR ASSUMES SOLE AND COMPLETE RESPONSIBILITY FOR JOB SITE CONDITIONS DURING THE COURSE OF THIS PROJECT, INCLUDING SAFETY OF ALL PERSONS AND PROPERTY.
6. UNAUTHORIZED CHANGES AND USES: THE ENGINEER OF RECORD WILL NOT BE RESPONSIBLE OR LIABLE FOR UNAUTHORIZED CHANGES TO OR USES OF THESE PLANS. ALL CHANGES TO THE PLANS AND SPECIFICATIONS MUST BE IN WRITING AND MUST BE APPROVED BY THE OWNER AND REVIEWED BY THE ENGINEER OF RECORD.
7. CONTRACTOR SHALL PROVIDE TRAFFIC CONTROL AND TAKE ADEQUATE MEASURES TO PROTECT THE PUBLIC. CONSTRUCTION SIGNING SHALL BE IN ACCORDANCE WITH THE STATE OF OREGON DEPARTMENT OF TRANSPORTATION TRAFFIC MANUAL.
8. AT LEAST TWO (2) WORKING DAYS BEFORE BEGINNING WORK, THE CONTRACTOR SHALL REQUEST UTILITY OWNERS TO MARK OR OTHERWISE INDICATE THE LOCATION OF SUBSURFACE FACILITIES. IT SHALL BE THE CONTRACTOR'S RESPONSIBILITY TO DETERMINE THE LOCATION AND DEPTH OF ALL SUBSURFACE FACILITIES WHICH HAVE BEEN MARKED BY THE RESPECTIVE OWNERS AND WHICH MAY AFFECT OR BE AFFECTED BY THEIR CONSTRUCTION ACTIVITIES. THE CONTRACTOR SHALL PROTECT UTILITIES OR STRUCTURES FOUND AT THE SITE.
9. PUBLIC AGENCY CONTACTS:
   A. MORROW COUNTY PLANNING DEPARTMENT (CARLA McLANE) – (541) 922-4624
   B. CITY OF BOARDMAN BUILDING OFFICIAL (BRETT COOK) – (541) 481-9252
   C. PORT OF MORROW ENGINEERING AND UTILITIES (RON McKINNIS) – (541) 481-7678
   D. CITY OF BOARDMAN FIRE DEPARTMENT (MARK ROGELSTAD) – (541) 481-3473
   E. UTILITY NOTIFICATION CENTER – 1-800-332-2344
   F. OREGON EMERGENCY RESPONCE SYSTEM 24-HOUR HOTLINE – 1-800-452-0311

HORIZONTAL CONTROL POINTS

POINT NO	COORDINATES		DESCRIPTION
	NORTH	EAST	
1	797193.54	2215915.18	SECTION CORNER
2	798220.32	2216290.53	PK NAIL, CL OF COLUMBIA
3	800085.95	2218355.52	PK NAIL, CL OF COLUMBIA
4	799218.12	2214924.73	PEI PROPERTY CORNER
5	799302.13	2214992.61	PEI PROPERTY CORNER
6	800196.66	2215715.33	PEI PROPERTY CORNER
7	799587.06	2216469.84	PEI PROPERTY CORNER
8	798854.61	2215777.08	PEI PROPERTY CORNER
9	798938.81	2215281.60	PEI PROPERTY CORNER
10	798907.97	2215207.78	PEI PROPERTY CORNER
11	798917.19	2215203.93	PEI PROPERTY CORNER

NOTE : THE SITE TOPOGRAPHIC SURVEY IS BASED ON A LOCAL GRID SYSTEM. CONTACT RON MCKINNIS (541-481-7678) AT THE PORT OF MORROW FOR INFORMATION REGARDING THE GRID SYSTEM, SURVEY CONTROL POINTS, AND BENCHMARKS.

LOCATION PLAN NOTES:

1. SEE CONSTRUCTION DETAILS FOR HAUL ROUTE AND CONTRACTOR'S SITE SURFACING DETAILS.
2. THE CONTRACTOR SHALL DETERMINE THE LOCATION AND CONSTRUCT A TEMPORARY SEDIMENTATION BASIN. SEE THE EROSION AND SEDIMENT CONTROL PLAN FOR FURTHER DETAILS.

PLANT CONTROL POINTS

POINT NO	COORDINATES		PLANT COORDINATES		DESCR./ ELEV.
	NORTH	EAST	NORTH	EAST	
A	798944.89	2215803.70	1000.00	1000.00	–
B	799303.71	2215483.69	525.58	922.00	100.00

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NO.	DATE	BY	DESCRIPTION OF REVISIONS

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444 Cedar Street
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BDP	MCP	BDP

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office: (559) 435-1771
fax: (559) 435-1478
www.pacificethanol.net

PEI - COLUMBIA LOCATION PLAN

PROJECT. NO. 13560.006
DRAWING NO. 2

UTILITY PLAN NOTES:

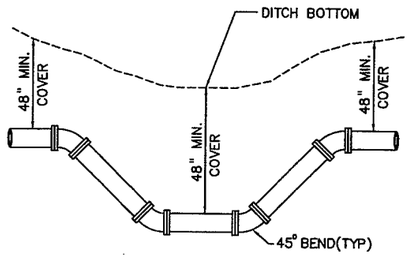
1. SCREENED BACKGROUND OF EXISTING CONDITIONS REFLECTS THE SITE PRIOR TO REMOVALS.
2. WATERMAIN SHALL BE PVC CONFORMING TO AWWA C-900, WITH MINIMUM DIMENSION RATIO (DR) OF 18.
3. ALL FITTINGS, HYDRANTS AND VALVES SHALL BE MECHANICAL JOINT ON ALL ENDS.
4. SANITARY SEWER SHALL BE 8-INCH PVC, SDR 35.
5. PROCESSING SEWER SHALL BE 8-INCH PVC, SDR 35.
6. STORM SEWER SHALL BE HDPE, WITH H-25 LOADING.
7. VERIFY EXISTING INVERT ELEVATIONS WHERE NEW UTILITY CONNECTS TO EXISTING UTILITY PRIOR TO CONSTRUCTION.
8. VERIFY LOCATION AND ELEVATION OF UTILITY CROSSINGS PRIOR TO CONSTRUCTION.
9. CONNECTIONS TO EXISTING PORT OF MORROW UTILITIES, INCLUDING WATER "SHUT-OFFS", SHALL BE INCLUDED IN THE SINGLE LUMP SUM BASE BID.
10. COORDINATE WITH THE PORT OF MORROW FOR UTILITY CONNECTIONS, INCLUDING FIREMAINS, WATERMAINS, SANITARY SEWER, AND PROCESSING SEWER.

GRADING PLAN NOTES:

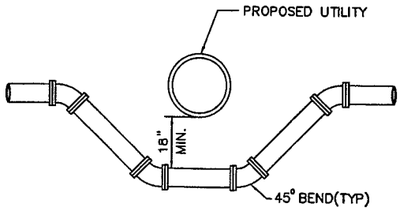
1. SPOT ELEVATIONS SHOWN ON PLAN ARE FINISHED GRADE.
2. VERIFY EXISTING ELEVATIONS ALONG EDGES WHERE NEW PAVEMENT MATCHES EXISTING.
3. SEE THE GRADING CONTROL POINTS TABLE ON THE GRADING PLAN FOR NORTHING, EASTING, ELEVATION, AND RADIUS INFORMATION.
4. AN AREA OFFSET 10' ON EACH SIDE OF BUILDINGS IS TO BE OVEREXCAVATED AND FILLED BACK TO PROPOSED GRADE WITH RECOMPACTED ONSITE GRANULAR MATERIAL. DIMENSIONS OF OVEREXCAVATIONS ARE SHOWN ON THE GRADING/OVEREXCAVATION PLAN. OVEREXCAVATION AREAS ARE HATCHED IN THE FOLLOWING PATTERN: 
5. THE CONTRACTOR SHALL OVEREXCAVATE AND RE-COMPACT SOILS AS RECOMMENDED BY THE SITE SPECIFIC GEOTECHNICAL REPORT.
6. STOCKPILE SUITABLE EXCESS MATERIAL ONSITE, AS DETERMINED BY THE OWNER.
7. DO NOT COMPLETE DITCH GRADING, SOUTHWEST OF THE GRAIN STORAGE AREA, UNTIL THE GRAIN STORAGE FACILITY AND DELIVERY SYSTEM IS COMPLETE.
8. TOPSOIL FOR USE IN TURF AREAS SHALL BE SALVAGED FROM GRADING OPERATIONS. PLACE 2" IN DITCH BOTTOMS, AND 1" IN ALL OTHER SEEDED AREAS.

LEGEND:

	EXISTING	PROPOSED
STORM LINE AND SIZE		15"HDPE
FIRE WATER LINE AND SIZE (10" PVC, C-900)		FW10
WATERLINE AND SIZE (6" PVC, C-900)		W6
SANITARY SEWER LINE AND SIZE (8" PVC, SDR 35)		
PROCESSING SEWER LINE AND SIZE (8" PVC, SDR 35)		
FIRE HYDRANT		
GATE VALVE		
CATCH BASIN		15
CONTROL POINT		3
TREE		
RIGHT-OF-WAY/PROPERTY LINE		
CENTERLINE/BASELINE		
EDGE OF BITUMINOUS		
EDGE OF GRAVEL		
DITCH LINE		
FUTURE - BY OTHERS		
GRADING LIMIT		
GROUND CONTOUR		

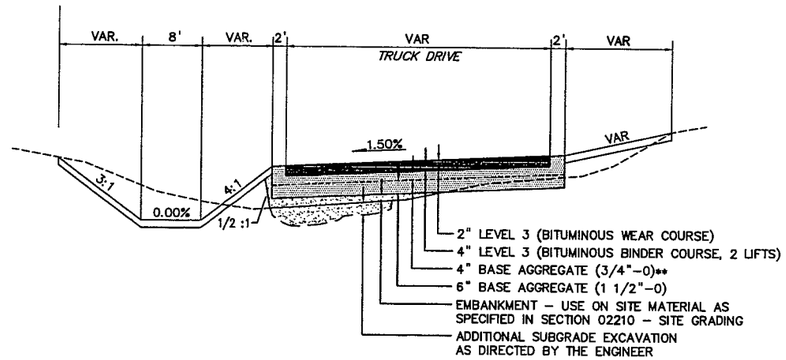


UTILITY OFFSET DETAIL - DITCH BOTTOM



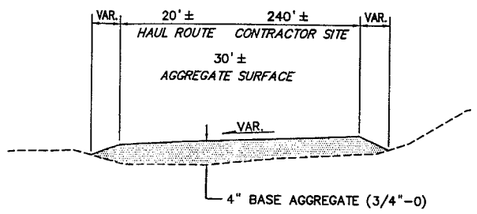
NOTE: UTILITY OFFSET OVER OR UNDER AS DIRECTED BY THE ENGINEER.

UTILITY OFFSET DETAIL



TYPICAL SECTION

** DO NOT INSTALL 4" BASE AGGREGATE (3/4"-0) UNTIL THE OWNER PROVIDES NOTICE TO COMPLETE AS SHOWN ON THIS TYPICAL SECTION.



TYPICAL SECTION

HAUL ROUTE/CONTRACTOR SITE/AGGREGATE SURFACE

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PEI - COLUMBIA CONSTRUCTION DETAILS

PROJECT. NO. 13560.006

DRAWING NO. 3

EROSION AND SEDIMENT CONTROL PLAN (ESCP) NARRATIVE

PROJECT DESCRIPTION/LOCATION

THIS PLAN DETAILS THE SITE GRADING AND UTILITY INSTALLATION FOR AN ETHANOL PLANT. THE PLANT WILL BE MULTIPHASE CONSTRUCTION INCLUDING BUILDINGS AND PROCESSING FACILITIES. ITEMS NOT SHOWN IN THIS PLAN WILL BE CONSTRUCTED AND PERMITTED BY OTHERS.

PROJECT CONTACTS

THE CONTRACTOR AND THE EROSION CONTROL SUPERVISOR ARE RESPONSIBLE FOR IMPLEMENTATION OF THE ESCP, WHICH INCLUDES INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BEST MANAGEMENT PRACTICES (BMPS) DURING CONSTRUCTION ACTIVITIES. PACIFIC ETHANOL IS RESPONSIBLE FOR LONG TERM OPERATION AND MAINTENANCE OF THE PERMANENT STORM WATER MANAGEMENT SYSTEM.

OREGON EMERGENCY RESPONSE SYSTEM 24-HOUR HOTLINE: (800) 452-0311

TIMING OF BMP INSTALLATION

THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS SHALL BE INSTALLED AS NECESSARY TO MINIMIZE EROSION FROM DISTURBED SURFACES AND CAPTURE SEDIMENT ONSITE. PERIMETER BMPS SHALL BE INSTALLED PRIOR TO THE BEGINNING OF SOIL DISTURBANCE ACTIVITIES.

CONSTRUCTION NOTES

CONSTRUCTION SHALL BE GOVERNED BY THE PROJECT PLANS, PERMITS, AND SPECIFICATIONS. THE CONTRACTOR SHALL KEEP AND MAINTAIN THE INSPECTION AND MAINTENANCE LOG ON-SITE PER NPDES REQUIREMENTS.

EROSION AND SEDIMENT CONTROL PLAN (ESCP) NOTES

- THE CONTRACTOR MUST IDENTIFY AN EROSION CONTROL SUPERVISOR WHO SHALL BE KNOWLEDGEABLE AND EXPERIENCED IN THE APPLICATION OF EROSION PREVENTION AND SEDIMENT CONTROL BMPS. THE EROSION CONTROL SUPERVISOR SHALL ALSO BE KNOWLEDGEABLE WITH ALL TERMS AND CONDITIONS OF THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY NPDES PERMIT NUMBER 1200-C.
- THE EROSION CONTROL SUPERVISOR SHALL OVERSEE THE IMPLEMENTATION OF THE ESCP. THIS INCLUDES THE INSTALLATION, INSPECTION, AND MAINTENANCE OF THE EROSION PREVENTION AND SEDIMENT CONTROL BMPS DURING CONSTRUCTION ACTIVITIES.
- THE CONTRACTOR SHALL DEVELOP A CHAIN OF RESPONSIBILITY WITH ALL OPERATORS ON THE SITE TO ENSURE THAT THE ESCP WILL BE IMPLEMENTED AND STAY IN EFFECT UNTIL THE CONSTRUCTION ACTIVITIES ARE COMPLETE, THE ENTIRE SITE HAS UNDERGONE FINAL STABILIZATION, AND A NOTICE OF TERMINATION HAS BEEN SUBMITTED TO THE OREGON DEPARTMENT OF ENVIRONMENTAL QUALITY.
- THE EROSION CONTROL SUPERVISOR SHALL PREPARE AND SUBMIT ANY CHANGES TO THE ESCP IN THE FORM OF ACTION PLANS, PER THE NPDES PERMIT. CHANGES IN THE ESCP REQUIRING AN ACTION PLAN COULD BE BMP LOCATION CHANGES, MAINTENANCE ACTIVITY CHANGES, AND CORRECTIVE ACTIONS TAKEN AFTER PERMIT VIOLATION, ETC.
- THE CONTRACTOR SHALL PROVIDE FOR TEMPORARY AND PERMANENT EROSION PREVENTION AND SEDIMENT CONTROL BMPS AS DETAILED IN THE PLANS AND THEY SHALL BE KEPT IN FUNCTIONAL CONDITION AT ALL TIMES THROUGHOUT CONSTRUCTION. THESE BMPS MAY BE MODIFIED AS APPROPRIATE FOR CONSTRUCTION STAGING AS DIRECTED BY THE EROSION CONTROL SUPERVISOR. THE CONTRACTOR SHALL REMAIN IN COMPLIANCE WITH ALL NPDES AND OTHER PERMIT REQUIREMENTS AT ALL TIMES.
- ALL EXPOSED SOIL AREAS SHALL BE STABILIZED PRIOR TO THE ONSET OF FORECASTED WET WEATHER. ANY WORK STILL BEING PERFORMED SHALL BE MINIMIZED TO GREATEST EXTENT POSSIBLE AS DIRECTED BY THE EROSION CONTROL SUPERVISOR.
- THE NORMAL WETTED PERIMETER OF ANY TEMPORARY OR PERMANENT DRAINAGE DITCH THAT DRAINS WATER FROM THE CONSTRUCTION SITE, OR DIVERTS WATER AROUND THE SITE, MUST BE STABILIZED WITHIN 200 LINEAL FEET FROM THE PROPERTY EDGE, OR FROM THE POINT OF DISCHARGE TO ANY SURFACE WATER. THESE AREAS MUST BE KEPT STABILIZED AT ALL TIMES.
- PIPE OUTLETS MUST BE PROVIDED WITH TEMPORARY OR PERMANENT ENERGY DISSIPATION IF CONNECTED TO A SURFACE WATER.
- SEDIMENT CONTROL DEVICES MUST BE ESTABLISHED ON ALL DOWN GRADIENT PERIMETERS BEFORE ANY UP GRADIENT LAND DISTURBING ACTIVITIES BEGIN. THESE DEVICES SHALL REMAIN IN PLACE UNTIL FINAL STABILIZATION HAS OCCURRED IN ACCORDANCE WITH THE NPDES PERMIT. THE TIMING OF THE INSTALLATION OF SEDIMENT CONTROL DEVICES MAY BE ADJUSTED TO ACCOMMODATE SHORT-TERM ACTIVITIES SUCH AS CLEARING AND GRUBBING, OR PASSAGE OF VEHICLES. ANY SHORT-TERM ACTIVITY MUST BE COMPLETED AS QUICKLY AS POSSIBLE AND THE SEDIMENT CONTROL DEVICES MUST BE INSTALLED IMMEDIATELY AFTER THE ACTIVITY IS COMPLETED. HOWEVER, SEDIMENT CONTROL DEVICES MUST BE INSTALLED BEFORE THE NEXT PRECIPITATION EVENT EVEN OF THE ACTIVITY IS NOT COMPLETE.
- DEWATERING AND CONCRETE TRUCK WASHING RELATED TO THE CONSTRUCTION ACTIVITY THAT MAY HAVE TURBID OR SEDIMENT LADEN WATER MUST BE DISCHARGED TO A CONSTRUCTED TEMPORARY OR PERMANENT SEDIMENTATION BASIN ON THE PROJECT SITE. IF THE WATER CANNOT BE DISCHARGED TO A SEDIMENTATION BASIN PRIOR TO ENTERING A SURFACE WATER, IT MUST BE TREATED WITH THE APPROPRIATE BMPS, SUCH THAT THE WATER DOES NOT ADVERSELY AFFECT THE RECEIVING WATER DOWNSTREAM OR ADJACENT LANDOWNERS. THE CONTRACTOR MUST ENSURE THAT DISCHARGE POINTS ARE ADEQUATELY PROTECTED FROM EROSION AND SCOUR.
- ANY FUEL OR CHEMICAL TANK STORED WITHIN THE PROJECT AREA MUST BE PROTECTED BY A SOIL BERM OR HAVE A NEGATIVE GRADIENT TO ANY SURFACE WATER. THE CONTRACTOR SHALL HAVE A CONTINGENCY PLAN FOR LEAKS. THE CONTRACTOR SHALL HAVE THE MATERIALS NECESSARY TO ADDRESS THE CLEANUP OF FUEL OR CHEMICALS IN THE EVENT OF A SPILL OR CAPTURE AND CONTAIN SPILLS OR LEAKS ON SITE.
- THE EROSION CONTROL SUPERVISOR MUST ROUTINELY INSPECT THE ENTIRE CONSTRUCTION SITE PER THE TIMELINES LISTED IN SCHEDULE B OF THE NPDES PERMIT.
- ALL INSPECTION AND MAINTENANCE OF EROSION PREVENTION AND SEDIMENT CONTROL DEVICES DURING CONSTRUCTION MUST BE RECORDED IN WRITING AND THESE RECORDS MUST BE RETAINED WITH THE ESCP IN ACCORDANCE THE NPDES PERMIT.
- ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS MUST BE INSPECTED BY THE CONTRACTOR TO ENSURE SAFETY, INTEGRITY, AND EFFECTIVENESS. ALL NONFUNCTIONAL BMPS MUST BE REPAIRED, REPLACED, OR SUPPLEMENTED WITH THE FUNCTIONAL BMPS AS DIRECTED BY THE EROSION CONTROL SUPERVISOR.
- ALL SLOPES NEAR ENVIRONMENTALLY SENSITIVE AREAS OR ADJACENT PROPERTIES NEED TO BE IMMEDIATELY STABILIZED AS SHOWN IN THE PLANS OR AS DIRECTED BY THE EROSION CONTROL SUPERVISOR.
- ALL DITCHES AND SLOPES SHALL BE KEPT IN A SMOOTH ROUGH GRADED CONDITION FOR CORRECT APPLICATION OF EROSION PREVENTION MULCHES AND BLANKETS.
- THE CONTRACTOR SHALL USE WATER OR WATER WITH CALCIUM/MAGNESIUM CHLORIDE FOR DUST CONTROL ON GRADED ROADWAY AREAS AS DIRECTED BY THE EROSION CONTROL SUPERVISOR.
- THE SOURCES OF WATER SUPPLY FOR THE PROJECT CONSTRUCTION SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR.
- ALL EROSION PREVENTION AND SEDIMENT CONTROL BMPS INSTALLED BY THE CONTRACTOR SHALL BE REMOVED FROM THE PROJECT AREA WHEN FINAL STABILIZATION HAS OCCURRED PER THE NPDES PERMIT.
- AREAS OUTSIDE OF THE CONSTRUCTION LIMITS ARE NOT TO BE DISTURBED BY CONSTRUCTION ACTIVITIES AS SHOWN IN THE PLANS. THE CONTRACTOR SHALL DELINEATE THESE AREAS WITH FLAGGING, SAFETY FENCE, OR SILT FENCE, AND ENTRY SHALL NOT BE ALLOWED DURING CONSTRUCTION.

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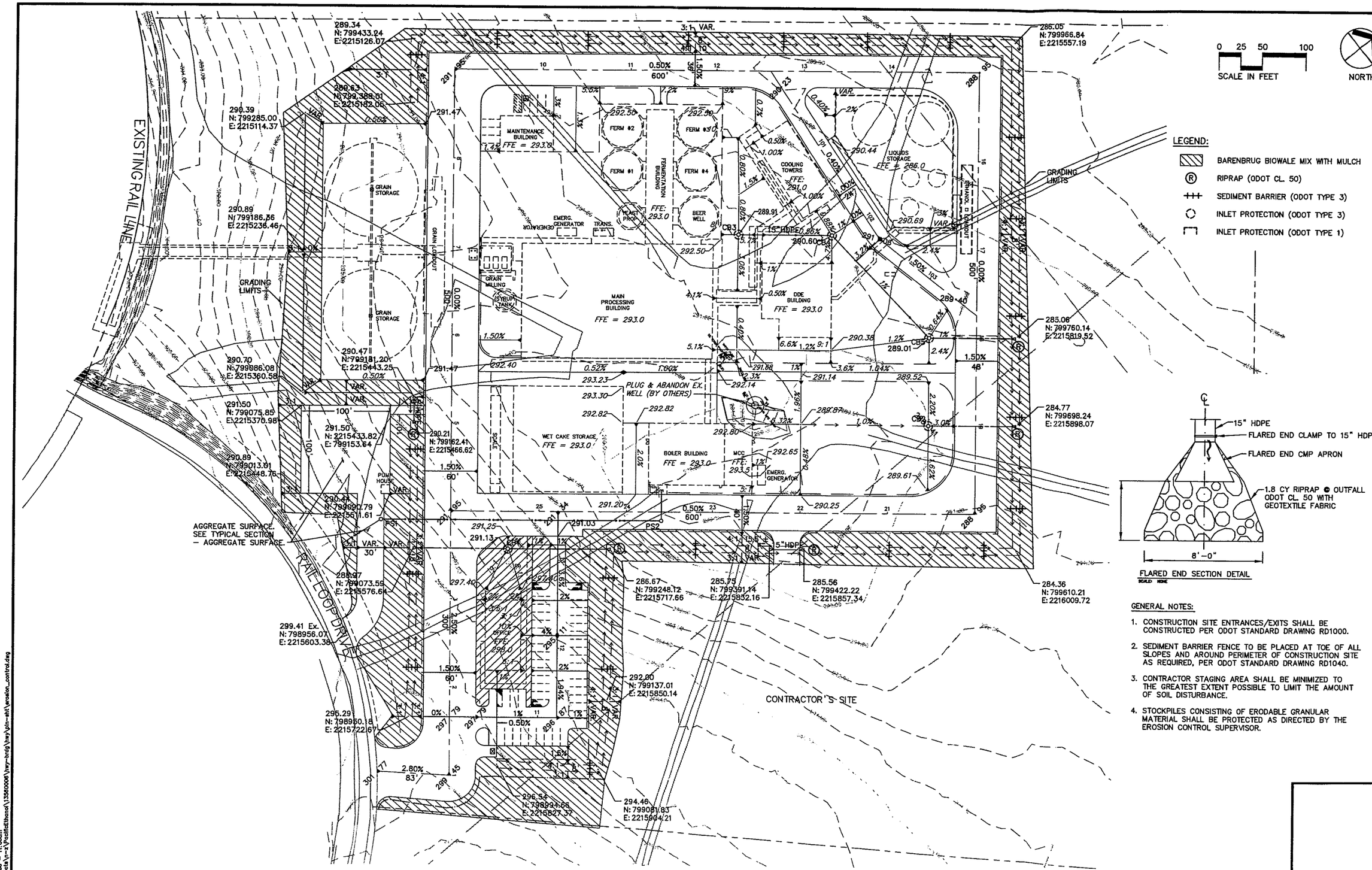
PEI - COLUMBIA
ESCP NOTES

PROJECT. NO. 13560.006
DRAWING NO. 4



GENERAL NOTES:

1. CONSTRUCTION SITE ENTRANCES/EXITS SHALL BE CONSTRUCTED PER ODOT STANDARD DRAWING RD1000.
2. SEDIMENT BARRIER FENCE TO BE PLACED AT TOE OF ALL SLOPES AND AROUND PERIMETER OF CONSTRUCTION SITE AS REQUIRED, PER ODOT STANDARD DRAWING RD1040.
3. CONTRACTOR STAGING AREA SHALL BE MINIMIZED TO THE GREATEST EXTENT POSSIBLE TO LIMIT THE AMOUNT OF SOIL DISTURBANCE.
4. STOCKPILES CONSISTING OF ERODABLE GRANULAR MATERIAL SHALL BE PROTECTED AS DIRECTED BY THE EROSION CONTROL SUPERVISOR.

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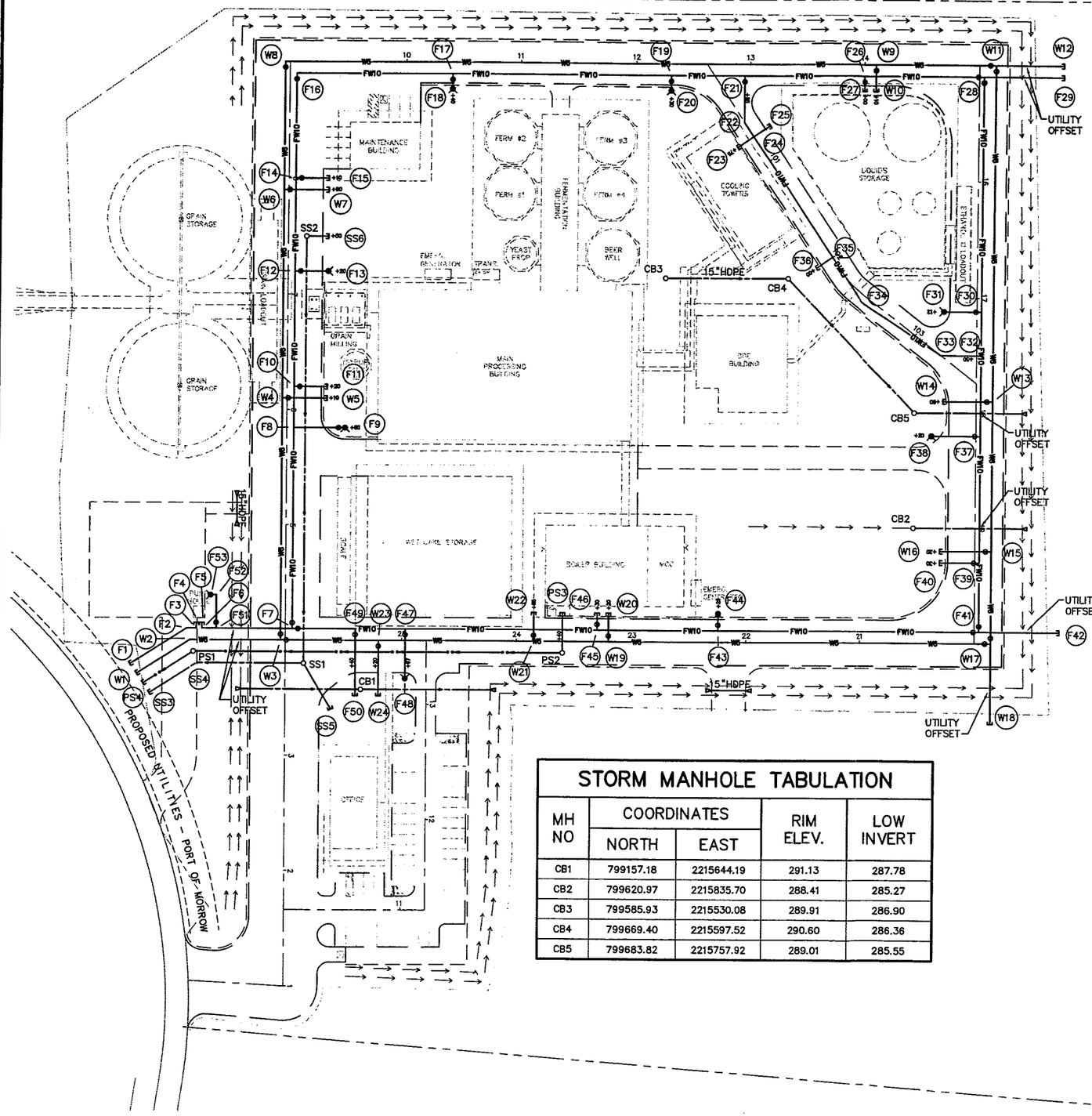
PEI - COLUMBIA EROSION CONTROL

PROJECT. NO. 13560.006
DRAWING NO. 5



FIRE CONTROL POINTS			
POINT NO	COORDINATES NORTH	COORDINATES EAST	DESCR. / ELEV.
F1	799015.54	2215502.36	PLUG / 285.54
F2	799072.91	2215508.60	33° BEND / 285.54
F3	799079.36	2215513.81	90° BEND / 285.54
F4	799082.50	2215509.92	PLUG / 285.54
F5	799086.39	2215513.06	PLUG / 285.54
F6	799083.25	2215516.95	90° BEND / 285.54
F7	799144.37	2215566.34	TEE / 285.54
F8	799253.98	2215430.67	TEE / 285.54
F9	799288.21	2215458.32	HYDRANT / TNH = 295.35
F10	799276.35	2215402.99	TEE / 285.54
F11	799298.90	2215421.21	PLUG / 285.54
F12	799339.19	2215325.20	TEE / 285.54
F13	799361.75	2215343.43	HYDRANT / TNH = 295.01
F14	799389.47	2215262.98	TEE / 285.54
F15	799412.03	2215281.20	PLUG / 285.79
F16	799446.03	2215192.97	90° BEND / 285.54
F17	799604.71	2215321.18	TEE / 284.87
F18	799542.09	2215287.30	HYDRANT / TNH = 294.40
F19	799729.17	2215421.73	TEE / 283.92
F20	799689.88	2215406.70	HYDRANT / TNH = 293.18
F21	799748.61	2215437.44	TEE / 283.60
F22	799723.52	2215468.49	33° BEND / 284.00
F23	799705.30	2215481.77	PLUG / 284.06
F24	799722.24	2215483.24	TEE / 284.06
F25	799739.18	2215484.72	PLUG / 284.06
F26	799830.29	2215503.43	TEE / 283.07
F27	799822.12	2215513.54	PLUG / 283.07
F28	799911.18	2215568.79	TEE / 282.39
F29	799965.63	2215612.78	PLUG / 282.39
F30	799784.23	2215725.91	TEE / 282.39
F31	799758.48	2215705.10	HYDRANT / TNH = 292.15
F32	799760.35	2215755.47	TEE / 282.39
F33	799732.77	2215733.18	33° BEND / 282.95
F34	799707.40	2215653.84	22.5° BEND / 284.38
F35	799711.41	2215607.77	TEE / 284.40
F36	799694.47	2215606.30	PLUG / 284.40
F37	799716.36	2215809.92	TEE / 282.39
F38	799682.91	2215782.90	HYDRANT / TNH = 292.11
F39	799647.23	2215895.48	TEE / 282.39
F40	799620.01	2215873.49	PLUG / 282.39
F41	799609.52	2215942.15	TEE / 282.39
F42	799663.97	2215986.14	PLUG / 282.39
F43	799431.40	2215798.24	TEE / 283.70
F44	799440.82	2215786.57	HYDRANT / TNH = 294.25
F45	799349.72	2215732.25	TEE / 284.22
F46	799359.15	2215720.58	PLUG / 284.22
F47	799219.82	2215627.30	TEE / 285.06
F48	799192.80	2215660.74	HYDRANT / TNH = 293.78
F49	799186.38	2215600.27	TEE / 285.27
F50	799149.93	2215645.38	PLUG / 285.52
F51	799092.97	2215524.81	TEE / 285.54
F52	799111.14	2215502.33	90° BEND / 285.54
F53	799107.25	2215499.19	HYDRANT / TNH = 292.92

STORM MANHOLE TABULATION				
MH NO	COORDINATES NORTH	COORDINATES EAST	RIM ELEV.	LOW INVERT
CB1	799157.18	2215644.19	291.13	287.78
CB2	799620.97	2215835.70	288.41	285.27
CB3	799585.93	2215530.08	289.91	286.90
CB4	799669.40	2215597.52	290.60	286.36
CB5	799683.82	2215757.92	289.01	285.55

0 25 50 100
SCALE IN FEET

NORTH

POTABLE CONTROL POINTS			
POINT NO	COORDINATES NORTH	COORDINATES EAST	DESCR. / ELEV.
W1	799014.75	2215512.34	PLUG / 286.39
W2	799068.91	2215518.22	33° BEND / 286.59
W3	799130.31	2215567.83	TEE / 286.89
W4	799262.28	2215404.48	TEE / 286.89
W5	799292.82	2215428.99	PLUG / 286.89
W6	799375.41	2215264.47	TEE / 286.89
W7	799405.74	2215288.98	PLUG / 286.89
W8	799444.54	2215178.91	90° BEND / 286.89
W9	799844.35	2215501.93	TEE / 284.32
W10	799821.72	2215529.94	PLUG / 284.32
W11	799925.24	2215567.29	TEE / 283.74
W12	799971.92	2215605.00	PLUG / 283.74
W13	799743.01	2215792.85	TEE / 283.74
W14	799709.30	2215765.61	PLUG / 283.74
W15	799661.29	2215893.99	TEE / 283.74
W16	799626.29	2215865.71	PLUG / 283.74
W17	799611.02	2215956.22	TEE / 283.74
W18	799567.03	2216010.66	PLUG / 283.74
W19	799351.22	2215746.31	TEE / 285.47
W20	799366.93	2215726.87	PLUG / 285.47
W21	799300.66	2215705.46	TEE / 285.80
W22	799316.37	2215686.02	PLUG / 285.80
W23	799195.65	2215620.62	TEE / 286.47
W24	799165.48	2215657.95	PLUG / 286.47

SANITARY / PROCESSING CONTROL POINTS			
POINT NO	COORDINATES NORTH	COORDINATES EAST	DESCR. / ELEV.
SS1	799133.30	2215595.96	RIM = 292.41 / INV = 283.04
SS2	799365.83	2215308.15	RIM = 292.17 / INV = 284.52
SS3	799012.69	2215532.23	PLUG / 282.48
SS4	799060.91	2215537.47	33° BEND / 282.67
SS5	799126.76	2215641.85	PLUG / 283.50
SS6	799380.60	2215320.09	PLUG / 284.71
PS1	799064.91	2215527.85	RIM = 291.96 / INV = 281.53
PS2	799313.82	2215728.95	RIM = 290.58 / INV = 282.81
PS3	799335.81	2215701.73	PLUG / 282.95
PS4	799013.77	2215522.29	PLUG / 281.32

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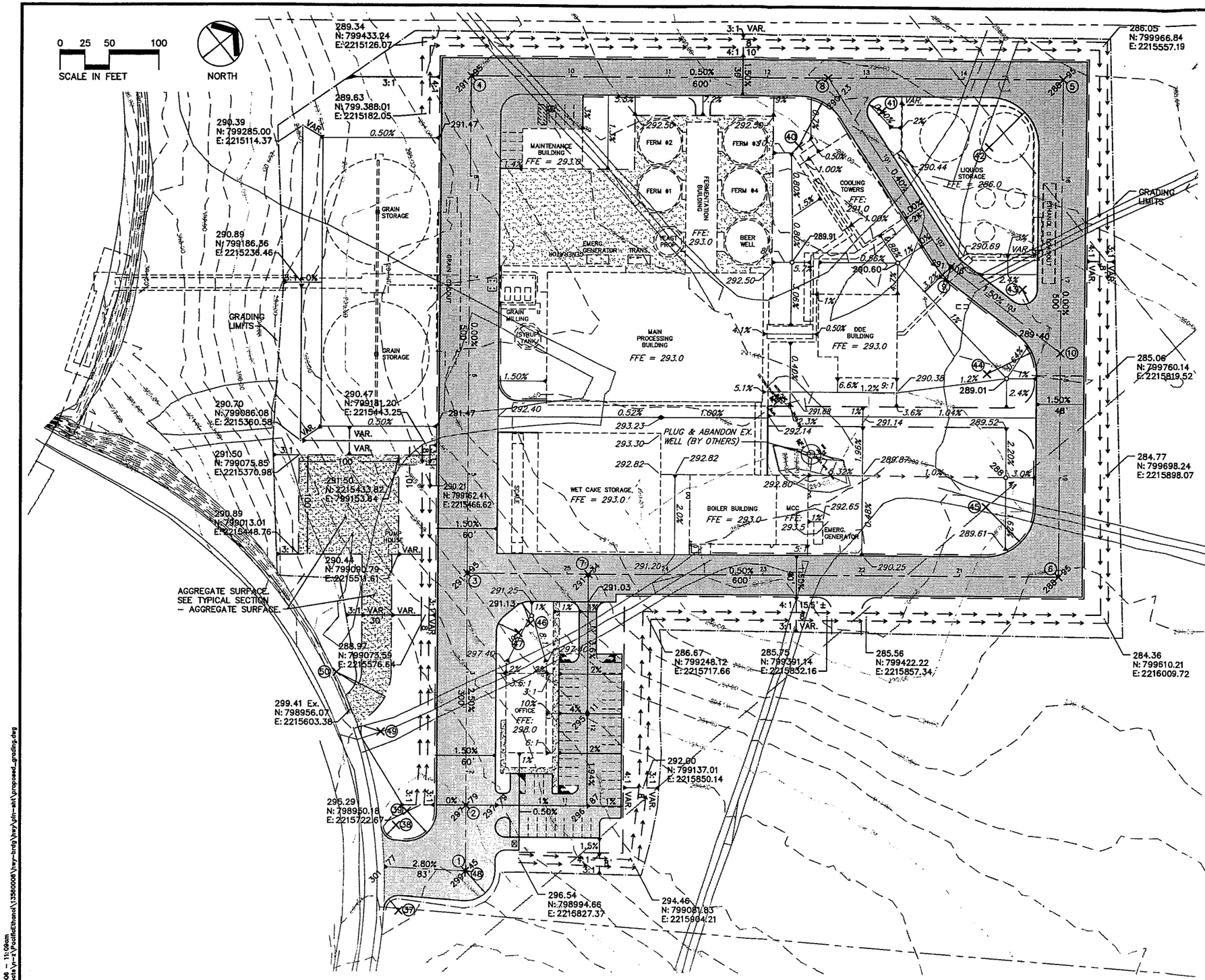
PEI - COLUMBIA
UTILITY PLAN

PROJECT. NO. 13560.006
DRAWING NO. 6



GRADING CONTROL POINTS

POINT NO	COORDINATES		DESCR./ ELEV.
	NORTH	EAST	
1	798944.89	2215803.70	299.45
2	798986.41	2215752.31	297.79
3	799133.43	2215570.35	291.95
4	799447.65	2215181.43	291.95
5	799914.36	2215558.50	288.95
6	799600.13	2215947.42	288.95
7	799227.87	2215646.66	291.34
8	799728.74	2215408.53	290.14
9	799709.73	2215634.68	291.06
10	799742.06	2215771.76	288.95
37	798867.11	2215791.80	15' RAD
38	798918.54	2215723.44	15' RAD
39	798935.93	2215719.28	30' RAD
40	799663.49	2215443.23	50' RAD
41	799750.62	2215468.63	15' RAD
42	799814.06	2215564.89	50' RAD
43	799751.95	2215697.47	15' RAD
44	799671.09	2215741.85	50' RAD
45	799586.56	2215846.47	50' RAD
46	799151.37	2215649.12	22' RAD
47	799136.09	2215649.40	22' RAD
48	798944.82	2215803.36	30' RAD
49	798965.21	2215640.18	20' RAD
50	798968.21	2215565.24	25' / 55' RAD

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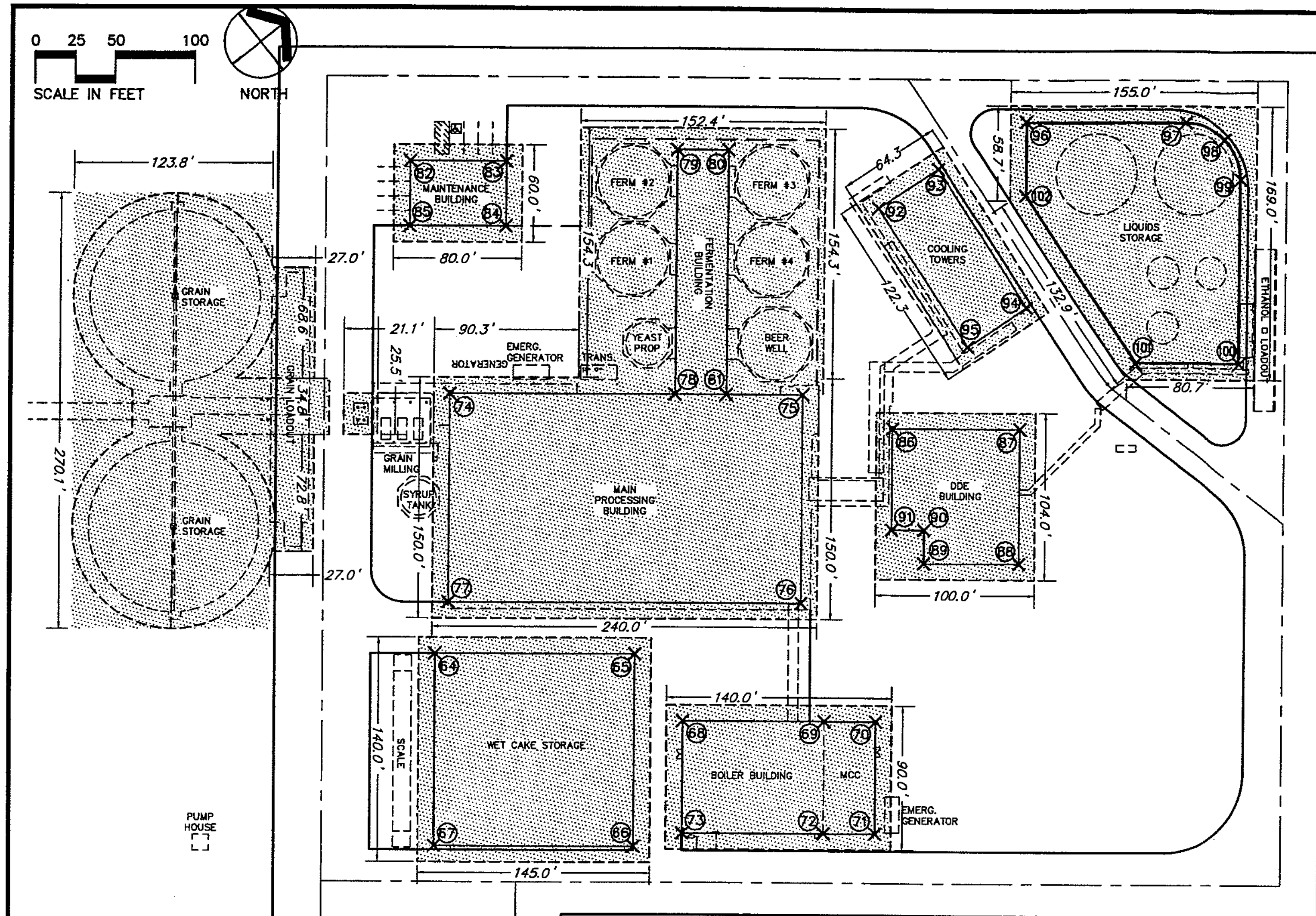
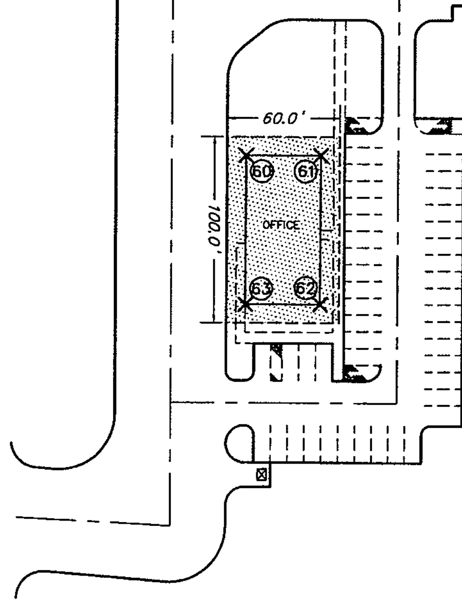
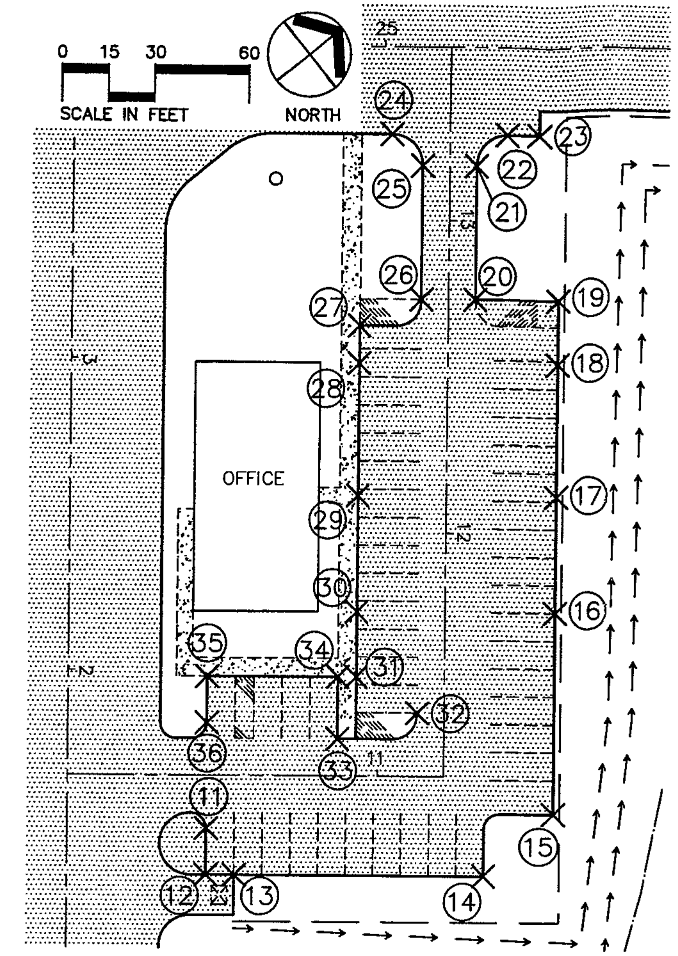
PEI - COLUMBIA GRADING PLAN

PROJECT. NO. 13560.006
DRAWING NO. 7







OFFICE/PARKING LOT GRADING CONTROL POINTS

SEE GRADING CONTROL POINTS TABLE ON THIS PAGE FOR NORTHING, EASTING, AND ELEVATION FOR GRADING CONTROL POINTS SHOWN ON THIS DRAWING

GRADING CONTROL POINTS

POINT NO	COORDINATES		ELEV.
	NORTH	EAST	
11	799010.46	2215793.59	297.51
12	799001.03	2215805.26	297.48
13	799008.03	2215810.92	297.39
14	799071.03	2215861.83	296.54
15	799100.72	2215860.10	296.51
16	799141.57	2215809.54	295.14
17	799165.09	2215780.44	293.70
18	799191.75	2215747.45	292.93
19	799204.63	2215731.51	292.56
20	799184.02	2215714.85	292.09
21	799210.80	2215681.72	291.34
22	799224.87	2215680.22	290.87
23	799232.64	2215686.51	290.82
24	799195.68	2215656.65	291.05
25	799197.18	2215670.70	291.51
26	799170.40	2215703.84	292.95
27	799149.51	2215697.89	293.80
28	799141.97	2215707.22	294.21
29	799115.31	2215740.22	296.26
30	799091.79	2215769.32	296.42
31	799078.59	2215785.65	296.87
32	799086.92	2215807.17	296.63
33	799061.36	2215797.44	296.80
34	799073.93	2215781.88	297.00
35	799041.26	2215755.48	297.61
36	799031.83	2215767.15	297.58

OVEREXCAVATION LIMITS/BUILDING CORNER LOCATIONS

SEE BUILDING CORNER CONTROL POINTS TABLES ON THIS PAGE FOR NORTHING AND EASTING OF BUILDING CORNER POINTS SHOWN ON THIS DRAWING. OVEREXCAVATION INFORMATION IS SHOWN IN THE OVEREXCAVATION TABLE.

OVEREXCAVATION TABLE

BLDG.	EXIST. GRND. ELEV.	SUB. EXC. ELEV.	TOP OF GRANULAR (RECOMPACTED)	SOIL CORRECTION VOLUME (CY)
OFFICE	297.8	290.3	297.8	1,667
W.C.STRG	290.3	284.8	290.3	4,135
BOILER	289.2	281.7	289.2	3,500
MCC	289.1	281.6	289.1	
MAIN PROC.	291.6	286.1	291.6	7,333
FERM.	290.8	280.8	290.8	8,710
MAINTENANCE	291.1	283.6	291.1	1,333
DDE	290.4	282.9	290.4	2,889
COOLING	290.8	280.8	290.8	2,915
LIQ. STORAGE	288.8	279.3	288.8	7,776
GR.STRG/LOADOUT	294.2	286.2	291.5	11,417
TOTAL	-	-	-	51,675

BUILDING CORNER CONTROL POINTS

BLDG.	POINT NO	COORDINATES	
		NORTH	EAST
OFFICE	60	799101.05	2215673.94
OFFICE	61	799132.16	2215699.08
OFFICE	62	799081.88	2215761.30
OFFICE	63	799050.76	2215736.16.
W.C.STRG	64	799277.37	2215503.55
W.C.STRG	65	799374.60	2215582.11
W.C.STRG	66	799299.19	2215675.45
W.C.STRG	67	799201.96	2215596.89
BOILER/MCC	68	799371.75	2215633.37
BOILER/MCC	69	799440.28	2215688.74
BOILER/MCC	70	799465.10	2215708.79
BOILER/MCC	71	799421.10	2215763.23
BOILER/MCC	72	799396.29	2215743.19
BOILER/MCC	73	799327.76	2215687.82

BUILDING CORNER CONTROL POINTS

BLDG.	POINT NO	COORDINATES	
		NORTH	EAST
MAIN PROC.	74	799385.40	2215382.57
MAIN PROC.	75	799556.53	2215520.83
MAIN PROC.	76	799474.83	2215621.95
MAIN PROC.	77	799303.68	2215483.66
FERM.	78	799494.63	2215470.81
FERM.	79	799589.52	2215353.36
FERM.	80	799614.42	2215373.47
FERM.	81	799519.52	2215490.92
MAINT.	82	799455.38	2215254.74
MAINT.	83	799502.05	2215292.45
MAINT.	84	799476.91	2215323.56
MAINT.	85	799430.24	2215285.85
DDE	86	799587.10	2215572.10
DDE	87	799649.32	2215622.37
DDE	88	799596.53	2215687.71
DDE	89	799549.76	2215649.92
DDE	90	799562.84	2215633.74
DDE	91	799547.38	2215621.25

BUILDING CORNER CONTROL POINTS

BLDG.	POINT NO	COORDINATES	
		NORTH	EAST
COOLING	92	799664.83	2215459.79
COOLING	93	799708.97	2215463.89
COOLING	94	799699.51	2215565.79
COOLING	95	799655.37	2215561.69
LIQ. STRG	96	799770.61	2215475.78
LIQ. STRG	97	799848.40	2215538.63
LIQ. STRG	98	799861.20	2215562.16
LIQ. STRG	99	799853.62	2215587.85
LIQ. STRG	100	799781.98	2215676.52
LIQ. STRG	101	799731.12	2215635.43
LIQ. STRG	102	799741.90	2215511.32

CURRENT: Apr 17, 2006 - 11:11am
DIR: \\Mrfreeze\Projects\n-z\PacificEthanol\13560006\hey-brdg\hey\pln-sht\proposed_grading.dwg

NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA
ENGINEERS • ARCHITECTS • PLANNERS
1500 Piper Jaffray Plaza
444 Cedar Street
Saint Paul, MN 55101-2140
(651) 292-4400
Fax: (651) 292-0083
www.tkda.com

DESIGNED	DRAWN	CHECKED
MCP	MCP	PMB

BAR IS ONE INCH ON ORIGINAL DRAWING. IF NOT ONE INCH ON THIS DRAWING ADJUST SCALES ACCORDINGLY.

Pacific Ethanol, Inc.
5711 N. West Avenue
Fresno, CA 93711
office: (559) 435-1771
fax: (559) 435-1478
www.pacificethanol.net

PEI -COLUMBIA
GRADING / OVEREXCAVATION PLAN

PROJECT. NO.
13560.006

DRAWING NO.
8

EXISTING RAIL LINE

RAILROAD DRIVE

DISCHARGE FROM SITE IS NORTHERLY IN DIRECTION VIA SHEET FLOW WITH NO DEFINED CHANNEL.

EXISTING IRRAGATION WELL TO BE PLUGGED AND ABANDONED.

EDGE OF ROUGH GRADED ROADWAY

NATURAL LOW AREA OF 2 FT FOR PONDING

PROPERTY BOUNDARY

0 25 50 100
SCALE IN FEET

NORTH

LEGEND

SUFACE FLOW DIRECTION

GENERAL NOTES:

1. THERE ARE NO KNOWN WETLANDS, FLOODPLAINS, OR SPRINGS ON-SITE.
2. AREA OF PROPERTY = 24.9 ACRE.
   AREA OF DISTURBANCE = 19.0 ACRE
3. SOIL TYPE IS QUINCY LOAMY FINE SAND (40C)
4. SEE PROPOSED PLAN FOR GRADING, UTILITIES, EROSION CONTROL, AND ESCP NOTES.

CURRENT: Apr 18, 2006 - 7:03am
DRG: \\tkfiles\projects\vn-z\PacificEthanol\13560006\hwy-brdg\hwy\exhibit\existing_drain.dwg

NO.	DATE	BY	DESCRIPTION OF REVISIONS

TKDA
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1500 Piper Jaffray Plaza
444 Cedar Street
Saint Paul, MN 55101-2140
(651) 292-4400
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PJM	SFH	PJM

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fax: (559) 435-1478
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PEI - COLUMBIA
EXISTING DRAINAGE

PROJECT. NO. 13560.006

DRAWING NO.

Physical Soil Properties

Morrow County, Oregon

[Entries under "Erosion Factors--T" apply to the entire profile. Entries under "Wind Erodibility Group" and "Wind Erodibility Index" apply only to the surface layer. Absence of an entry indicates that data were not estimated]

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
40C:														
Quincy	0-6	---	---	1-6	1.45-1.60	42.00-141.00	0.08-0.11	0.0-2.9	0.5-1.0	.17	.17	5	2	134
	6-60	---	---	1-7	1.50-1.70	42.00-141.00	0.08-0.12	0.0-2.9	0.0-0.5	.28	.28			

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

"Depth" to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

"Sand" as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

"Silt" as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

"Clay" as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

"Moist bulk density" is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

"Saturated hydraulic conductivity" refers to the ability of a soil to transmit water or air. The term "permeability" indicates saturated hydraulic conductivity (Ksat). The estimates in the table indicate the rate of water movement, in micrometers per second, when the soil is saturated. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Ksat is considered in the design of soil drainage systems and septic tank absorption fields.

"Available water capacity" refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

"Linear extensibility" refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

"Organic matter" is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of organic matter in a soil can be maintained by returning crop residue to the soil. Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

"Erosion factors" are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

"Erosion factor Kw" indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

"Erosion factor Kf" indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

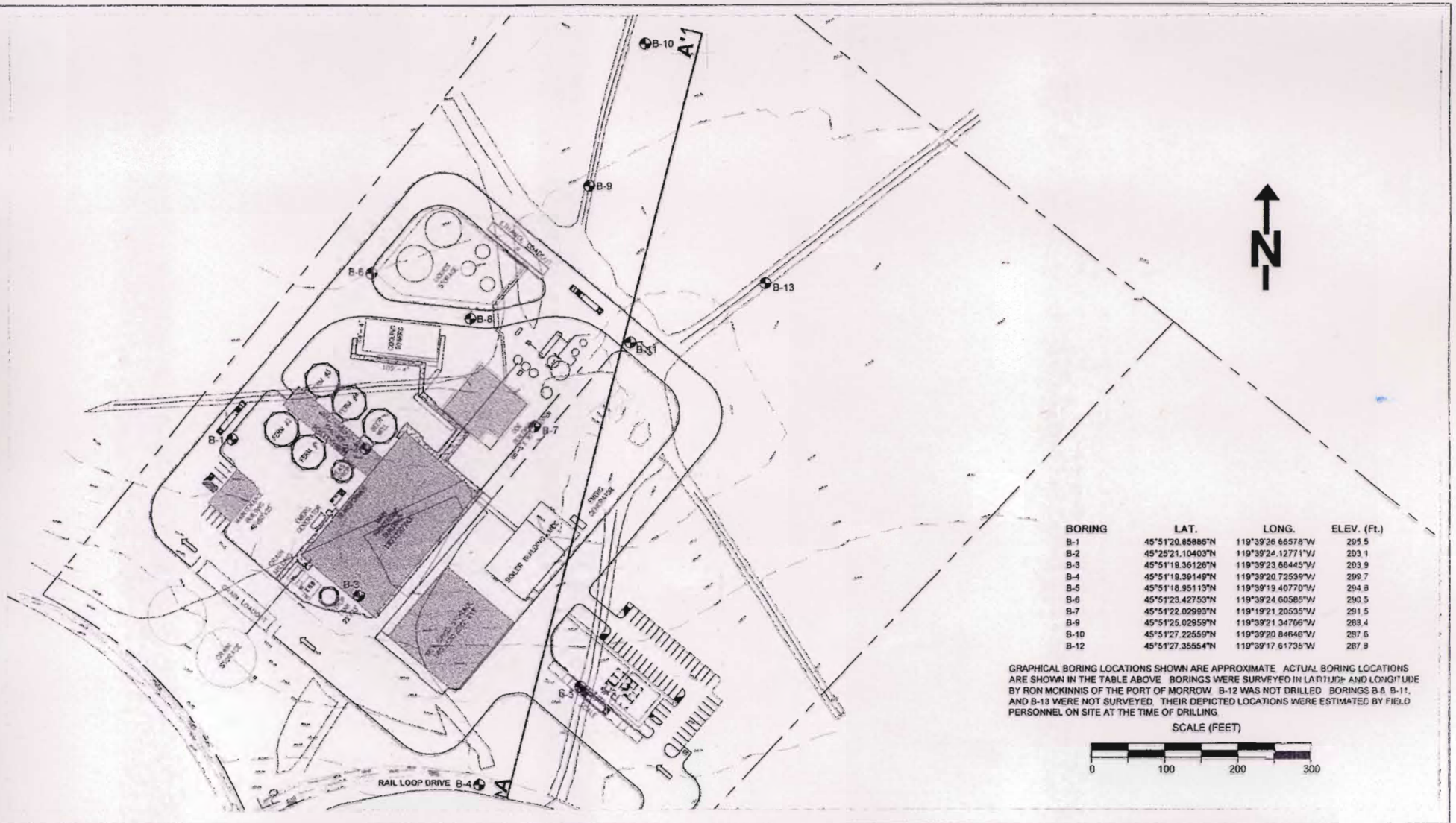
Physical Soil Properties

"Erosion factor T" is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

"Wind erodibility groups" are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

"Wind erodibility index" is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://www.statlab.iastate.edu/soils/nssh/)



BORING	LAT.	LONG.	ELEV. (Ft.)
B-1	45°51'20.85886"N	119°39'26.66578"W	295.5
B-2	45°25'21.10403"N	119°39'24.12771"W	293.1
B-3	45°51'19.36126"N	119°39'23.68445"W	293.9
B-4	45°51'18.39149"N	119°39'20.72539"W	299.7
B-5	45°51'18.95113"N	119°39'19.40770"W	294.8
B-6	45°51'23.42753"N	119°39'24.60585"W	293.5
B-7	45°51'22.02993"N	119°19'21.20535"W	291.5
B-9	45°51'25.02959"N	119°39'21.34706"W	288.4
B-10	45°51'27.22559"N	119°39'20.84646"W	287.6
B-12	45°51'27.35554"N	119°39'17.61736"W	287.8

GRAPHICAL BORING LOCATIONS SHOWN ARE APPROXIMATE. ACTUAL BORING LOCATIONS ARE SHOWN IN THE TABLE ABOVE. BORINGS WERE SURVEYED IN LATITUDE AND LONGITUDE BY RON MCKINNIS OF THE PORT OF MORROW. B-12 WAS NOT DRILLED. BORINGS B-8, B-11, AND B-13 WERE NOT SURVEYED. THEIR DEPICTED LOCATIONS WERE ESTIMATED BY FIELD PERSONNEL ON SITE AT THE TIME OF DRILLING.

SCALE (FEET)

0 100 200 300

psi Information To Build On
Engineering • Consulting • Testing

PSI, Inc.
6032 N. Cutter Circle, Suite 480
Portland, Oregon 97217
(503) 289-1778

DRAWING TITLE:
SITE EXPLORATION PLAN

PROJECT:
PROPOSED ETHANOL FACILITY
NEAR THE INTERSECTION OF COLUMBIA AVENUE AND CARGILL LANE
PORT OF MORROW INDUSTRIAL PARK
BOARDMAN, OREGON

DATE: 3/16/2006

FIGURE NUMBER 2

DRAWN BY: MAD

PSI REPORT NUMBER
70x 65054-1

LOG OF TEST BORING NO. B-1

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility
LOCATION: Boardman, OR
PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 295.5

DATE OF EXPLORATION: 2/22/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist, rooted upper two inches, loose to medium dense			7	1-2-4			
	SPT 2				7	2-3-4		8	
5	SPT 3				8	3-4-5			
	SPT 4	**POORLY GRADED SILTY SAND**- brown, moist, vertical silt lens, very dense			13	9-22-30			
10	SPT 5				14	10-18-25		29	
15	SPT 6				12	12-28-29			
20	SPT 7	**WELL GRADED SANDY GRAVEL**- black and white, dry, interspersed thin sand lenses with variable gravel quantities, dense to very dense			3	12-18-19		6	
25	SPT 8				4	9-14-14			becomes moist
30	SPT 9			▽	9	18-28-35/5"			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/22/06. Groundwater was noted on drilling rod at 29'6" during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

6032 North Cutter Circle, Suite 480
Portland, Oregon 97217-0126
(800) 783-6985

LOG OF TEST BORING NO. B-2

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility
LOCATION: Boardman, OR
PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 293.1

DATE OF EXPLORATION: 2/21/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist, fine grained, rooted upper two inches, loose to medium dense				1-3-5			
	SPT 2				7	2-4-3		8	
5	SPT 3				10	3-5-5			
	SPT 4					7-8-9			
10	SPT 5	**WELL GRADED SAND**- black and white, dry, medium to coarse grained, dense				4-13-18			1" thick ash layer noted at 11'6"
15	SPT 6					5-10-14			
20	SPT 7					8-12-12			
25	SPT 8	**WELL GRADED SANDY GRAVEL**- moist to saturated, black and white, subangular gravel, very dense		▽		25-35-35/4"			
30	SPT 9					7-35/2"			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/21/06. Groundwater was noted on drilling rod at 28'6" during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

6032 North Cutter Circle, Suite 480
Portland, Oregon 97217-0126
(800) 783-6985

LOG OF TEST BORING NO. B-3

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility
LOCATION: Boardman, OR
PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 293.9

DATE OF EXPLORATION: 2/21/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist, fine grained, rooted upper two inches, medium dense			9	1-4-6		13	
	SPT 2				7	3-5-5			
5	SPT 3	**WELL GRADED SAND**- black and white, dry, medium grained, medium dense to dense			7	4-7-9			1" thick pink ash layer noted at 5'6"
	SPT 4					7-12-11			
10	SPT 5					6-13-19			
15	SPT 6					7-12-15			
20	SPT 7					8-12-18			
25	SPT 8	**WELL GRADED SANDY GRAVEL**- dry, black and white, subangular gravel, very dense				35/3"			
		Boring was terminated at 26' below existing site grade due to practical auger refusal. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/21/06. Groundwater was not encountered at this location during drilling operations.							
30		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
35		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
40									
45									

BL_PTLD 704-65054.GPJ PSI CORP.GDT 3/29/06

6032 North Cutter Circle, Suite 480
Portland, Oregon 97217-0126
(800) 783-6985

LOG OF TEST BORING NO. B-4

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility
LOCATION: Boardman, OR
PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 299.7

DATE OF EXPLORATION: 2/21/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist, fine grained, rooted upper two inches, loose to medium dense				2-3-4			
	SPT 2				7	4-4-4			
5	SPT 3	**POORLY GRADED SAND**- black and white, dry, medium to coarse grained with isolated fine grained lenses, medium dense to very dense			8	5-8-16			1" thick pink ash layer noted at 6'
	SPT 4					8-15-17			
10	SPT 5					9-14-14			
15	SPT 6					10-15-21			
20	SPT 7	2" thick wet very fine silty sand lens noted				14-17-20			
25	SPT 8					8-14-25			
30	SPT 9					7-13-15			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/21/06. Groundwater was not encountered at this location during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL_PT.D 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-5

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility
LOCATION: Boardman, OR
PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 294.8

DATE OF EXPLORATION: 2/20/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist, fine grained, rooted upper two inches, loose to medium dense			7	3-3-4			
	SPT 2				7	2-4-4			
5	SPT 3				7	3-4-3			
	SPT 4	**WELL GRADED SAND**- black and white, dry, medium to coarse grained, isolated moist-fine grained lenses, isolated rock fragments, dense to very dense				7-14-17			
10	SPT 5					7-14-20			
15	SPT 6					10-16-18			
20	SPT 7					9-14-18			
25	SPT 8					7-12-14			
		WELL GRADED SANDY GRAVEL- wet, black and white, subangular gravel, very dense		▽					
30	SPT 9					13-17-35/3"			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured to be 28'6" below exsisting site grade after 15 hours.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-6

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 290.5

DATE OF EXPLORATION: 2/22/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper four inches, loose to medium dense				1-2-4			
	SPT 2				7	3-4-3			
5	SPT 3					2-3-3			
	SPT 4					5-5-10			
10	SPT 5	**WELL GRADED SAND**- black and white, dry, coarse grained, medium dense to very dense				8-10-11			
15	SPT 6					3-6-10			
20	SPT 7					9-14-20			
		WELL GRADED SANDY GRAVEL- saturated, black and white, subangular gravel, very dense to dense		▽					
25	SPT 8					11-17-30			
30	SPT 9					8-14-16			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 25' below the ground surface during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-7

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 291.5

DATE OF EXPLORATION: 2/21/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper four inches, loose to medium dense				2-3-4			
	SPT 2				6	5-5-4			
5	SPT 3					3-6-8			
	SPT 4	**WELL GRADED SAND**- black and white, dry, coarse grained, medium dense to dense			3	8-13-16		6	
10	SPT 5					10-13-17			
15	SPT 6	trace pebbles noted				8-12-12			
20	SPT 7				4	7-10-15			
25	SPT 8	**WELL GRADED SANDY GRAVEL**- saturated, black and white, subangular gravel, very dense		▽		25-35/3"			
30	SPT 9					35/5"			
		SAND WITH TRACE SILT-brown, saturated, well graded, very dense							
35	SPT 10				21	19-23-23		8	
40	SPT 11				20	20-25-27		11	
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-7

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054

DATE OF EXPLORATION: 2/21/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 12	**WELL GRADED SANDY GRAVEL**- black and grey, saturated, very dense				35/2.5"			
50	SPT 13	**WELL GRADED COARSE SAND**- black and white, saturated, isolated thin gravel lenses, very dense				35/5"			
55									
60	SPT 14	**WELL GRADED SANDY GRAVEL**- black basalt gravel, saturated, coarse sand, very dense.				35/4"			
65		Boring was terminated at 61'6" below existing site grade due to failure of drilling equipment. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 25' below the ground surface during drilling operations.							
70		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
75		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
80									
85									
90									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-8

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: No Survey Data

DATE OF EXPLORATION: 2/22/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper four inches, loose to medium dense			6	1-1-3			
	SPT 2				7	3-4-4			
5	SPT 3				6	3-5-5			
	SPT 4					4-5-8			
10	SPT 5	**WELL GRADED SAND**- black and white, dry, coarse grained, dense				6-12-18			
15	SPT 6					9-12-18			
20	SPT 7					9-14-15			
25	SPT 8	**WELL GRADED SANDY GRAVEL**- saturated, black and white, subangular gravel, very dense		▽		18-32-35/5"			
30	SPT 9					5-19-24			
35		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 25' below the ground surface during drilling operations. Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above. Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
40									
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-9

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 288.4

DATE OF EXPLORATION: 2/22/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper four inches, medium dense			9	2-5-6			
	SPT 2				8	3-4-5			
5	SPT 3					3-4-6			
	SPT 4								
		WELL GRADED SAND- black and white, dry, coarse grained, dense to very dense				9-13-16			
10	SPT 5					6-8-13			
15	SPT 6					9-12-16			
20	SPT 7					12-17-21			
		WELL GRADED SANDY GRAVEL- saturated, black and white, subangular gravel, very dense to dense		▽					
25	SPT 8					9-13-23			
30	SPT 9					8-23-35/3"			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 24' below the ground surface during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

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LOG OF TEST BORING NO. B-10

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: 287.6

DATE OF EXPLORATION: 2/22/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper four inches, medium dense to dense				1-3-6			
	SPT 2				6	4-4-7			
5	SPT 3					5-8-14			
	SPT 4					7-11-16			
10	SPT 5	**WELL GRADED SAND**- black and white, dry, coarse grained, dense to very dense				8-10-10			
15	SPT 6					9-13-13			
20	SPT 7					9-16-21			
		WELL GRADED SANDY GRAVEL- saturated, black and white, subangular gravel, very dense		▽					
25	SPT 8					6-15-29			
30									
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 24' below the ground surface during drilling operations.							
35		Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above.							
40		Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-11

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.: No Survey Data

DATE OF EXPLORATION: 2/24/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper six inches, loose to medium dense				3-3-5			
	SPT 2				8	2-2-2			
5	SPT 3					2-6-5			
	SPT 4					3-5-5			
10	SPT 5	**WELL GRADED SAND**- black and white, dry, coarse grained, dense				4-11-13			
15	SPT 6					7-14-14			
20	SPT 7	**WELL GRADED SANDY GRAVEL**- saturated, black and white, subangular gravel, very dense		▽		35/1"			
25	SPT 8					8-17-16			
30	SPT 9					14-21-29			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 23'6" below the ground surface during drilling operations. Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above. Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
35									
40									
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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LOG OF TEST BORING NO. B-13

CLIENT: TKDA
PROJECT: Proposed Pacific Ethanol Facility

LOCATION: Boardman, OR

PSI PROJECT NUMBER: 704-65054
SURF. ELEV.:

DATE OF EXPLORATION: 2/24/2006
EQUIPMENT: CME-75 Hollow Stem Auger w/Auto SPT Hammer
LOGGED BY: M. Douglas
BORING LOCATION: See Site Exploration Plan

DEPTH, FT.	SAMPLES	SOIL DESCRIPTION	SYMBOL	U.S.C.S. CLASS	MOISTURE CONTENT(%)	BLOWS/6"	POCKET PEN(tsf)	% PASSING #200 SIEVE	REMARKS
	SPT 1	**POORLY GRADED SAND WITH SILT**- brown, moist to dry, fine grained, rooted upper six inches, medium dense			7	3-4-4			
	SPT 2	**WELL GRADED SAND**- black and white, dry, coarse grained, isolated small gravel lenses, medium dense to dense			6	5-5-6			
5	SPT 3					5-6-7			
	SPT 4					6-11-15			
10	SPT 5					6-9-12			
15	SPT 6					8-12-13			
20	SPT 7	**WELL GRADED SANDY GRAVEL**- saturated, black and white, subangular gravel, dense to very dense		▽		10-13-15			
25	SPT 8					15-23-27			
30	SPT 9					7-19-35/4"			
		Boring was terminated at 31'6" below existing site grade. The boring was loosely backfilled with auger cuttings and bentonite chips at the end of exploration on 2/20/06. Groundwater was measured on the drilling rod to be 25' below the ground surface during drilling operations. Stratification lines/depths are approximate. Actual soil conditions encountered during construction may vary from those described above. Surveyed elevations provided by Ron McKinnis of the Port of Morrow, Boardman, Oregon.							
35									
40									
45									

BL_PTLD 704-65054.GPJ PSI_CORP.GDT 3/29/06

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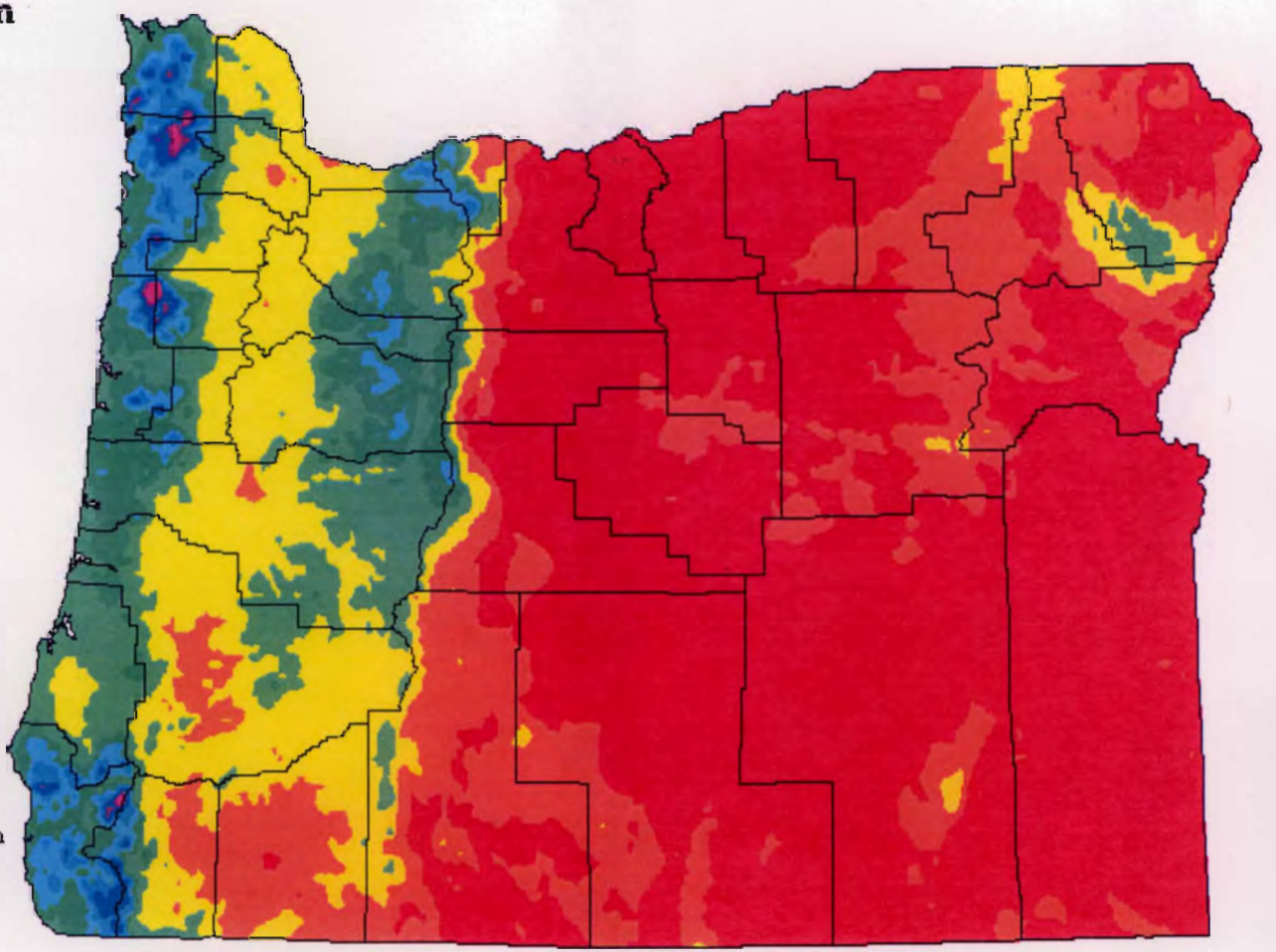
Average Annual Precipitation

Oregon

Period: 1961-1990

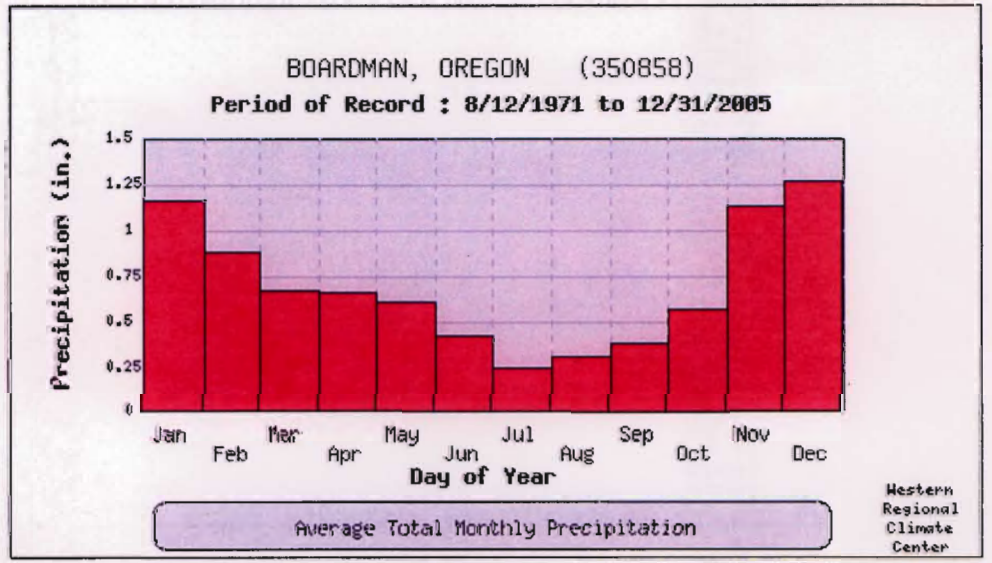


This map is a plot of 1961-1990 annual average precipitation contours from NOAA Cooperative stations and (where appropriate) USDA-NRCS SNOTEL stations. Christopher Daly used the PRISM model to generate the gridded estimates from which this map was derived; the modeled grid was approximately 4x4 km latitude/longitude, and was resampled to 2x2 km using a Gaussian filter. Mapping was performed by Jenny Weisburg. Funding was provided by USDA-NRCS National Water and Climate Center.

12/7/97

BOARDMAN, OREGON

POR - Monthly Average Total Precipitation



- Average precipitation recorded for the month.

U.S. Fish & Wildlife Service

USFWS Threatened and Endangered Species System (TESS)

TESS Help Desk

Notes:

- *This report shows the listed species associated in some way with this state.*
- *This list does not include experimental populations and similarity of appearance listings.*
- *This list includes non-nesting sea turtles and whales in State/Territory coastal waters.*
- *This list includes species or populations under the sole jurisdiction of the National Marine Fisheries Service.*
- *Click on the highlighted scientific names below to view a Species Profile for each listing.*

Listings and occurrences for Oregon -- 56 listings

- **48 occurring in Oregon**
- **8 not occurring in Oregon**
- **5 species listed in some other state occurring in Oregon**

Animals -- 41 listings

- **33 occurring in Oregon**
- **8 not occurring in Oregon**
- **3 species listed in some other state occurring in Oregon**

Status	*Species listed in this state and that occur in this state*
E	Albatross, short-tailed (*Phoebastria (=Diomedea) albatrus*)
E	Butterfly, Fender's blue (*Icaricia icarioides fenderi*)
T	Butterfly, Oregon silverspot (*Speyeria zerene hippolyta*)
E	Chub, Borax Lake (*Gila boraxobius*)
T	Chub, Hutton tui Hutton (*Gila bicolor ssp.*)
E	Chub, Oregon (*Oregonichthys crameri*)
T	Dace, Foskett speckled Foskett (*Rhinichthys osculus ssp.*)
E	Deer, Columbian white-tailed Columbia River DPS (*Odocoileus virginianus leucurus*)
T	Eagle, bald lower 48 States (*Haliaeetus leucocephalus*)
T	Fairy shrimp, vernal pool (*Branchinecta lynchi*)
T	Lynx, Canada lower 48 States DPS (*Lynx canadensis*)
T	Murrelet, marbled CA, OR, WA (*Brachyramphus marmoratus marmoratus*)
T	Owl, northern spotted (*Strix occidentalis caurina*)
E	Pelican, brown except U.S. Atlantic coast, FL, AL (*Pelecanus occidentalis*)
T	Plover, western snowy Pacific coastal pop. (*Charadrius alexandrinus nivosus*)
T	Salmon, chinook fall Snake R. (*Oncorhynchus (=Salmo) tshawytscha*)
T	Salmon, chinook lower Columbia R. (*Oncorhynchus (=Salmo) tshawytscha*)

T	Salmon, chinook spring/summer Snake R. (*Oncorhynchus (=Salmo) tshawytscha*)
T	Salmon, chinook upper Willamette R. (*Oncorhynchus (=Salmo) tshawytscha*)
T	Salmon, chum Columbia R. (*Oncorhynchus (=Salmo) keta*)
T	Salmon, coho OR, CA pop. (*Oncorhynchus (=Salmo) kisutch*)
T	Sea turtle, green except where endangered (*Chelonia mydas*)
E	Sea turtle, leatherback (*Dermochelys coriacea*)
T	Sea turtle, loggerhead (*Caretta caretta*)
T	Sea-lion, Steller eastern pop. (*Eumetopias jubatus*)
T	Steelhead Snake R. Basin (*Oncorhynchus (=Salmo) mykiss*)
T	Steelhead middle Columbia R. (*Oncorhynchus (=Salmo) mykiss*)
T	Steelhead upper Willamette R. (*Oncorhynchus (=Salmo) mykiss*)
E	Sucker, Lost River (*Deltistes luxatus*)
E	Sucker, shortnose (*Chasmistes brevirostris*)
T	Sucker, Warner (*Catostomus warnerensis*)
T	Trout, Lahontan cutthroat (*Oncorhynchus clarki henshawi*)
E	Whale, humpback (*Megaptera novaeangliae*)

Status	***Species listed in this state that do not occur in this state***
T	Bear, grizzly lower 48 States, except where listed as an experimental population or the Yellowstone population (*Ursus arctos horribilis*)
E	Condor, California U.S.A. only (*Gymnogyps californianus*)
E	Curlew, Eskimo (*Numenius borealis*)
T	Otter, southern sea except where XN (*Enhydra lutris nereis*)
E	Rabbit, pygmy Columbia Basin DPS (*Brachylagus idahoensis*)
T	Salmon, coho Lower Columbia River (*Oncorhynchus (=Salmo) kisutch*)
E	Sea-lion, Steller western pop. (*Eumetopias jubatus*)
E	Wolf, gray lower 48 States, except MN and where XN; Mexico (*Canis lupus*)

Status	***Listed species occurring in this state that are not listed in this state***
E	Salmon, sockeye U.S.A. (Snake River, ID stock wherever found.) (*Oncorhynchus (=Salmo) nerka*)
T	Steelhead lower Columbia R. (*Oncorhynchus (=Salmo) mykiss*)
T	Trout, bull U.S.A., conterminous, lower 48 states (*Salvelinus confluentus*)

Plants -- 15 listings

- **15 occurring in Oregon**
- **0 not occurring in Oregon**
- **2 species listed in some other state occurring in Oregon**

Status	***Species listed in this state and that occur in this state***
T	Catchfly, Spalding's (*Silene spaldingii*)
T	Checker-mallow, Nelson's (*Sidalcea nelsoniana*)
E	Daisy, Willamette (*Erigeron decumbens var. decumbens*)
E	Desert-parsley, Bradshaw's (*Lomatium bradshawii*)
T	Four-o'clock, MacFarlane's (*Mirabilis macfarlanei*)
E	Fritillary, Gentner's (*Fritillaria gentneri*)
T	Howellia, water (*Howellia aquatilis*)
E	Lily, Western (*Lilium occidentale*)
E	Lomatium, Cook's (*Lomatium cookii*)
T	Lupine, Kincaid's (*Lupinus sulphureus (=oreganus) ssp. kincaidii (=var. kincaidii)*)
E	Meadowfoam, large-flowered woolly (*Limnanthes floccosa ssp. grandiflora*)
E	Milk-vetch, Applegate's (*Astragalus applegatei*)
E	Popcornflower, rough (*Plagiobothrys hirtus*)
T	Thelypody, Howell's spectacular (*Thelypodium howellii spectabilis*)
E	Wire-lettuce, Malheur (*Stephanomeria malheurensis*)

Status	***Listed species occurring in this state that are not listed in this state***
T	Paintbrush, golden (*Castilleja levisecta*)
E	Rock-cress, McDonald's (*Arabis mcdonaldiana*)

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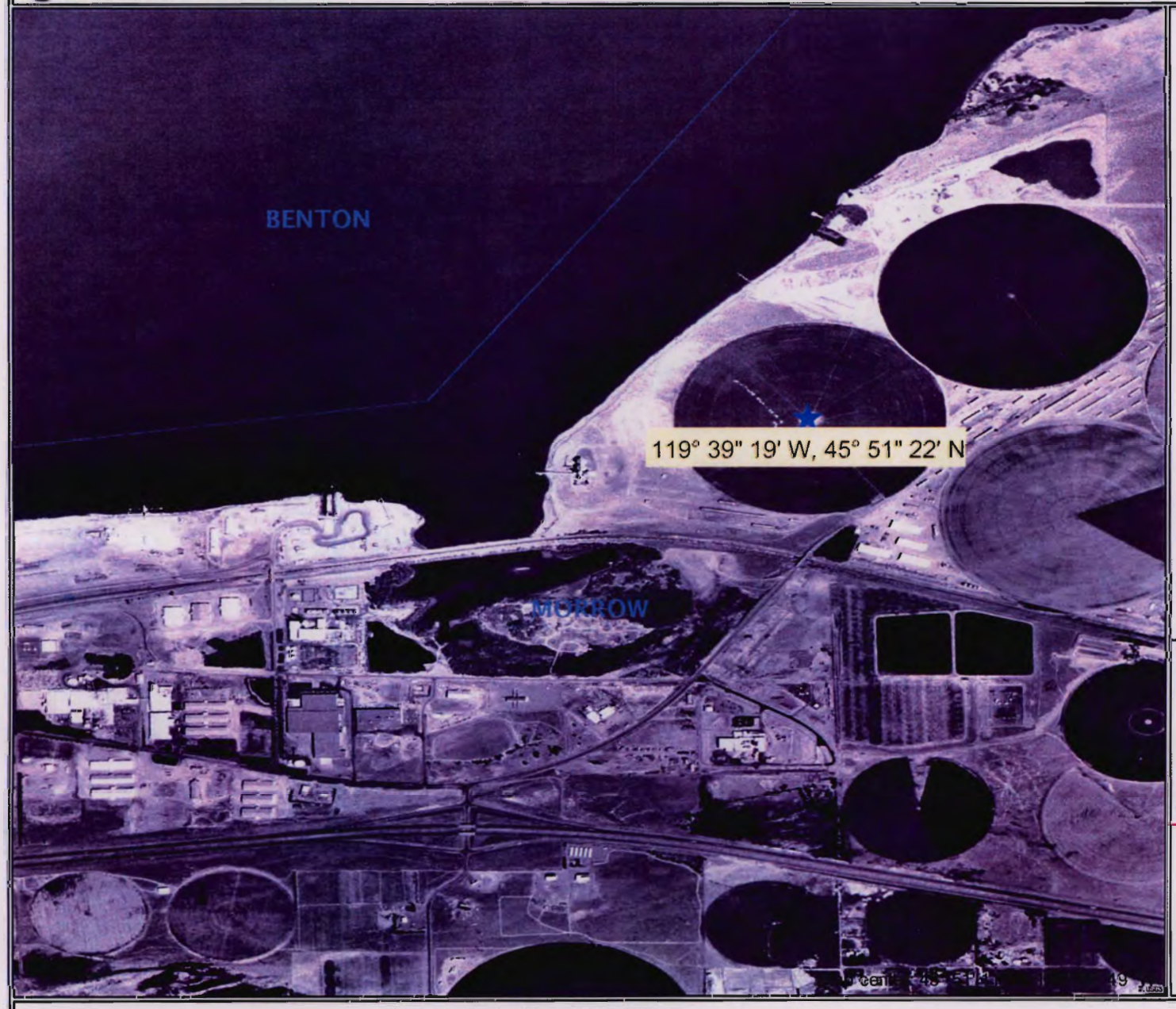
Pacific Ethanol - Boardman Plant



- Ohai (Sesbania tomentosa)
- No common name (Poa siphonoglossa)
- Mann's bluegrass (Poa mannii)
- No common name (Platanthera holochila)
- No common name (Phyllostegia mollis)
- Spreading navarretia (Navarretia fossalis)
- No common name (Lysimach filifolia)
- No common name (Lobelia monostachya)
- Nehe (Lipochaeta waimeaensis)

Disclaimer: This map DOES NOT represent all of the critical habitat designated by the U.S Fish & Wildlife Service. It shows only the available digitized critical habitats that have been submitted into this system as of print date.

Scale 1:32,246
U.S. Fish & Wildlife Service
Printed: Apr 5, 2006 10:35:21 AM

APPENDIX E

Pacific Ethanol
Boardman Plant
Morrow County, Oregon

SITE INSPECTION LOG SHEET

To be completed per Schedule B in CGP

Initials	Type of Inspection		Date of Inspection			Areas to be Inspected*						Inspectors should enter their initials, type, date, and time of the inspection in the blanks provided. After inspecting each shaded area*, inspectors should check each box, and make any necessary comments regarding their findings in the blanks provided below.
	Normal	24 Hours After a Rain Event	Month	Day	Year	Disturbed Areas	Exposed Materials	All Erosion and Sediment Control BMPs	Sedimentation Basins	Discharge Locations	Construction Site Exits	Comments:

Pacific Ethanol
Boardman Plant
Morrow County, Oregon

SITE INSPECTION REPORT

To be completed per Schedule B in CGP

Inspectors Name and Qualifications -

Inspection Date –

Days since last rainfall:_____ Amount of last rainfall:_____

Summary of Observations:

Incidents of Non-Compliance and Corrective Actions Needed:

If this report does not identify any incidents of non-compliance, certify below by signature that the site is in compliance with the ESCP and the permit.

_____
Erosion Control Supervisor

Note: This is a certification to be signed by the Erosion Control Supervisor on the Project.

Pacific Ethanol
Boardman Plant
Morrow County, Oregon

Inspection and Maintenance Report Form

Changes required to the ESCP:

Reasons for changes:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature: _____ Date: _____

Printed Name: _____

Title: _____

APPENDIX F

GENERAL PERMIT
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM
STORMWATER DISCHARGE PERMIT

Oregon Department of Environmental Quality
811 SW Sixth Avenue, Portland OR 97204
Telephone: (503) 229-5279 or 1-800-452-4011 (toll free in Oregon)

Issued pursuant to ORS 468B.050 and Section 402 of the Federal Clean Water Act

REGISTERED TO:

SOURCES COVERED BY THIS PERMIT:

Construction activities including clearing, grading, excavation, and stockpiling that will disturb one or more acres and may discharge to surface waters or conveyance systems leading to surface waters of the state. Also included are activities that disturb less than one acre that are part of a common plan of development or sale if the larger common plan of development or sale will ultimately disturb one acre or more and may discharge to surface waters or conveyance systems leading to surface waters of the state. Oregon Administrative Rules (OAR) 340-045-0015 and 0033(5) require all owners or operators responsible for these sources to register under this permit or obtain an individual permit.

This permit does not authorize in-water or riparian work regulated by the Federal Clean Water Act Section 404 permit program. These types of activities are regulated by the Oregon Department of State Lands, U.S. Army Corp of Engineers, and the Department of Environmental Quality Section 401 certification program. Unless specifically authorized by this permit, by another National Pollutant Discharge Elimination System (NPDES) or Water Pollution Control Facilities (WPCF) permit, or by OAR, any other direct or indirect discharge to waters of the state is prohibited, including discharges to an underground injection control (UIC) system.

Lauri Aunan, Administrator
Water Quality Division

Issued: December 28, 2005
Expiration Date: November 30, 2010

PERMITTED ACTIVITIES

Until this permit expires, is modified or revoked, the permit registrant is authorized to construct, install, modify, or operate erosion and sediment control measures and stormwater treatment and control facilities, and to discharge stormwater and certain specified non-stormwater discharges to surface waters of the state in conformance with all the requirements, limitations, and conditions set forth in the permit including attached schedules as follows:

PERMIT REGISTRATION

1. **Renewal Requirements**
   a. Activities Registered Under the Previous 1200-C Permit (issued February 2001).
      i. Permit registrants must submit a complete permit renewal application to the department prior to the permit expiration date of December 31, 2005 to ensure uninterrupted permit coverage under this permit for construction activities continuing beyond December 31, 2005.
      ii. An Erosion and Sediment Control Plan (ESCP) submitted prior to December 31, 2005 is not required to be resubmitted to the department or Agent except as required in Schedule C.
      iii. Permit registrants that do not submit a renewal application by the previous 1200-C expiration date must submit a new application for coverage under this permit and follow Condition 2 below.
   b. Renewal of Permit Registration under this Permit (December, 2005).
      i. To maintain continuous permit registration during the renewal process, a permit registrant must submit a complete renewal application with a revised ESCP, if applicable, to the department 180 days prior to this permit expiration unless otherwise approved by the department.
      ii. If the department fails to act on the application by the expiration date, permit registration is administratively extended until the department takes action on the application.
      iii. If registration under the renewed permit is not required or appropriate, the department will notify the applicant.

2. **New Construction Activities**
   a. Applicants seeking registration under this permit must:
      i. Submit a complete department-approved application form with an ESCP that complies with the permit requirements to the department or Agent at least thirty (30) days prior to the planned soil disturbance unless otherwise approved by the department.
      ii. Prior to beginning any soil disturbance activity, receive written notice from the department or Agent that permit registration has been approved.
   b. The department or Agent will register the applicant after the ESCP has been approved by the department or Agent. For construction activities that disturb five (5) or more acres, a public notice period is required as provided in Condition 4 below. The ESCP is approved when the department or Agent provides written notice of approval.
   c. If the application for registration is denied by the department or Agent, a construction activity cannot be registered under this permit, or if the applicant does not wish to be regulated by this permit, the applicant may apply for an individual permit in accordance with OAR 340-045-0030.

3. **Transfer of Permit Registration**
   To transfer permit registration, an owner or permit registrant must submit a department-approved transfer form prior to permit expiration and prior to transfer of ownership or operation.

4. **Public Review Period on Application and ESCP**
   Permit registrants that submit an application and ESCP for construction activities that disturb five (5) or more acres after June 1, 2006 will be subject to a 14-day public review period before permit registration by the department or Agent. The public review period will begin after the department or Agent has determined that the application is complete.

SCHEDULE A
LIMITATIONS AND CONTROLS FOR STORMWATER DISCHARGES

1. **Water Quality Standards**
   a. The permit registrant must not cause a violation of instream water quality standards.
   b. If the permit registrant develops, implements, and revises its ESCP in compliance with Schedule A of this permit, the department assumes that the discharges authorized by this permit will not cause a violation of water quality standards unless the department obtains evidence to the contrary.
   c. In instances were the department determines that the permit registrant's stormwater discharges are causing a violation of water quality standards, the department may take enforcement action for violations of the permit and will require the permit registrant to do one or more of the following:
      i. Develop and implement an Action Plan, which is considered an addendum to the ESCP, describing ESCP modifications that are necessary to prevent and control erosion and sediment discharges to meet water quality standards;
      ii. Submit valid and verifiable data and information that are representative of ambient conditions and indicate that the receiving water is meeting water quality standards; or
      iii. Curtail stormwater pollutant discharges to the extent possible and submit an individual permit application.

2. **Water Quality Requirements for TMDL and 303(d) Listed Waterbodies**
   In addition to other applicable requirements of this permit, if sediment or turbid water from a permit registrant's construction project has the potential to discharge into waterbodies that are listed for turbidity or sedimentation on the most recently EPA-approved Oregon 303(d) list or that have an established Total Maximum Daily Load (TMDL) for sedimentation or turbidity, the permit registrant must implement one of the two following sets of actions, in accordance with Schedule C.

   a. Option #1: Collect and analyze samples for turbidity in stormwater runoff from the construction site as required by Condition B.2. (p. 12) and compare the results to the benchmark value of 160 Nephelometric Turbidity Units (NTUs). The benchmark is used to determine if best management practices are effective; it is not an effluent limit. If any stormwater sample exceeds the benchmark, then the permit registrant must evaluate the best management practices (BMPs) and the adequacy of the ESCP and take corrective actions. If after such actions have been implemented and sample results still exceed the 160 NTU benchmark, the requirements of Option #2 below must be followed, and the permit registrant must submit an Action Plan to the department identifying the selected BMP(s) that will be implemented and the rationale for choosing the selected BMP(s).

   b. Option #2: In addition to the applicable BMPs required by Condition A.7., implement one or more of the following BMPs to control and treat sediment and turbidity:
      i. Compost berms, compost blankets, or compost socks;
      ii. Erosion control mats (rolled or blown);
      iii. Tackifiers used in combination with perimeter sediment control BMPs;
      iv. Established vegetated buffers sized at 50 feet plus 25 feet per 5 degrees of slope;
      v. Water treatment by electro-coagulation, chemical flocculation, or filtration; or
      vi. Other substantially equivalent sediment or turbidity BMP approved by the department.

      The selected BMP(s) must be specifically identified in the ESCP as addressing this condition of the permit, and the rationale for choosing the selected BMP(s) must also be provided.

3. Performance Requirements

a. Prevent Discharge of Significant Amounts of Sediment. The permit registrant must prevent the discharge of significant amounts of sediment to surface waters or conveyance systems leading to surface waters. Significant amounts of sediment result from the actions or inactions of the permit registrant at a site and result in visual indications that sediment has left or is likely to leave the site. The following conditions describe significant amounts of sediment:

i. Earth slides or mud flows;
ii. Concentrated flows of stormwater such as rills, rivulets or channels that cause erosion when such flows are not filtered or settled to remove sediment;
iii. Turbid flows of stormwater that are not filtered or settled to remove turbidity;
iv. Deposits of sediment at the construction site in areas that drain to unprotected stormwater inlets or catch basins that discharge to surface waters. Inlets and catch basins with failing sediment controls due to lack of maintenance or inadequate design are considered unprotected;
v. Deposits of sediment from the construction site on public or private streets outside of the permitted construction activity; or
vi. Deposits of sediment from the construction site on any adjacent property outside of the permitted construction activity.

b. Corrective Action. If significant amounts of sediment or turbidity (as described in A.3.a. above) are visibly detected in: 1) the discharge to a conveyance system leading to surface waters; 2) the discharge to surface waters 50 feet downstream; or 3) the discharge in surface waters at any location where more than one-half of the width of the receiving surface waters is affected, the permit registrant must:

i. Immediately, but no later than 24 hours after initial detection, take corrective actions or implement additional effective BMPs until the significant amounts of sediment or turbidity are no longer visually detectable and to ensure that the requirements of Conditions A.1. and A.3.a. are met.
ii. Evaluate the ESCP to determine the cause of the discharge.
iii. Document in the inspection records the corrective actions taken.
iv. Submit an Action Plan to the department within ten (10) calendar days of the discharge identifying the correction actions taken to cease the discharge, if such actions require a change to the ESCP or a change in the method(s) of implementing the ESCP, (e.g., increased inspection frequency). Approval of the Action Plan by the department prior to implementation of corrective actions is not required. The Action Plan must be kept onsite as per Condition B.3., p. 13.

c. Authorized Stormwater Discharges. Subject to compliance with the terms and conditions of this permit, the permit registrant is authorized to discharge the following:

i. Stormwater associated with construction activity that is authorized by this permit.
ii. Stormwater from support activities at the construction site (e.g., concrete or asphalt operations, equipment staging yards, material storage areas, excavated material disposal areas, borrow areas) provided:
(1) The support activity is directly related to the construction site required to have NPDES permit coverage for discharges of stormwater associated with construction activity;
(2) The support activity is not a commercial operation serving multiple unrelated construction projects by different permit registrants, and does not operate beyond the completion of the construction activity at the last construction project it supports; and
(3) Appropriate controls and measures are identified in an ESCP covering the discharges from the support activity areas.

d. Allowable Non-Stormwater Discharges. This permit authorizes the following non-stormwater discharges to surface water provided they are identified in the ESCP and all necessary controls are implemented to minimize sediment transport:
   i. Discharges from fire-fighting activities;
   ii. Fire hydrant and potable water flushing (refer to department guidance);
   iii. Waters used to wash vehicles where detergents or hot water are not used;
   iv. Potable water including uncontaminated water line flushing;
   v. Routine external building wash down that does not use detergents or hot water;
   vi. Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless all spilled material has been removed) and where detergents or hot water are not used;
   vii. Uncontaminated air conditioning or compressor condensate;
   viii. Construction dewatering activities;
   ix. Foundation or footing drains where flows are not contaminated with process materials such as solvents; and
   x. Landscape irrigation.

   For other non-stormwater discharges, the permit registrant may ask the department to determine if another permit is needed. The disposal of wastes to surface water or onsite is not authorized by this permit. The permit registrant must submit a separate permit application for such discharges.

4. Erosion and Sediment Control Plan (ESCP) and Action Plan Preparation and Submittal

a. Responsibilities of Permit Registrant. The permit registrant must ensure that an ESCP is prepared and revised as necessary for the construction activity regulated by this permit and submitted to the department or Agent as required by this permit.

b. Qualifications to Prepare ESCP.
   i. For construction activities disturbing 20 or more acres, the ESCP must be prepared and stamped by an Oregon Registered Professional Engineer, Oregon Registered Landscape Architect, or Certified Professional in Erosion and Sediment Control (Soil and Water Conservation Society).
   ii. If engineered facilities such as sedimentation basins or diversion structures for erosion and sediment control are required, the ESCP must be prepared and stamped by an Oregon Registered Professional Engineer.

c. Submittal of ESCP and if Required, Action Plans.
   i. The permit registrant must submit the ESCP to the department or Agent prior to obtaining registration under this permit (see Permit Registration, Condition 2 of this permit, p. 2).
   ii. If ESCP revisions are made after permit registration is approved, the permit registrant must submit revisions to the ESCP in the form of an Action Plan to the department, or if corrective actions are required by A.3.b., p. 4, within 24 hours of initial detection of the stormwater discharge.
      (1) The Action Plan is considered an addendum to the ESCP.
      (2) Approval of the Action Plan by the department prior to implementation of corrective actions is not required.
      (3) An Action Plan may be required due to changes in the project design, local conditions, project schedule (e.g., schedule delays postpone earthwork to wet weather season so additional controls are needed), weather conditions or other appropriate reasons.
      (4) The Action Plan must clearly identify any necessary changes (such as type or design) to the BMPs identified in the ESCP, their location, maintenance required, and any other revisions necessary to prevent and control erosion and sediment runoff.

iii. If the permit registrant does not receive a response on the Action Plan from the department or Agent within ten (10) days of the Action Plan receipt, the proposed revisions are deemed approved.

iv. The department or Agent may require the permit registrant to submit an Action Plan at any time if the ESCP is inadequate to prevent the discharge of significant amounts of sediment or turbidity to surface waters or to conveyance systems that discharge to surface waters. The permit registrant must submit the Action Plan according to the timeframe specified by the department or Agent.

5. ESCP Implementation

a. The permit registrant must ensure that the ESCP is implemented for the construction activity regulated by this permit. Failure to implement any portion of the ESCP constitutes violation of the permit on the part of the permit registrant.

b. The permit registrant must ensure that the ESCP is implemented according to the following sequence:

i. Before Construction.

(1) 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.

(2) Identify vegetative buffer zones between the site and sensitive areas (e.g., wetlands), and other areas to be preserved, especially in perimeter areas.

(3) Hold a pre-construction meeting of project construction personnel that includes the inspector required by Condition A.6.b. to discuss of erosion and sediment control measures and construction limits.

ii. During and After Construction.

(1) Site Access Areas (construction entrances, roadways, equipment parking areas, etc.).
Stabilize site entrances and access roads prior to earthwork.

(2) Install Sediment Control Measures.
Install perimeter sediment control, including storm drain inlet protection as well as all sediment basins, traps, and barriers which must be in place before vegetation is disturbed.

(3) Non-Stormwater Pollution Control Measures.
Concurrent with establishing construction access controls and sediment controls, the permit registrant must establish material and waste storage areas, concrete truck and other concrete equipment washout areas and other non-stormwater controls prior to the start of construction activities.

(4) Runoff Control.
Stabilize stream banks and construct the primary runoff control measures to protect areas from concentrated flows.

(5) Land Clearing, Grading and Roadways.

(a) Begin land clearing, excavation, trenching, cutting or grading after installing applicable sediment and runoff control measures.

(b) Provide appropriate erosion and sediment control BMPs for all roadways including gravel roadways.

(c) Install additional control measures as work progresses as needed.

(6) Surface Stabilization (temporary and permanent seeding, mulching).
Apply temporary or permanent soil stabilization measures immediately on all disturbed areas as grading progresses.

(7) Construction and Paving (install utilities, buildings, paving, etc.).
Erosion and sediment control measures must remain in place for the duration of construction, including protection for active storm drain inlets and appropriate non-stormwater pollution controls.

(8) Final Stabilization and Landscaping.
Provide permanent erosion prevention measures on all exposed areas and remove all temporary control measures as areas are stabilized.

6. ESCP Elements

The permit registrant must ensure that the ESCP contains the following elements:

a. Local Government Requirements. Include any procedures necessary to meet applicable local government erosion and sediment control or stormwater management requirements.

b. Inspections.
   i. Inspections must be conducted by a person knowledgeable in the principles and practice of erosion and sediment controls who possesses the skills to assess conditions at the construction site that could impact stormwater quality, is knowledgeable in the correct installation of the erosion and sediment controls, and is able to assess the effectiveness of any sediment and erosion control measures selected to control the quality of stormwater discharges from the construction activity.
   ii. Identify the person(s) or title and experience of the personnel that will conduct inspections. Provide the following for each person:
      (1) Name;
      (2) Contact phone number and, if available, e-mail address; and
      (3) Description of experience and training.

c. Narrative Site Description.
   i. Nature of the construction activity, including a proposed timetable for major activities;
   ii. Estimates of the total area of the permitted site and the area of the site that is expected to undergo clearing, grading or excavation;
   iii. Nature of the fill material to be used, the insitu soils, and the erosion potential of such soils; and
   iv. Names of the receiving water(s) for stormwater runoff.

d. Site Map.
   i. The site map kept on site must represent the actual BMP controls being used onsite, particularly those BMPs identified in the most recent Action Plan(s);
   ii. The site map must show sufficient roads and features for the department or Agent to locate and access the site;
   iii. Total property boundary including surface area of the development;
   iv. Areas of total soil disturbance (including, but not limited to, showing cut and fill areas and pre and post development elevation contours);
   v. Drainage patterns before and after finish grading;
   vi. Location(s), size, and type of discharge point(s);
   vii. Areas used for the storage of soils or wastes;
   viii. Areas where vegetative practices are to be implemented;
   ix. Location of all erosion and sediment control measures or structures;
   x. Location of impervious structures after construction is completed. Include buildings, roads, parking lots, outdoor storage areas, etc., if any;
   xi. Springs, wetlands and other surface waters located on-site;
   xii. Boundaries of 100-year floodplains if determined and easily available;
   xiii. Location of stormwater discharge points to receiving water(s) or stormwater conveyance systems if applicable;

xiv. Location of storm drain catch basins and the location of catch basins with inlet protection, if applicable and a description of the type of catch basins used (e.g., curb inlet, field inlet, grated drain, combination, etc.);
xv. Location of septic drain fields if applicable;
xvi. Location of existing or proposed drywells or other UICs if applicable;
xvii. Location of drinking water wells;
xviii. Details of sediment and erosion controls including installation techniques; and
xix. Details of detention ponds, storm drain piping, inflow and outflow details.

e. Implementation Schedule and Description of BMPs
Include in the ESCP the implementation schedule and description of BMPs to be used at the site. See Condition A.5. for implementation requirements and Conditions A.7. and A.8. for minimum BMP requirements.

7. Required BMPs
The following controls and practices, if appropriate for the site, are required in the ESCP and must be implemented according to the schedule in the ESCP. If the permit registrant determines that any of these controls or practices is not appropriate, the rationale for the change must be provided in the ESCP.

a. Wet Weather BMPs.
i. Generally construction activities must avoid or minimize excavation and bare ground activities that occur on slopes greater than five (5) percent during the period of October 1 through May 31.
ii. Temporary stabilization of soils must be installed at the end of the shift before a holiday or weekend if needed based on weather forecast.

b. Runoff Controls.
In developing runoff control practices, at a minimum the following BMPs must be considered: slope drains, energy dissipaters, diversion of run-on, temporary diversion dikes, grass-lined channel (turf reinforcement mats), trench drains, drop inlets, and check dams.

c. Erosion Prevention Methods.
In developing erosion prevention methods, at a minimum the following BMPs must be considered:
i. Clearing and Grading Practices.
(1) Provide structural erosion prevention during grading and earthwork-surface roughening and prevent erosion on graded surfaces.
(2) Top-soiling, temporary seeding and planting, permanent seeding and planting, mycorrhizae/ biofertilizers, mulches, compost blankets, erosion control blankets and mats, soil binders, soil tackifiers, sodding vegetative buffer strips, and protection of trees with protective construction fences.
ii. Wind Erosion/Dust Control.
(1) All erosion and sediment controls not in the direct path of work must be installed before any land disturbance.
(2) Whenever practicable, clearing and grading must be done in a phased manner to prevent exposed inactive areas from becoming a source of erosion.
iii. Vegetative Erosion Control Practices.
(1) Preserve existing vegetation and re-vegetate open areas when practicable before and after grading or construction.

(2) Biotechnical erosion control measures: live staking, live fascines and brush wattles, stabilization mats, pole planting, brush box, fascines with sub-drains, live pole drains, and brush packing or live gully fill repair.
(3) All temporary sediment control practices must not be removed until permanent vegetation or other cover of exposed areas is established.
(4) If vegetative seed mix is used, identify the type of seed mix (percentages of the various seeds of annuals, perennials and clover).

d. Sediment Controls.
   i. Peripheral Erosion and Sediment Controls.
      (1) Sediment control must be provided along the site perimeter and at all operational internal storm drain inlets at all times during construction.
      (2) Active inlets must be considered part of the site perimeter because they provide an avenue for sediment and other pollutants to leave the site.
   ii. Erosion Control Practices.
      In developing sediment control practices, include in the ESCP installation details and at a minimum the following must be considered: sediment fences, sand bag barrier, gravel bag berm, earth dikes, drainage swales, check dams, subsurface drains which daylight to the surface, pipe slope drains, rock outlet protection, sediment traps, rock and brush filters, compost berm/compost sock, fiber rolls/wattles, storm drain inlet protection, and temporary or permanent sedimentation basins.
   iii. Reducing Sediment Tracking.
      (1) 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.
      (2) All unpaved roads located onsite must be graveled. Other effective erosion and sediment control measures either on the road or down gradient may be used in place of graveling.
      (3) When trucking saturated soils from the site, either water-tight trucks must be used or loads must be drained on-site until dripping has been reduced to minimize spillage on roads.

e. Non-Stormwater Pollution Controls.
   Non-Stormwater Pollution Controls BMPs must be in-place throughout the grading and construction phases. In developing non-stormwater pollution control practices, at a minimum the following must be considered:
   i. Pollution Prevention.
      (1) BMPs used to prevent pollution of stormwater or to treat stormwater from the following activities: dewatering and ponded water management, paving operation controls, temporary equipment bridge, illicit connection, and illegal discharge.
      (2) BMPs that will be used to prevent or minimize stormwater from being exposed to pollutants from spills, no 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.
   ii. Stockpile Erosion and Sediment Control Practices.
      (1) Stockpiles located away from the construction activity but still under the control of the permit registrant must also be protected to prevent significant amounts of sediment or turbid water from discharging to surface waters.
      (2) At the end of each workday the soil stockpiles must be stabilized, covered or other BMPs must be implemented to prevent discharges to surface waters.

(3) In developing these practices, at a minimum the following must be considered: diversion of uncontaminated flows around stockpiles, use of cover over stockpiles, and installation of sediment fences around stockpiles

iii. Solid Waste and Hazardous Materials Management.

(1) The department encourages the permit registrant to reuse and recycle construction wastes.

(2) Any use of toxic or other hazardous materials must include proper storage, application, and disposal.

(3) In developing these practices, at a minimum the following must be described in the ESCP and implemented where practical: written spill prevention and response procedures, employee training on spill prevention and proper disposal procedures; regular maintenance schedule for vehicles and machinery; and material delivery and storage controls, training and signage, material use, covered storage areas for waste and supplies.

(4) The permit registrant must manage hazardous wastes, used oils, contaminated soils, concrete management, sanitary waste management, liquid waste management, or other toxic substances discovered or generated during construction activities in accordance with state and federal regulations. In some cases, department approval for management and disposal may be required.

f. Inspection and Maintenance.

To provide for continued performance, BMPs must be inspected before, during, and after significant storm events. During grading and construction, the permit registrant is responsible for maintaining the stormwater pollution control BMPs. The permit registrant must establish and promptly implement procedures for maintenance and repair of erosion and sediment control measures.

i. General Site Maintenance.

(1) Significant amounts of sediment that leave the site must be cleaned up within 24 hours and placed back on the site and stabilized or disposed of properly. In addition, the source(s) of the sediment must be controlled to prevent continued discharge within 24 hours. Any instream clean up of sediment must be preformed according to requirements and timelines set by the Oregon Department of State Lands.

(2) Sediment must not be intentionally washed into storm sewers or drainage ways. Vacuuming or dry sweeping must be used to clean up released sediments.

(3) If fertilizers are used to establish vegetation, the application rates must follow manufacturer's guidelines and the application must be done in such a way to minimize nutrients discharging to surface waters.

ii. Maintenance of Erosion and Sediment Controls.

(1) For a sediment fence, the trapped sediment must be removed before it reaches one third of the above ground fence height.

(2) Other sediment barriers (e.g., biobags): the sediment must be removed before it reaches two inches of accumulation in any area above the sediment barrier(s).

(3) For catch basin protection, cleaning must occur when sediment retention capacity has been reduced by fifty percent.

(4) For a sediment basin, removal of trapped sediments must occur when design capacity has been reduced by fifty percent.

iii. Stormwater Treatment System Requirement.

If a stormwater treatment system (e.g., electro-coagulation, chemical flocculation, filtration, etc.) for sediment removal is employed, an operation and maintenance plan must be submitted to the department for approval before start up of the treatment system. Upon department approval of the plan, the permit registrant must implement the plan.

8. Additional BMP Requirements During Inactive Periods

a. If all construction activities cease at the site for thirty (30) days or more, the entire site must be stabilized using vegetation or a heavy mulch layer, temporary seeding, or another method that does not require germination to control erosion.

b. On any significant portion of the site, if construction activities cease for fifteen (15) days or more, temporary covering with straw or compost mulch or other covering that is tackified to prevent soil or wind erosion must occur until work resumes.

SCHEDULE B
MINIMUM MONITORING REQUIREMENTS

1. Visual Monitoring Requirement

a. The following must be inspected by the permit registrant:
   i. All areas of the site disturbed by construction activity to ensure that BMPs are in working order.
   ii. Discharge point(s) identified in the ESCP for evidence of or the potential for the discharge of pollutants, and to ascertain whether erosion and sediment control measures are effective in preventing significant impacts to surface waters. Where discharge points are inaccessible, nearby downstream locations must be inspected to the extent that such inspections are practicable.
   iii. BMPs identified in the ESCP and any ESCP revisions documented in Action Plan(s) to assess whether they are functioning properly.
   iv. Locations where vehicles enter or exit the site for evidence of off-site sediment tracking.
   v. Areas used for storage of materials that are exposed to precipitation for evidence of spillage or other potential to contaminate stormwater runoff.

b. All ESCP controls and practices must be inspected visually according to the following schedule:

Site Condition	Minimum Frequency
1. Active period.	Daily when stormwater runoff, including runoff from snow melt, 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 calendar 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.

2. Turbidity Monitoring Requirements for TMDL and 303(d) Listed Waterbodies per Option #1 in Condition A.2.a., p. 3

In addition to the requirements in Condition B.1. above, permit registrants discharging into waterbodies that are listed for turbidity or sedimentation on the most recently EPA approved Oregon 303(d) list or have an established TMDL for sedimentation or turbidity are subject to the following requirements if Option #1 (Condition A.2.a.) is being followed:

Parameter	Minimum Frequency	Monitoring Points	Type of Sample[1]	Test Method[2]
Turbidity (NTU)	At a minimum one stormwater sample that represents the flow and characteristics of the stormwater discharge must be collected at each monitoring point on a weekly basis when stormwater runoff is detectable.	All stormwater discharge points indicated on the site map see A.6.d.xiii., p. 7.	Grab	Field turbidimeter

[1] Occurring during regular working hours at the construction site.
[2] The permit registrant must use sampling procedures, testing methods and turbidity meter calibration methods approved by the department.

3. Recordkeeping Requirements

a. Documentation of Visual Inspection. All visual inspections must be documented in writing as follows:
   i. Inspection date and inspector's name.
   ii. At the designated discharge location(s) inspections of the quality of the discharge for any turbidity, color, sheen, or floating materials.
      (1) Inspect and record color and turbidity or clarity in: 1) the discharge to a conveyance system leading to surface waters, 2) the discharge to surface waters 50 feet downstream, or 3) the discharge in surface waters at any location where more than one-half of the width of the receiving surface waters is affected.
      (2) For turbidity and color, describe any apparent color and the clarity of the discharge, and any apparent difference in comparison with the surface waters. For a sheen or floating material, describe whether this is present or absent. If present, it could indicate concern about a possible spill or leakage from vehicles or materials storage.
   iii. If a site is inaccessible due to inclement weather, record the inspections noted at a relevant discharge point or downstream location, if practical.
   iv. Location(s) of BMPs that need to be maintained, inspections of all BMPs, including erosion and sediment controls, chemical and waste controls, locations where vehicles enter and exit the site, status of areas that employ temporary or final stabilization control, soil stockpile area, and non-stormwater pollution (e.g., paints, oils, fuels, adhesives) controls.
   v. Location(s) of BMPs that failed to operate as designed or proved inadequate for a particular location;
   vi. Location(s) where additional BMPs are needed that did not exist at the time of inspection; and
   vii. Corrective action required and implementation dates.

b. ESCP including Action Plan(s) Retained Onsite. A copy of the ESCP and the Action Plan must be retained on-site and made available on request to the department, Agent, or the local municipality. During inactive periods of greater than seven (7) consecutive calendar days, the ESCP must be retained by the permit registrant but does not need to be at the construction site.

c. Inspection and Monitoring Results. All inspection records and monitoring results must be kept on-site and maintained by the permit registrant, made available to the department, Agent, or local municipality upon request, and must include:
   i. The construction site name as it appears on the registrant's permit and the file or site number.
   ii. All Action Plans that describe reasons for required changes or modifications to the ESCP and/or other corrective measures implemented during the previous reporting period.
   iii. Turbidity sampling results required by Condition B.2., p. 12 if applicable.

d. Retention of Inspection and Monitoring Results for Three (3) Years.
   i. All inspection records and monitoring results must be retained for at least three (3) years after project completion.
   ii. In addition, these records must be delivered or made available to the department within three (3) working days of request.

SCHEDULE C
COMPLIANCE SCHEDULE

Potential discharges into waterbodies that are on the most recent EPA-approved Oregon 303(d) list for turbidity or sedimentation or have a TMDL for turbidity or sedimentation

1. **Permit registrants who obtained permit coverage prior to October 1, 2006 must:**
   a. For EPA-approved TMDLs or 303(d) listings existing at the time permit application is made, comply with the requirements in Condition A.2. by October 1, 2006.
   b. For future TMDLS or 303(d) listings approved by EPA after permit application is made, comply with the requirements in Condition A.2. no later than ninety (90) days after EPA-approval of the TMDL or 303(d) list.

2. **Permit registrants obtaining coverage after October 1, 2006 must:**
   a. For EPA-approved TMDLs or 303(d) listings existing at the time permit application is made, comply with the requirements of Condition A.2. upon obtaining coverage under the permit. If Option #2 is selected, the BMP(s) must be specifically identified in the ESCP as addressing this condition of the permit and the rationale for choosing the selected BMP(s) must also be provided.
   b. For future TMDLS or 303(d) listings approved by EPA after permit application is made, comply with the requirements in Condition A.2. no later than ninety (90) days after EPA-approval of the TMDL or 303(d) list.

SCHEDULE D
SPECIAL CONDITIONS

1. In the event of any inconsistency between Schedules A through D and F, Schedules A through D will apply.

2. Registration under this permit does not relieve the permit registrant from all other permitting and licensing requirements. Prior to beginning construction activities, the permit registrant must obtain all other necessary approvals.

3. **Required Actions Prior to Termination of Permit Registration**
   a. The following conditions must be met before permit registration is terminated:
      i. There is no reasonable potential for discharge of a significant amount of construction related sediment or turbidity to surface waters.
      ii. Construction materials, waste, and temporary erosion and sediment controls have been removed and disposed of properly. This includes any sediment that was being retained by the temporary erosion and sediment controls.
      iii. All soil disturbance activities by the permittee have been completed and all stormwater discharges from construction activities that are authorized by this permit are eliminated.
      iv. All temporary erosion and sediment controls have been removed and properly disposed.
      v. All disturbed or exposed areas of the site must be fully stabilized as defined in Condition D.4.m. below.

   b. The permit registrant must complete and submit a Notice of Termination form to the department or Agent after the conditions in D.3.a. above have been satisfied. The department or Agent will not act on a request for termination until all outstanding compliance issues are resolved.

4. **Permit-specific Definitions**
   a. *Action Plan* means an addendum to the ESCP that describes ESCP modifications.
   b. *Agent* means a governmental entity that has an agreement with the department to assist with implementation of this general permit.
   c. *Best Management Practices or BMPs* means schedules of activities, prohibitions of practices, maintenance procedures, and other physical, structural or managerial practices to prevent or reduce the pollution of waters of the state. BMPs include treatment systems, erosion and sediment control, source control, and operating procedures and practices to control site runoff, spillage or leaks, and waste disposal.
   d. *Borrow Area* means the area from which material is excavated to be used as fill material in another area.
   e. *Clean Water Act or CWA* means the Federal Water Pollution Control Act (FWPCA) enacted by Public Law 92-500, as amended by Public Laws 95-217, 95-576, 96-483, and 97-117; USC 1251 et. seq.
   f. *Department or DEQ* means the Oregon Department of Environmental Quality.
   g. *Detention* means the temporary storage of stormwater to improve quality or reduce the volumetric flow rate of discharge or both.
   h. *Dewatering* means the removal and disposal of surface water or groundwater for purposes of preparing a site for construction.
   i. *Discharge Point* means the location where stormwater leaves the site. It includes the location where stormwater is discharged to surface water or a stormwater conveyance system.
   j. *Erosion* means the movement of soil particles or rock fragments by water or wind.
   k. *Erosion and Sediment Control BMPs* means BMPs that are intended to prevent erosion and sedimentation, such as preserving natural vegetation, seeding, mulching and matting, plastic covering,

filter fences, and sediment traps and ponds. Erosion and sediment control BMPs are synonymous with stabilization and structural BMPs.

l. *Erosion Prevention Methods* means a wide range of erosion prevention practices, materials and methods to be applied during earthwork activities including structural methods, techniques to prevent erosion on already graded surfaces, and biotechnical erosion control methods. The best way to control the discharge of sediment and related pollutants from a construction site is to prevent erosion from occurring in the first place.

m. *Final Stabilization or Fully Stabilized* means the completion of all soil disturbing activities at the site by the permit registrant, and the establishment of a permanent vegetative cover, or equivalent permanent stabilization measure(s) (such as riprap, gabions or geotextiles) to prevent erosion.

n. *Hazardous Materials* means the materials defined in 40 CFR part 302 Designation, Reportable Quantities, and Notification.

o. *Local Government* means any county, city, town, or service district.

p. *National Pollutant Discharge Elimination System or NPDES* means the national program under Section 402 of the Federal Clean Water Act for regulation of point source discharges of pollutants to waters of the United States.

q. *Non-Stormwater Pollution Controls* means general site and materials management measures that directly or indirectly aid in minimizing the discharge of sediment and other construction related pollutants from the construction site.

r. *Permit Registrant* means the owner or operator of the construction activity regulated by this permit who receives notice of registration under this general permit. Owners or operators may be individuals or other legal entities.

s. *Pollutant* as defined in 40 CFR §122.2 means dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, domestic sewage sludge (biosolids), munitions, chemical wastes, biological materials, radioactive materials, heat, wrecked or discarded equipment, rock, sand, soil, cellar dirt and industrial, municipal, and agricultural waste discharge into water. It does not mean sewage from vessels within the meaning of Section 312 of the FWPCA, nor does it include dredged or fill material discharged in accordance with a permit issued under Section 404 of the FWPCA.

t. *Pollution or Water Pollution* as defined by ORS 468B.005(3) means such alteration of the physical, chemical or biological properties of any waters of the state, including change in temperature, taste, color, turbidity, silt or odor of the waters, or such discharge of any liquid, gaseous, solid, radioactive or other substance into any waters of the state, which will or tends to, either by itself or in connection with any other substance, create a public nuisance or which will or tends to render such waters harmful, detrimental or injurious to public health, safety or welfare, or to domestic, commercial, industrial, agricultural, recreational or other legitimate beneficial uses or to livestock, wildlife, fish or other aquatic life or the habitat thereof.

u. *Runoff Controls* means BMPs that are designed to control the peak volume and flow rate and to prevent scour due to concentrated flows.

v. *Sediment* means solid unconsolidated rock and mineral fragments that come from the weathering of rocks and are transported by water, air, or ice and form layers on the earth's surface. Sediments can also result from chemical precipitation or secretion by organisms.

w. *Site* means the area where the construction activity is physically located or conducted.

x. *Source Control BMPs* means physical, structural or mechanical devices or facilities that are intended to prevent pollutants from entering stormwater. A few examples of source control BMPs are erosion control practices, maintenance of stormwater facilities, constructing roofs over storage and working areas, and directing wash water and similar discharges to the sanitary sewer or a dead end sump.

y. *Stormwater Conveyance* means a sewer, ditch, or swale that is designed to carry stormwater; a stormwater conveyance may also be referred to as a storm drain or storm sewer.

z. *Stormwater* as defined by 40 CFR §122.26(b)(13) means stormwater runoff, snow melt runoff, and surface runoff and drainage.

aa. *Surface Runoff* means that portion of stormwater that does not infiltrate into the ground or evaporates, but instead flows onto adjacent land or watercourses or is routed to stormwater conveyance systems.

bb. *Surface Water* means all water naturally open to the atmosphere (e.g., rivers, lakes, reservoirs, ponds, streams, impoundments, oceans, estuaries, springs, etc.).

cc. *Total Maximum Daily Load or TMDL* means a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet state water quality standards. It is the sum of the allowable loads of a single pollutant from all contributing point and nonpoint sources. Percentages of the TMDL are allocated by the department to the various pollutant sources. The TMDL calculations must include a "margin of safety" to ensure that the waterbody can be protected in case there are unforeseen events or unknown sources of the pollutant. The calculation must also account for seasonable variation in water quality.

dd. *Turbidity* means the optical condition of waters caused by suspended or dissolved particles or colloids that scatter and absorb light rays instead of transmitting light in straight lines through the water column. Turbidity may be expressed as nephelometric turbidity units (NTUs) measured with a calibrated turbidity meter.

ee. *Underground Injection Control or UIC* means any system, structure, or activity that is created to place fluid below the ground or sub-surface (e.g., sumps, infiltration galleries, drywells, trench drains, drill holes, etc.).

ff. *Water or Waters of the State* as defined by ORS 468B.005(8) means lakes, bays, ponds, impounding reservoirs, springs, wells, rivers, streams, creeks, estuaries, marshes, inlets, canals, the Pacific Ocean within the territorial limits of the State of Oregon and all other bodies of surface or underground waters, natural or artificial, inland or coastal, fresh or salt, public or private (except those private waters which do not combine or effect a junction with natural surface or underground waters), which are wholly or partially within or bordering the state or within its jurisdiction.

SCHEDULE F
NPDES GENERAL CONDITIONS

SECTION A. STANDARD CONDITIONS

1. Duty to Comply
   The permit registrant must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of Oregon Revised Statutes (ORS) 468B.025, and 40 Code of Federal Regulations (CFR) §122.41(a), and is grounds for enforcement action; for permit termination, revocation or reissuance, or modification; or for denial of a permit renewal application.

2. Penalties for Water Pollution and Permit Condition Violations
   ORS 468.140 allows the department to impose civil penalties up to $10,000 per day for violation of a term, condition, or requirement of a permit. Additionally 40 CFR §122.41 (A) provides that any person who violates any permit condition, term, or requirement may be subject to a federal civil penalty not to exceed $25,000 per day for each violation.

   Under ORS 468.943 and 40 CFR §122.41(a), unlawful water pollution, if committed by a person with criminal negligence, is punishable by a fine of up to $25,000 imprisonment for not more than one year, or both. Each day on which a violation occurs or continues is a separately punishable offense.

   Under ORS 468.946, a person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a Class B felony punishable by a fine not to exceed $200,000 and up to 10 years in prison. Additionally, under 40 CFR §122.41(a) any person who knowingly discharges, places, or causes to be placed any waste into the waters of the state or in a location where the waste is likely to escape into the waters of the state is subject to a federal civil penalty not to exceed $100,000, and up to 6 years in prison.

3. Duty to Mitigate
   The permit registrant must take all reasonable steps to minimize or prevent any discharge or sludge use or disposal in violation of this permit that has a reasonable likelihood of adversely affecting human health or the environment. In addition, upon request of the department, the permit registrant must correct any adverse impact on the environment or human health resulting from noncompliance with this permit, including such accelerated or additional monitoring as necessary to determine the nature and impact of the non-complying discharge.

4. Duty to Reapply
   If the permit registrant wishes to continue an activity regulated by this permit after the expiration date of this permit, the permit registrant must apply for and have the permit renewed. The application must be submitted at least 180 days before the expiration date of this permit. The department may grant permission to submit an application less than 180 days in advance but no later than the permit expiration date.

5. Permit Actions
   This permit may be modified, revoked and reissued, or terminated for cause including, but not limited to, the following:
   a. Violation of any term, condition, or requirement of this permit, a rule, or a statute
   b. Obtaining this permit by misrepresentation or failure to disclose fully all material facts
   c. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge
   d. The permit registrant is identified as a Designated Management Agency or allocated a wasteload under a Total Maximum Daily Load (TMDL)
   e. New information or regulations
   f. Modification of compliance schedules
   g. Requirements of permit re-opener conditions
   h. Correction of technical mistakes made in determining permit conditions
   i. Determination that the permitted activity endangers human health or the environment
   j. Other causes as specified in 40 CFR §§122.62, 122.64, and 124.5

The filing of a request by the permit registrant for a permit modification, revocation or reissuance, termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

6. Toxic Pollutants
The permit registrant must comply with any applicable effluent standards or prohibitions established under Oregon Administrative Rules (OAR) 340-041-0033 for toxic pollutants within the time provided in the regulations that establish those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

7. Property Rights
The issuance of this permit does not convey any property rights of any sort, or any exclusive privilege, nor does it authorize any injury to persons of property or invasion of any other private rights, nor any infringement of federal, tribal, state, or local laws or regulations.

8. Permit References
Except for effluent standards or prohibitions established under Section 307(a) of the Clean Water Act and OAR 340-041-0033for toxic pollutants, all rules and statutes referred to in this permit are those in effect on the date this permit is issued.

9. Permit Fees
The permit registrant must pay the fees required by OAR 340-045-0070 to 0075.

SECTION B. OPERATION AND MAINTENANCE OF POLLUTION CONTROLS

1. Proper Operation and Maintenance
The permit registrant must at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) that are installed or used by the permit registrant to achieve compliance with the conditions of this permit. Proper operation and maintenance also includes adequate laboratory controls and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems that are installed by a permit registrant only when the operation is necessary to achieve compliance with the conditions of the permit.

2. Duty to Halt or Reduce Activity
For industrial or commercial facilities, upon reduction, loss, or failure of the treatment facility, the permit registrant must, to the extent necessary to maintain compliance with its permit, control production or all discharges or both until the facility is restored or an alternative method of treatment is provided. This requirement applies, for example, when the primary source of power of the treatment facility fails or is reduced or lost. It is not a defense for a permit registrant in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.

3. Bypass of Treatment Facilities
   a. Definitions
      (1) "Bypass" means intentional diversion of waste streams from any portion of the treatment facility. The term "bypass" does not apply if the diversion does not cause effluent limitations to be exceeded, provided the diversion is to allow essential maintenance to assure efficient operation or the diversion is due to nonuse of nonessential treatment units or processes at the treatment facility.
      (2) "Severe property damage" means substantial physical damage to property, damage to the treatment facilities or treatment processes that causes them to become inoperable, or substantial and permanent loss of natural resources that can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

   b. Prohibition of bypass.
      (1) Bypass is prohibited unless:
         (a) Bypass was necessary to prevent loss of life, personal injury, or severe property damage;
         (b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if adequate backup equipment should have been installed in the exercise of

reasonable engineering judgment to prevent a bypass that occurred during normal periods of equipment downtime or preventative maintenance; and

(c) The permit registrant submitted notices and requests as required under General Condition B.3.c.

(2) The department may approve an anticipated bypass, after considering its adverse effects and any alternatives to bypassing, when the department determines that it will meet the three conditions listed above in General Condition B.3.b.(1).

c. Notice and request for bypass.
   (1) Anticipated bypass. If the permit registrant knows in advance of the need for a bypass, a written notice must be submitted to the department at least ten days before the date of the bypass.
   (2) Unanticipated bypass. The permit registrant must submit notice of an unanticipated bypass as required in General Condition D.5.

4. Upset
   a. Definition. "Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology based permit effluent limitations because of factors beyond the reasonable control of the permit registrant. An upset does not include noncompliance to the extent caused by operation error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventative maintenance, or careless or improper operation.

   b. Effect of an upset. An upset constitutes an affirmative defense to an action brought for noncompliance with such technology-based permit effluent limitations if the requirements of General Condition B.4.c are met. A determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance is not final administrative action subject to judicial review.

   c. Conditions necessary for a demonstration of upset. A permit registrant who wishes to establish the affirmative defense of upset must demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence that:
      (1) An upset occurred and that the permit registrant can identify the causes(s) of the upset;
      (2) The permitted facility was at the time being properly operated;
      (3) The permit registrant submitted notice of the upset as required in General Condition D.5, hereof (24-hour notice); and
      (4) The permit registrant complied with any remedial measures required under General Condition A.3 hereof.

   d. Burden of proof. In any enforcement proceeding, the permit registrant seeking to establish the occurrence of an upset has the burden of proof.

5. Treatment of Single Operational Upset
   For purposes of this permit, A Single Operational Upset that leads to simultaneous violations of more than one pollutant parameter will be treated as a single violation. A single operational upset is an exceptional incident that causes simultaneous, unintentional, unknowing (not the result of a knowing act or omission), temporary noncompliance with more than one Clean Water Act effluent discharge pollutant parameter. A single operational upset does not include Clean Water Act violations involving discharge without a NPDES permit or noncompliance to the extent caused by improperly designed or inadequate treatment facilities. Each day of a single operational upset is a violation.

6. Overflows from Stormwater Conveyance Systems (privately owned)
   a. Definitions
      (1) "Overflow" means the diversion and discharge of waste streams from any portion of the wastewater conveyance system through a designed overflow device or structure, other than discharges to the wastewater treatment facility.
      (2) "Severe property damage" means substantial physical damage to property, damage to the conveyance system which causes it to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of an overflow.
      (3) "Uncontrolled overflow" means the diversion of waste streams other than through a designed overflow device or structure.

b. Prohibition of overflows. Overflows are prohibited unless:
   (1) Overflows were unavoidable to prevent an uncontrolled overflow, loss of life, personal injury, or severe property damage;
   (2) There were no feasible alternatives to the overflows, such as the use of auxiliary conveyance systems, or maximization of conveyance system storage; and
   (3) The overflows are the result of an upset as defined in General Condition B.4 and meeting all requirements of this condition.

c. Uncontrolled overflows are prohibited where wastewater is likely to escape or be carried into the waters of the State by any means.

d. Reporting required. Unless otherwise specified in writing by the department, all overflows and uncontrolled overflows must be reported orally to the department within 24 hours from the time the permit registrant becomes aware of the overflow. Reporting procedures are described in more detail in General Condition D.5.

7. Public Notification of Effluent Violation or Overflow
If effluent limitations specified in this permit are exceeded or an overflow occurs, upon request by the department, the permit registrant must take such steps as are necessary to alert the public about the extent and nature of the discharge. Such steps may include, but are not limited to, posting of the river at access points and other places, news releases, and paid announcements on radio and television.

8. Removed Substances
Solids, sludges, filter backwash, or other pollutants removed in the course of treatment or control of wastewaters must be disposed of in such a manner as to prevent any pollutant from such materials from entering waters of the state, causing nuisance conditions, or creating a public health hazard.

SECTION C. MONITORING AND RECORDS

1. Representative Sampling
Sampling and measurements taken as required herein must be representative of the volume and nature of the monitored discharge. All samples must be taken at the monitoring points specified in this permit, and shall be taken, unless otherwise specified, before the effluent joins or is diluted by any other waste stream, body of water, or substance. Monitoring points may not be changed without notification to and the approval from the department.

2. Flow Measurements
Appropriate flow measurement devices and methods consistent with accepted scientific practices must be selected and used to ensure the accuracy and reliability of measurements of the volume of monitored discharges. The devices must be installed, calibrated and maintained to insure that the accuracy of the measurements is consistent with the accepted capability of that type of device. Devices selected must be capable of measuring flows with a maximum deviation of less than ± 10 percent from true discharge rates throughout the range of expected discharge volumes.

3. Monitoring Procedures
Monitoring must be conducted according to test procedures approved under 40 CFR part 136, unless other test procedures have been specified in this permit.

4. Penalties of Tampering
The Clean Water Act provides that any person who falsifies, tampers with, or knowingly renders inaccurate any monitoring device or method required to be maintained under this permit may, upon conviction, be punished by a fine of not more than $10,000 per violation, imprisonment for not more than two years, or both. If a conviction of a person is for a violation committed after a first conviction of such person, punishment is a fine not more than $20,000 per day of violation, or by imprisonment of not more than four years, or both.

5. Reporting of Monitoring Results

Monitoring results must be summarized each month on a Discharge Monitoring Report form approved by the department. The reports must be submitted monthly and are to be mailed, delivered or otherwise transmitted by the 15th day of the following month unless specifically approved otherwise in Schedule B of this permit.

6. Additional Monitoring by the Permit registrant
   If the permit registrant monitors any pollutant more frequently than required by this permit, using test procedures approved under 40 part CFR part 136 or as specified in this permit, the results of this monitoring must be included in the calculation and reporting of the data submitted in the Discharge Monitoring Report. Such increased frequency must also be indicated. For a pollutant parameter that may be sampled more than once per day (e.g., Total Chlorine Residual), only the average daily value must be recorded unless otherwise specified in this permit.

7. Averaging of Measurements
   Calculations for all limitations that require averaging of measurements must utilize an arithmetic mean, except for bacteria which shall be averaged as specified in this permit.

8. Retention of Records
   The permit registrant must retain records of all monitoring information, including: all calibration, maintenance records, all original strip chart recordings for continuous monitoring instrumentation, copies of all reports required by this permit, and records of all data used to complete the application for this permit for a period of at least 3 years from the date of the sample, measurement, report, or application. This period may be extended by request of the department at any time.

9. Records Contents
   Records of monitoring information must include:
   a. The date, exact place, time, and methods of sampling or measurements;
   b. The individual(s) who performed the sampling or measurements;
   c. The date(s) analyses were performed;
   d. The individual(s) who performed the analyses;
   e. The analytical techniques or methods used; and
   f. The results of such analyses.

10. Inspection and Entry
    The permit registrant must allow the department or an authorized representative upon the presentation of credentials to:
    a. Enter upon the permit registrant's premises where a regulated facility or activity is located or conducted, or where records must be kept under the conditions of this permit;
    b. Have access to and copy, at reasonable times, any records that must be kept under the conditions of this permit;
    c. Inspect at reasonable times any facilities, equipment (including monitoring and control equipment), practices, or operations regulated or required under this permit, and
    d. Sample or monitor at reasonable times, for the purpose of assuring permit compliance or as otherwise authorized by state law, any substances or parameters at any location.

SECTION D. REPORTING REQUIREMENTS

1. Planned Changes
   The permit registrant must comply with OAR chapter 340, division 52, "Review of Plans and Specifications" and 40 CFR §122.41(l)(1). Except where exempted under OAR chapter 340, division 52, no construction, installation, or modification involving disposal systems, treatment works, sewerage systems, or common sewers may be commenced until the plans and specifications are submitted to and approved by the department. The permit registrant must give notice to the department as soon as possible of any planned physical alternations or additions to the permitted facility.

2. Anticipated Noncompliance
   The permit registrant must give advance notice to the department of any planned changes in the permitted facility or activity that may result in noncompliance with permit requirements.

3. Transfers

This permit may be transferred to a new permit registrant provided the transferee acquires a property interest in the permitted activity and agrees in writing to fully comply with all the terms and conditions of the permit and the rules of the Commission. No permit may be transferred to a third party without prior written approval from the department. The department may require modification, revocation, and reissuance of the permit to change the name of the permit registrant and incorporate such other requirements as may be necessary. The permit registrant must notify the department when a transfer of property interest takes place.

4. Compliance Schedule
Reports of compliance or noncompliance with, or any progress reports on interim and final requirements contained in any compliance schedule of this permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance must include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirements.

5. Twenty-Four Hour Reporting
The permit registrant must report any noncompliance that may endanger health or the environment. Any information must be provided orally (by telephone) within 24 hours, unless otherwise specified in this permit, from the time the permit registrant becomes aware of the circumstances. During normal business hours, the department's Regional office must be called. Outside of normal business hours, the department must be contacted at 1-800-452-0311 (Oregon Emergency Response System).

A written submission must also be provided within 5 days of the time the permit registrant becomes aware of the circumstances. Pursuant to ORS 468.959 (3) (a), if the permit registrant is establishing an affirmative defense of upset or bypass to any offense under ORS 468.922 to 468.946, delivered written notice must be made to the department or other agency with regulatory jurisdiction within 4 (four) calendar days of the time the permit registrant becomes aware of the circumstances. The written submission must contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected;
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance; and
e. Public notification steps taken, pursuant to General Condition B.6

The following must be included as information that must be reported within 24 hours under this paragraph:
a. Any unanticipated bypass that exceeds any effluent limitation in this permit.
b. Any upset that exceeds any effluent limitation in this permit.
c. Violation of maximum daily discharge limitation for any of the pollutants listed by the department in this permit.
d. Any noncompliance that may endanger human health or the environment.

The department may waive the written report on a case-by-case basis if the oral report has been received within 24 hours.

6. Other Noncompliance
The permit registrant must report all instances of noncompliance not reported under General Condition D.4 or D.5, at the time monitoring reports are submitted. The reports must contain:
a. A description of the noncompliance and its cause;
b. The period of noncompliance, including exact dates and times;
c. The estimated time noncompliance is expected to continue if it has not been corrected; and
d. Steps taken or planned to reduce, eliminate, and prevent reoccurrence of the noncompliance.

7. Duty to Provide Information
The permit registrant must furnish to the department within a reasonable time any information that the department may request to determine compliance with this permit. The permit registrant must also furnish to the department, upon request, copies of records required to be kept by this permit.

Other Information: When the permit registrant becomes aware that it has failed to submit any relevant facts or has submitted incorrect information in a permit application or any report to the department, it must promptly submit such facts or information.

8. Signatory Requirements
   All applications, reports or information submitted to the department must be signed and certified in accordance with 40 CFR §122.22.
9. Falsification of Information
   Under ORS 468.953, any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, is subject to a Class C felony punishable by a fine not to exceed $100,000 per violation and up to 5 years in prison. Additionally, according to 40 CFR §122.41(k)(2), any person who knowingly makes any false statement, representation, or certification in any record or other document submitted or required to be maintained under this permit including monitoring reports or reports of compliance or non-compliance shall, upon conviction, be punished by a federal civil penalty not to exceed $10,000 per violation, or by imprisonment for not more than 6 months per violation, or by both.

10. Changes to Discharges of Toxic Pollutant
    The permit registrant must notify the department as soon as it knows or have reason to believe of the following:
    a. That any activity has occurred or will occur that would result in the discharge, on a routine or frequent basis, of any toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels:
       (1) One hundred micrograms per liter (100 µg/l);
       (2) Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
       (3) Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
       (4) The level established by the department in accordance with 40 CFR §122.44(f).

    b. That any activity has occurred or will occur that would result in any discharge, on a non-routine or infrequent basis, of a toxic pollutant that is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
       (1) Five hundred micrograms per liter (500 µg/l);
       (2) One milligram per liter (1 mg/l) for antimony;
       (3) Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
       (4) The level established by the department in accordance with 40 CFR §122.44(f).

SECTION E. DEFINITIONS

1. Technology based permit effluent limitations means technology-based treatment requirements as defined in 40 CFR §125.3, and concentration and mass load effluent limitations that are based on minimum design criteria specified in OAR 340-041.
2. mg/l means milligrams per liter.
3. Grab sample means an individual discrete sample collected over a period of time not to exceed 15 minutes.
4. Month means calendar month.
5. Week means a calendar week of Sunday through Saturday.

APPENDIX G

DEQ USE ONLY

APPLICATION FOR NEW NPDES GENERAL PERMIT 1200-C

Oregon Department of Environmental Quality

For construction activities, including clearing, grading, and excavation, that disturb 5 or more acres of land, or will disturb 5 or more acres over time as part of a common plan of development. (For 1 or more acres of disturbance starting 12/01/2002)

DEQ USE ONLY

A. REFERENCE INFORMATION

1. **Pacific Ethanol**
Applicant (Owner, Developer, or General Contractor)

Terry Kulesa
Contact Name

Front Range Energy, P.O.Box 581
Address

Windsor | **Colorado** | **80550**
City | State | Zip

(970) 674-2910 | **tkulesa@msn.com**
Telephone | E-Mail Address

2.
Owner (if different from applicant)

Contact Name

Address

City | State | Zip

Telephone | E-Mail Address

3. **TKDA**
Architect/Engineering Firm

Brent Paulsen
Project Manager

1500 Piper Jaffray Plaza, 444 Cedar Street
Address

Saint Paul | **MN** | **55101**
City | State | Zip

(651) 292-4602 | **paulsen.bd@tkda.com**
Telephone | E-Mail Address

4. **TBD at Time of BID - Pacific Ethanol**
Applicant's Designated Erosion and Sediment Control Inspector

Terry Kulesa
Contact Name

Front Range Energy, P.O. Box 581
Address

Windsor | **Colorado** | **80550**
City | State | Zip

(970) 674-2910 | **tkulesa@msn.com**
Telephone | E-Mail Address

5. Invoice to: **Same as Number 1**
Telephone #:

Billing Address:
City, State, Zip Code:

B. PROJECT INFORMATION

1. Name of Project: **Pacific Ethanol - Boardman Plant**

2. Proposed Start Date: **July 1, 2006**

3. General Property Description

Street Address: **2 Marine Drive**

Cross Street: **Rail Loop Drive**

City: **Boardman** Zip Code: **97818**

County: **Morrow**

4. Legal Description

Tax Lot No.: **100 and 115**

Section: **2** Township **4N** Range **25E**

Site Size (acres): **24.9**

Disturbed Area (acres): **19.0**

Name of Applicant: Pacific Ethanol **Name of Project:** Pacific Ethanol - Boardman Plant

B. PROJECT INFORMATION
continued

5. Site Location by Latitude and Longitude

Latitude: 45 Degrees / 51 Minutes / 22 Seconds

Longitude: 119 Degrees / 39 Minutes / 18 Seconds

6. Nature of the Construction Activity
- ☐ Single Family/Duplex Residential
- ☐ Commercial
- ☑ Industrial
- ☐ Subdivision, Number of Lots:
- ☐ Utilities:
- ☐ Other:

7. Existing Site Runoff
- ☐ Creek/Stream:
- ☐ Ditch:
- ☐ Municipal Storm Sewer or Drainage System
- ☑ Other: Infiltration on Site

8. Proposed Site Runoff
- ☐ Creek/Stream:
- ☐ Ditch:
- ☐ Municipal Storm Sewer or Drainage System (See Note)
- ☑ Other: Infiltration on Site

Note: If storm water discharges to a municipally owned storm sewer, authorization from the municipality must accompany this application.

C. EROSION AND SEDIMENT CONTROL PLAN

1. Erosion and Sediment Control Plan Submittal
- ☑ Included with this application
- ☐ To be provided at a later date, approx. date:

2. Contact Name for Plan: Patrick McLarnon
Telephone: (651) 292-4545
E-Mail: mclarnonpj@tkda.com

D. LAND USE COMPATIBILITY STATEMENT

Attach a complete Land Use Compatibility Statement (LUCS) signed by the local land use authority. The application will not be processed without evidence that the proposal is approved by the local land use authority and meets statewide planning goals.

E. SIGNATURE OF LEGALLY AUTHORIZED REPRESENTATIVE

The legally authorized representative must sign the application. Please see the following definitions (see 40 CFR 122.22 for more detail if needed). Also, please also provide the information requested in brackets *[ ]*.

- **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 authorized in accordance to corporate procedure to sign such documents
- **Partnership** — General partner *[list of general partners, their addresses and telephone numbers]*
- **Sole Proprietorship** — Owner(s) *[each owner must sign the application]*
- **City, County, State, Federal, or other Public Facility** — Principal executive officer or ranking elected official
- **Limited Liability Company** — Member *[articles of organization]*
- **Trusts** — Acting trustee *[list of trustees, their addresses and telephone numbers]*

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.

Terry Kulesa
Name of Legally Authorized Representative (Type or Print)

Terry Kulesa
Signature of Legally Authorized Representative

Vice President Ethanol Operations
Title

4-19th-2006
Date

Send this form, Land Use Compatibility Statement, and $670 fee to the appropriate DEQ regional office:
Make your check payable to the Department of Environmental Quality

DEQ Northwest Region	DEQ Western Region	DEQ Eastern Region
2020 SW 4th Ave., Suite 400 Portland, OR 97201-4987 503-229-5263 or 1-800-452-4011	750 Front St. NE, Suite 120 Salem, OR 97301-1039 503-378-8240 or 1-800-349-7677	700 SE Emigrant, Suite 330 Pendleton, OR 97801 541-276-4063 or 1-800-452-4011

NPDES General Permit 1200-C
For Construction Activities

Application Instructions and Checklist

Please answer all questions. An incomplete application will not be processed.
If the information requested is not applicable or not yet available, please indicate as such.

A. REFERENCE INFORMATION

☐ A1 Enter the legal name of the applicant. Permit coverage will be issued to this entity. This is the person, business, public organization, or other entity responsible for assuring that erosion and sediment controls are in place and in working order through the life of the project. This must be the **legal** Oregon name (i.e., Acme Products, Inc.) or the **legal** representative of the company if it operates under an assumed business name (i.e., John Smith, dba Acme Products). The name must be a legal, active name registered with the Oregon Department of Commerce, Corporation Division in Salem at 503-378-4752 or http://www.filinginoregon.com , unless otherwise exempted by their rules.

To streamline administration and provide continuous permit coverage, the permit may be transferred from one party to another. For example, if a contractor feels that they will not be able to get a permit before the projected start date, the developer may apply for a permit and then transfer the permit over to the contractor. The transfer fee is $60. Transfer forms are available from DEQ or at http://www.deq.state.or.us/wq/wqpermit/PmtTfrAppl.pdf.

☐ A2–4 Complete as indicated.

☐ A5 Enter invoicing information for annual compliance determination fee billing purposes if different from the Applicant in A1 (e.g., "Invoice To: Business Office – Accounts Payable").

B. PROJECT SITE INFORMATION

☐ B1-4 Complete as indicated.

☐ B5 Enter the latitude and longitude of the approximate center of the facility or site in degrees/minutes/seconds. Latitude and longitude can be obtained from DEQ's location finder web site at http://deq12.deq.state.or.us/website/findloc/ or from United States Geological Survey (USGS) quadrangle topographic maps by calling toll-free at 1-888-ASK-USGS (1-888-275-8747). For obtaining latitude and longitude from USGS maps, instructions may be obtained from DEQ's web site at http://www.deq.state.or.us/wq/wqpermit/LatLongInstr.pdf.

☐ B6-7 Complete as indicated.

☐ B8 Complete as indicated. If storm water will discharge to municipally owned storm sewer, authorization from the municipality must accompany this application. This authorization may be in the form of a preliminary approval letter from the city or county. The authorization does not have to be addressed directly to DEQ. It may be a preliminary review document developed by the city or county indicating that the project is approved in concept.

C. EROSION AND SEDIMENT CONTROL PLAN

☐ C1 Complete as indicated. A detailed Erosion and Sediment Control Plan must be approved by DEQ before any activities may begin. Instructions on how to complete a plan may be found in DEQ's guidance document *NPDES Storm Water Regulations for Construction Projects* or at

[redacted]

The plan must be submitted to DEQ at least ~~thirty days before beginning any activities~~. Plan approval by DEQ will be in writing or by default (no response from DEQ thirty days after submitting plan). DEQ's agents may follow a different schedule.

☐ C2 Complete as indicated.

D. LAND USE COMPATIBILITY STATEMENT

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

E. SIGNATURE

☐ The legally authorized representative must sign the application. Please see the application form for more information.

FEE AND APPLICATION SUBMITTAL

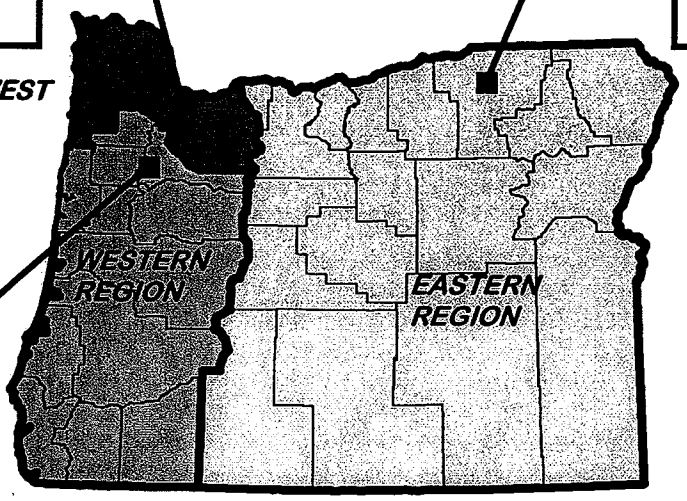
☐ The permit application fee total is **$670**. The permittee will also be billed an annual compliance fee of $330 in June for every year the permit is in effect. Please see the next page and the application form for the location to submit your fee and application.

DEQ MAIN REGIONAL OFFICES

If you have any questions, please contact the Water Quality Permit Coordinator in the DEQ regional office responsible for your county.

Northwest Region
2020 SW 4th Ave., #400
Portland, OR 97201
503-229-5263
1-800-452-4011
503-229-6945 TTY
503-229-6945 fax

Eastern Region
700 SE Emigrant, #330
Pendleton, OR 97801
541-276-4063
1-800-452-4011
541-276-4063 TTY
541-278-0168 fax



Western Region
750 Front St. NE, #120
Salem, OR 97301
503-378-8240
1-800-349-7677
503-378-3684 TTY
503-373-7944 fax

NORTHWEST REGION (county)

Clackamas	Multnomah
Clatsop	Tillamook
Columbia	Washington

WESTERN REGION (county)

Benton	Douglas	Lane	Marion
Coos	Jackson	Lincoln	Polk
Curry	Josephine	Linn	Yamhill

EASTERN REGION (county)

Baker	Gilliam	Hood River	Lake	Sherman	Wallowa
Crook	Grant	Jefferson	Malheur	Umatilla	Wasco
Deschutes	Harney	Klamath	Morrow	Union	Wheeler

DEQ HEADQUARTERS

811 SW 6th Avenue
Portland, OR 97204
503-229-5696 / 800-452-4011 (toll-free inside Oregon)
503-229-5317 sight impaired / 503-229-6993 hearing impaired TTY

APPENDIX H

Department of Environmental Quality
LAND USE COMPATIBILITY STATEMENT (LUCS)

State of Oregon Department of Environmental Quality

WHAT IS A LUCS? The Land Use Compatibility Statement is the process used by the DEQ to determine whether DEQ permits and other approvals affecting land use are consistent with local government comprehensive plans.

WHY IS A LUCS REQUIRED? Oregon law requires state agency activities that impact land use be consistent with local comprehensive plans. DEQ Division 18 administrative rules identify agency activities or programs that significantly affect land use. These programs must have a process for determining local plan consistency.

WHEN IS A LUCS REQUIRED? A LUCS is required for nearly all DEQ permits, some general permits, and certain approvals of plans or related activities that affect land use. These activities are listed in this form. A single LUCS can be used if more than one DEQ permit/approval is being applied for concurrently.

A permit modification requires a LUCS when any of the following applies:

1. physical expansion on the property or proposed use of additional land;
2. a significant increase in discharges to water;
3. a relocation of an outfall outside of the source property; or
4. any physical change or change of operation of an air pollutant source that results in a net significant emission rate increase as defined in OAR 340-200-0020.

A permit renewal requires a LUCS if one has not previously been submitted, or if any of the above four permit modification factors apply.

HOW TO COMPLETE A LUCS:

Step	Who Does It	What Happens
1	Applicant	Completes Section 1 of the LUCS and submits it to the appropriate city or county planning office.
2	City or County Planning Office	Determines if the business or facility meets all local planning requirements, and returns to the applicant the signed and dated LUCS form **with findings of fact for any local reviews or necessary planning approvals**.
3	Applicant	Includes the completed LUCS with **findings of fact** with the DEQ permit or approval submittal application to the DEQ.

WHERE TO GET HELP: Questions about the LUCS process can be directed to the region staff responsible for processing the permit or approval. Headquarters and regional offices may also be reached using DEQ's toll-free telephone number 1-800-452-4011.

SECTION 1 - TO BE FILLED OUT BY APPLICANT *(may be filled in electronically using Tab key to move to each field)*

1. **Applicant Name:** Pacific Ethanol **Contact Person:** Brent Paulsen (Engineering Agent)
   Location Address: No address assigned - see attached **Mailing Address:** TKDA, 444 Cedar Street
   City, State Zip: location map **City, State Zip:** Saint Paul, MN 55101
   Telephone: (651) 292-4602 **Tax Account No:** _____ **Tax Lot No:** 100 and 115
   Township: 4N **Range:** 25E **Section:** 2
   Latitude: 45 51' 22" **Longitude:** 119 39' 18"

   *Use the **DEQ Location Finder** (http://deq12.deq.state.or.us/website/findloc) to determine latitude/longitude.*

2. **Describe the type of business or facility and services or products provided:**
   Port Industrial Zoning - Ethanol Plant

3. **Check the type of DEQ permit(s) or approval(s) being applied for at this time.**

☐ Air Notice of Construction	☐ Pollution Control Bond Request	☐ Clean Water State Revolving Fund Loan Request
☐ Air Discharge Permit *(excludes portable facility permits)*	☐ Solid Waste Compost Registration - Permit	☐ Water Quality NPDES/WPCF *Permit (for onsite construction-installation permits use DEQ's Onsite LUCS form)*
☐ Title V Air Permit	☐ Solid Waste Letter Authorization Permit	☐ Wastewater/Sewer Construction Plan/Specifications *(includes review of plan changes that require use of new land)*
☐ Parking/Traffic Circulation Plan	☐ Solid Waste Material Recovery Facility Permit	☑ Water Quality Storm Water General Permit
☐ Air Indirect Source Permit	☐ Solid Waste Transfer Station Permit	☐ Other Water Quality General Permit *(Generals: 600 (if mobile), 700, 1200CA, 1500, 1700 (if mobile) are exempted))*
☐ Solid Waste Disposal Permit	☐ Solid Waste - Waste Tire Storage Permit	
☐ Solid Waste Treatment Permit	☐ Hazardous Waste/PCB Storage/ Treatment/Discharge Permit	☐ Federal Permit - Water Quality 401 Certification

4. **This application is for:** ☐ permit renewal ☑ new permit ☐ permit modification ☐ other _____

SECTION 2 - TO BE FILLED OUT BY CITY OR COUNTY PLANNING OFFICIAL

5. **The facility proposal is located:** ☐ inside city limits ☐ inside UGB ☒ outside UGB

6. **Name of the city or county that has land use jurisdiction** *(the legal entity responsible for land use decisions for the subject property or land use):* Morrow County

7. **Does the business or facility comply with all applicable local land use requirements?**

☒ **YES**; attach findings to support the affirmative compliance decision *(as required by Oregon Administrative Rules (OAR) 660, Division 31).* OUTRIGHT USE IN THE PORT INDUSTRIAL ZONE

☐ **NO**; attach findings for noncompliance, and identify requirements the applicant must comply with before LUCS compatibility can be determined.

8. **Planning Official Signature:** Carla McLane **Title:** Planning Director
Print Name: CARLA MCLANE **Telephone No.:** 541 922 4624 **Date:** 6/10/2006

***Planning Official Signature:** N/A **Title:** _____
Print Name: _____ **Telephone No.:** _____ **Date:** _____
(**If necessary, depending upon city/county agreement on jurisdiction outside city limits but within UGB.*)

Please Note: A LUCS approval cannot be accepted by DEQ until all local requirements have been met. Written findings of fact for all local decisions addressed under Item No. 7 above **must be attached to the LUCS**.

CULTURAL RESOURCES PROTECTION LAWS: *Applicants involved in ground-disturbing activities should be aware of federal and state cultural resources protection laws. ORS 358.920 prohibits the excavation, injury, destruction, or alteration of an archeological site or object, or removal of archeological objects from public and private lands without an archeological permit issued by the State Historic Preservation Office. 16 USC 470, Section 106, National Historic Preservation Act of 1966 requires a federal agency, prior to any undertaking, to take into account the effect of the undertaking that is included on or eligible for inclusion in the National Register. For further information, contact the State Historic Preservation Office at 503-378-4168, extension 232.*

APPENDIX I

State of Oregon
Department of
Environmental
Quality

NOTICE OF TERMINATION

for NPDES General Permit to Discharge Storm Water Associated with

Construction Activity

Use this form to end permit coverage once all soil disturbance activities have been completed and final stabilization of exposed soils has occurred. **Please print in ink or type.**

I. Permittee

Legal Name	Phone No.
Company	
Mailing Address	
City	State Zip Code
Facility/File ID (located on face page of permit)	

II. Legally Authorized Representative

(Person completing this form if different from Permittee)

Name	Phone No.
Company	
Mailing Address	
City	State Zip Code
Title	

III. Site Location/Address

Site Name
Street Address (or Location Description)
Section / Township / Range
City (or nearest City) / Zip Code
County

IV. Status of Construction Activity

- ☐ All soil disturbance activities by the permittee have been completed.
- ☐ The site has undergone final stabilization of all exposed soils through vegetation or other measures and all storm water discharges from construction activities that are authorized by this permit are eliminated.
- ☐ All temporary erosion and sediment controls have been removed and properly disposed.

Date above items were completed: _____

Certification

Please read the certification statement carefully before signing.

I certify under penalty of law that all storm water discharges associated with construction activity from this site that are authorized by this NPDES general permit have been eliminated. By submitting this Notice of Termination, I understand that I am no longer authorized to discharge storm water associated with construction activity under this general permit, and that discharging pollutants to waters of the United States is unlawful under the Clean Water Act where the discharge is not authorized by a NPDES permit. I also understand that submittal of this Notice of Termination does not release a permittee from liability for any violations of this permit or the Clean Water Act.

_____ _____

Signature of Legally Authorized Representative — Date

_____

Name of Legally Authorized Representative (Type or Print)

Instructions for Completing the Notice of Termination Form

for NPDES General Permit to Discharge Storm Water Associated with Construction Activity

State of Oregon Department of Environmental Quality

This Notice of Termination Form is for a permittee that currently is assigned coverage under Oregon's NPDES general permit for the discharge of storm water associated with construction activity. Use this form to end permit coverage once all soil disturbance activities have been completed and final stabilization of exposed soils has occurred. **Please print in ink or type.**

I. Permittee

Complete as indicated. The permittee is the name of the company or person as it appears on the permit. Only the permittee or the permittee's legally authorized representative has authority to terminate permit coverage.

Note: If you are not the current permittee but should be, you need to transfer the permit. Please use the Transfer of Ownership form at http://www.deq.state.or.us/wq/wqpermit/PmtTfrAppl.pdf or contact DEQ at one of the offices listed below.

II. Legally Authorized Representative

Complete as indicated if different than the Permittee. This is the person that is completing the form and certifying that soil disturbance activities have been completed and final stabilization of exposed soils has occurred.

III. Site Address/ Location

Complete as indicated. If a street address is not yet available, enter a description of the location, including township, section, and range. Also provide the city (or nearest city) and county for the construction site.

IV. Construction Activity

Check the "boxes" to indicate that all storm water discharges associated with construction activity have been eliminated, final stabilization of the site is complete, and temporary erosion and sediment control measures have been properly disposed. Also, provide the date of completion for these activities. Your permit will not be terminated if these activities have not been completed.

Certification

This statement should be read carefully by the permittee, owner or legally authorized representative. The person signing this form must print or type their name for clarity then sign and date the document on the lines provided.

Form Submittal & For More Information

Submit this form to the appropriate regional office. There is no fee required for this action. If you have any questions, please contact one of the regional offices listed below.

DEQ Northwest Region	DEQ Western Region	DEQ Eastern Region
2020 SW 4th Ave., Suite 400	750 Front St. NE, Suite 120	700 SE Emigrant, Suite 330
Portland, OR 97201-4987	Salem, OR 97301-1039	Pendleton, OR 97801
(503) 229-5263 or 1-800-452-4011	(503) 378-8240 or 1-800-349-7677	(541) 276-4063 or 1-800-452-4011

EXHIBIT J

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

TABLE OF CONTENTS

J.1 INTRODUCTION

OAR 345-021-0010(1)(j) *Information based on literature and field study, as appropriate, about significant potential impacts of the proposed facility on wetlands that are within state jurisdiction under ORS Chapter 196, including:*

Response: A wetland determination, which included a review of background resources as well as an on-site investigation, was conducted on an area that included the project site as well as a 50-foot buffer around the project site boundary. This area constitutes the wetland analysis area. Wetlands and other waters of the state identified within the wetland analysis area were overlain with proposed project features to determine the potential for project impacts. The results of the wetland determination are provided in the following sections and in Appendix J-1.

J.2 EFFECT ON WATERS OF THE STATE AND WETLANDS DELINEATION REPORT

OAR-345-021-0010(1)(j)(A) *A determination, as defined in OAR 141-090-0020, of whether construction or operation of the proposed facility would affect any waters of the state, including wetlands, and, if so, a wetland delineation report, as defined in OAR 141-090-0020, describing how those waters would be affected;*

Response: A wetland determination was conducted for the proposed project and is provided in Appendix J-1. Based on the wetland determination results, no impacts to wetlands and other waters of the state are anticipated as a result of the proposed project. No wetlands were identified within the wetland analysis area. One water of the state, the Columbia River, is located within the project area. The proposed project will utilize existing barge tie up facilities within the Columbia and will not require removal or placement of fill below the ordinary high water mark of the river.

J.3 MAP OF WETLANDS UNDER STATE JURISDICTION

OAR-345-021-0010 (1)(j)(B) *A wetland map, as defined in OAR 141-090-0020, showing the location of any wetlands under state jurisdiction on or near the site and the source of the water for the wetlands, including any wetlands identified in the Statewide Wetland Inventory of the Division of State Lands;*

Response: A wetland determination was conducted for the proposed project and is provided in Appendix J-1. The report includes a map of the wetland determination findings for the wetland analysis area.

J.4 DESCRIPTION OF EACH WETLAND IDENTIFIED

OAR 345-021-0010(1)(j)(C) *A description of each wetland identified in (A);*

Response: No wetlands were identified within the wetland analysis area. One water of the state, the Columbia River, was identified within the wetland analysis area. The project

reach of the Columbia River is regulated by the John Day Dam, which has a full pool elevation of 268.0 feet above mean sea level. This elevation represents the ordinary high water line (i.e. jurisdictional limit) of the Columbia River at the project area.

J.5 SIGNIFICANT POTENTIAL IMPACTS TO WETLANDS

OAR 345-021-0010(1)(j)(D) *A description of significant potential impact to each wetland, if any, including the nature and amount of material the applicant would remove from or place in each wetland and the specific locations where the applicant would remove or fill that material;*

Response: No impacts to wetlands or other waters of the state will occur as a result of the proposed project. As described in Section J.2, the project will use existing facilities along the Columbia River to avoid removal and fill activities within the river.

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

OAR 345-021-0010(1)(j)(E) *Evidence that all required fill and removal permits of the Oregon Division of State Lands can be issued to the proposed facility in compliance with ORS 196.800 et seq., including:*

(i) A discussion and evaluation of the factors listed in ORS 196.825 and OAR chapter 141 division 85; and

Response: The project will not result in impacts (i.e. removal or fill) to wetlands and other waters of the state. Therefore, a fill and removal permit is not needed from the Oregon Department of State Lands.

(ii) A description of the steps the applicant proposes to mitigate impacts to wetlands;

Response: Mitigation is not warranted or proposed because no impact to wetlands or other waters of the state will result from the proposed project.

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

OAR 345-021-0010(1)(j)(F) *The applicant's proposed monitoring program, if any, for impacts to wetlands.*

Response: Monitoring is not warranted or proposed because no impact to wetlands or other waters of the state will result from the proposed project.

APPENDIX J-1
Figures J-1 through J-3
Wetland Determination

DAVID EVANS
AND ASSOCIATES INC.

MEMORANDUM

DATE: May 31, 2006

TO: Project File

FROM: Ethan Rosenthal

SUBJECT: **Wetland Determination**

PROJECT: Columbia Ethanol

PROJECT NO: PEIN0000-0004

COPIES: Tom Koehler, Pacific Ethanol

This memorandum provides the results of an on-site wetland determination, conducted on May 16, 2006, for the Columbia Ethanol project site. The project site is located along the Columbia River, at the Port of Morrow, which is near Boardman, Oregon. The wetland determination revealed that there are **no** wetlands located within the project study area (see attached figure). The Columbia River was identified as a water of the state and U.S., with the ordinary high water line occurring at elevation 268.0 feet above mean sea level. Details of these findings are provided below.

Site Description

The project study area is situated adjacent to the Columbia River, at the Port of Morrow, near Boardman, Oregon (Tax map/lot Parcel 1 of Partition Plat 2000-9 and Parcel 2 of Partition Plat 2001-9; Township 4 North, Range 25 East, Section 2). The majority of the site is level and is occupied by weedy upland plant species. The project site was previously used for growing crops, utilizing center pivot irrigation. The irrigation system has recently been dismantled and crops are no longer being grown as of this year. It is believed that the site has previously received Columbia River dredge spoils. Soils were comprised of fine sand.

A small portion of the study area is located directly along the Columbia River and includes a portion of the river itself. This portion of the study area contains several barge tie-up structures and rock loading machinery (i.e. conveyor belt system to load gravel from adjacent mining operations onto barge at tie-up structures). This area includes the bank of the Columbia River. Soils in this area included fine sand along with courser substrates.

Methods

The wetland determination was conducted using the Level 2 Routine Delineation Method described in the *U.S. Army Corps of Engineers Wetlands Delineation Manual* (Environmental Laboratory 1987). This method requires the simultaneous presence of hydrophytic vegetation, hydric soils, and positive wetland hydrology in wetland delineations.

Oregon (USDA 1983). Soils mapped by the survey include Quincy loamy fine sand, 2 to 12 percent slopes, and Dune lands. Both soil types are classified as excessively drained.

Hydrology

No indicators of wetland hydrology were observed within the project study area. The project site is located in a relatively arid region and is underlain by porous soils. The terrace area is roughly 15 feet above the ordinary high water line of the Columbia River.

The project reach of the Columbia River is regulated by the John Day Dam. The full pool elevation of the dam reservoir is 268.0 feet above mean sea level (msl) (USACE 2006). This corresponds roughly with ordinary high water line indicators observed at the project site (i.e. drift lines, edge of vegetation).

Conclusion

No wetlands were identified within the project study area for the Columbia Ethanol project. The site is located in an arid region and local site conditions (i.e. porous soils, well above ground water table) are unfavorable for the formation of wetlands. The Columbia River is a jurisdictional water of the state and U.S. The jurisdictional boundary extends to the ordinary high water line, which is located at approximately elevation 268.0 feet msl.

References

Environmental Laboratory. 1987. *Corps of Engineers Wetlands Delineation Manual,* Technical Report Y-87-1, US Army Engineer Waterways Experiment Station, Vicksburg, MS.

U.S. Department of Agriculture (USDA). 1983. *Soil Survey of Morrow County Area, Oregon*. Soil Conservation Service.

U.S. Army Corps of Engineers (USACE). 2006. U.S. Army Corps of Engineers Columbia Basin Water Management Division webpage for John Day Dam and Lake Umatilla. Located on-line at: http://www.nwd-wc.usace.army.mil/report/jda.htm

U.S. Fish and Wildlife Service (USFWS). 1998. National Wetlands Inventory, Boardman, Oregon. U.S. Fish and Wildlife Service, Office of Biological Services.

U.S. Geological Service (USGS). 1993. Boardman, Oregon, 15 minute Quadrangle

Attachments/Enclosures: Vicinity map, Soils map, National Wetland Inventory map, Wetland determination map

File Name: P:\P\PEIN00000004\0600INFO\0670Reports\0670 ExJ\0670 ExJ Wetland Delineation\WetDeterminationMmo 060528-jdhorev.doc

DATA FORM- ROUTINE WETLAND DETERMINATION

(1987 COE Wetlands Delineation Manual)

Project Site:	Columbia Ethanol Project, Port of Morrow, Oregon					Date:	May 16, 2006
Applicant/Owner:	Columbia Ethanol, Inc.					County:	Morrow
Investigator:	Ethan Rosenthal					State:	Oregon
Do Normal Circumstances exist on the site?		☒	Yes	☐	No	Community ID:	
Is the site significantly disturbed (Atypical Situation)?		☐	Yes	☒	No	Transect ID:	
Is Area a Potential Problem Area?		☐	Yes	☒	No	Plot ID:	1

VEGETATION

Tree Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☐			
2	☐			
3	☐			
4	☐			
		Total Tree Cover:		**100**

Sap/Shrub Stratum-Dom. Sp. marked w/ X			Indicator	%
1	☐			
2	☐			
3	☐			
4	☐			
5	☐			
		Total Sap/Shrub Cover:		**10**

Herb Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☒	Bromus tectorum	NOL	70
2	☒	Sisymbrium altissimum	NOL	20
3	☐			
4	☐			
5	☐			
6	☐			
7	☐			
8	☐			
9	☐			
10	☐			
		Total Herb Cover		**90**
		% of Dom. Species =OBL, FACW or FAC (excluding FAC-):		**0**

Remarks: 10 percent bare ground

HYDROLOGY

☐ Recorded Data (describe in Remarks)
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No recorded data available

Field Observations:
Depth of Surface Water: none (In.)
Depth to Free Water in Pit: >16 (In.)
Depth to Saturated Soil: >16 (In.)

Wetland Hydrology Indicators:

Primary Indicators:
☐ Inundated
☐ Saturated in Upper 12 inches
☐ Water Marks
☐ Drift Lines
☐ Sediment Deposits
☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
☐ Oxidized Root Channels in Upper 12"
☐ Water-Stained Leaves
☐ Local Soil Survey Data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐

Remarks: No signs of wetland hydrology within plot.

SOILS

Map Unit Name (series and Phase): Quincy loamy fine sand, 2 to 12 percent slopes
Taxonomy (Subgroup):

Drainage Class: Excessively drained
Field Observations Confirm Mapped Type? Y ☒ N ☐

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 16		10YR 3/2	None	None	Fine sand

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Redox Features (w/in 10")
☐ Gleyed or Low-Chroma Colors
☐ Concretions (w/in 3", >2mm)
☐ Organic Streaking in Sandy Soils
☐ High Organic Content in Surface Layer in Sandy Soils
☐ Listed on National Hydric Soils List
☐ Listed on Local Hydric Soils List
☐ Other (explain in remarks)

Remarks: No indicators of hydric soils.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐	Yes	☒	No	Is this Sampling Point Within a Wetland?	☐	Yes	☒	No
Wetland Hydrology Present?	☐	Yes	☒	No					
Hydric Soils Present?	☐	Yes	☒	No					

Remarks: Plot located in area previously used for center pivot irrigated agriculture.

DATA FORM- ROUTINE WETLAND DETERMINATION

(1987 COE Wetlands Delineation Manual)

Project Site:	Columbia Ethanol Project, Port of Morrow, Oregon					Date:	May 16, 2006
Applicant/Owner:	Columbia Ethanol, Inc.					County:	Morrow
Investigator:	Ethan Rosenthal					State:	Oregon
Do Normal Circumstances exist on the site?		☒	Yes	☐	No	Community ID:	
Is the site significantly disturbed (Atypical Situation)?		☐	Yes	☒	No	Transect ID:	
Is Area a Potential Problem Area?		☐	Yes	☒	No	Plot ID:	2

VEGETATION

Tree Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☐			
2	☐			
3	☐			
4	☐			
		Total Tree Cover:		**100**

Sap/Shrub Stratum-Dom. Sp. marked w/ X			Indicator	%
1	☐			
2	☐			
3	☐			
4	☐			
5	☐			
		Total Sap/Shrub Cover:		**10**

Herb Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☒	Bromus tectorum	NOL	60
2	☒	Sisymbrium altissimum	NOL	35
3	☐			
4	☐			
5	☐			
6	☐			
7	☐			
8	☐			
9	☐			
10	☐			
		Total Herb Cover		**95**
		% of Dom. Species =OBL, FACW or FAC (excluding FAC-):		**0**

Remarks: 5 percent bare ground

HYDROLOGY

☐ Recorded Data (describe in Remarks)
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No recorded data available

Field Observations:
Depth of Surface Water: none (In.)
Depth to Free Water in Pit: >16 (In.)
Depth to Saturated Soil: >16 (In.)

Wetland Hydrology Indicators:

Primary Indicators:
☐ Inundated
☐ Saturated in Upper 12 inches
☐ Water Marks
☐ Drift Lines
☐ Sediment Deposits
☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
☐ Oxidized Root Channels in Upper 12"
☐ Water-Stained Leaves
☐ Local Soil Survey Data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐

Remarks: No signs of wetland hydrology within plot.

SOILS

Map Unit Name (series and Phase): Quincy loamy fine sand, 2 to 12 percent slopes
Taxonomy (Subgroup):

Drainage Class: Excessively drained
Field Observations Confirm Mapped Type? Y ☒ N ☐

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 16		10YR 3/2	None	None	Fine sand

Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Redox Features (w/in 10")
☐ Gleyed or Low-Chroma Colors
☐ Concretions (w/in 3", >2mm)
☐ Organic Streaking in Sandy Soils
☐ High Organic Content in Surface Layer in Sandy Soils
☐ Listed on National Hydric Soils List
☐ Listed on Local Hydric Soils List
☐ Other (explain in remarks)

Remarks: No indicators of hydric soils.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐	Yes	☒	No	Is this Sampling Point Within a Wetland?	☐	Yes	☒	No
Wetland Hydrology Present?	☐	Yes	☒	No					
Hydric Soils Present?	☐	Yes	☒	No					

Remarks: Plot located in area previously used for center pivot irrigated agriculture.

DATA FORM- ROUTINE WETLAND DETERMINATION

(1987 COE Wetlands Delineation Manual)

Project Site:	Columbia Ethanol Project, Port of Morrow, Oregon	Date:	May 16, 2006
Applicant/Owner:	Columbia Ethanol, Inc.	County:	Morrow
Investigator:	Ethan Rosenthal	State:	Oregon
Do Normal Circumstances exist on the site?	☒ Yes ☐ No	Community ID:	
Is the site significantly disturbed (Atypical Situation)?	☐ Yes ☒ No	Transect ID:	
Is Area a Potential Problem Area?	☐ Yes ☒ No	Plot ID:	3

VEGETATION

Tree Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☐			
2	☐			
3	☐			
4	☐			
		Total Tree Cover:		**100**

Sap/Shrub Stratum-Dom. Sp. marked w/ X			Indicator	%
1	☒	Chrysothamnus nauseosus	NOL	5
2	☐			
3	☐			
4	☐			
5	☐			
		Total Sap/Shrub Cover:		**5**

Herb Stratum-Dominant Sp. marked w/ X			Indicator	%
1	☒	Bromus tectorum	NOL	30
2	☒	Sisymbrium altissimum	NOL	70
3	☐			
4	☐			
5	☐			
6	☐			
7	☐			
8	☐			
9	☐			
10	☐			
		Total Herb Cover		**100**
		% of Dom. Species =OBL, FACW or FAC (excluding FAC-):		**0**

Remarks:

HYDROLOGY

☐ Recorded Data (describe in Remarks)
☐ Stream, Lake, or Tide Gauge
☐ Aerial Photographs
☐ Other
☒ No recorded data available

Field Observations:
Depth of Surface Water: none (In.)
Depth to Free Water in Pit: >16 (In.)
Depth to Saturated Soil: >16 (In.)

Wetland Hydrology Indicators:

Primary Indicators:
☐ Inundated
☐ Saturated in Upper 12 inches
☐ Water Marks
☐ Drift Lines
☐ Sediment Deposits
☐ Drainage Patterns in Wetlands

Secondary Indicators (2 or more required):
☐ Oxidized Root Channels in Upper 12"
☐ Water-Stained Leaves
☐ Local Soil Survey Data
☐ FAC-Neutral Test
☐ Other (explain in remarks)
☐

Remarks: No signs of wetland hydrology within plot.

SOILS

Map Unit Name (series and Phase): Dune land
Taxonomy (Subgroup):

Drainage Class: Excessively drained
Field Observations Confirm Mapped Type? Y ☒ N ☐

Depth (inches)	Horizon	Matrix Color (Munsell Moist)	Mottle Colors (Munsell Moist)	Mottle Abundance/ Size/Contrast	Texture, Concretions, Structure, etc.
0 – 16		10YR 3/2	None	None	Fine sand, w/some cobble

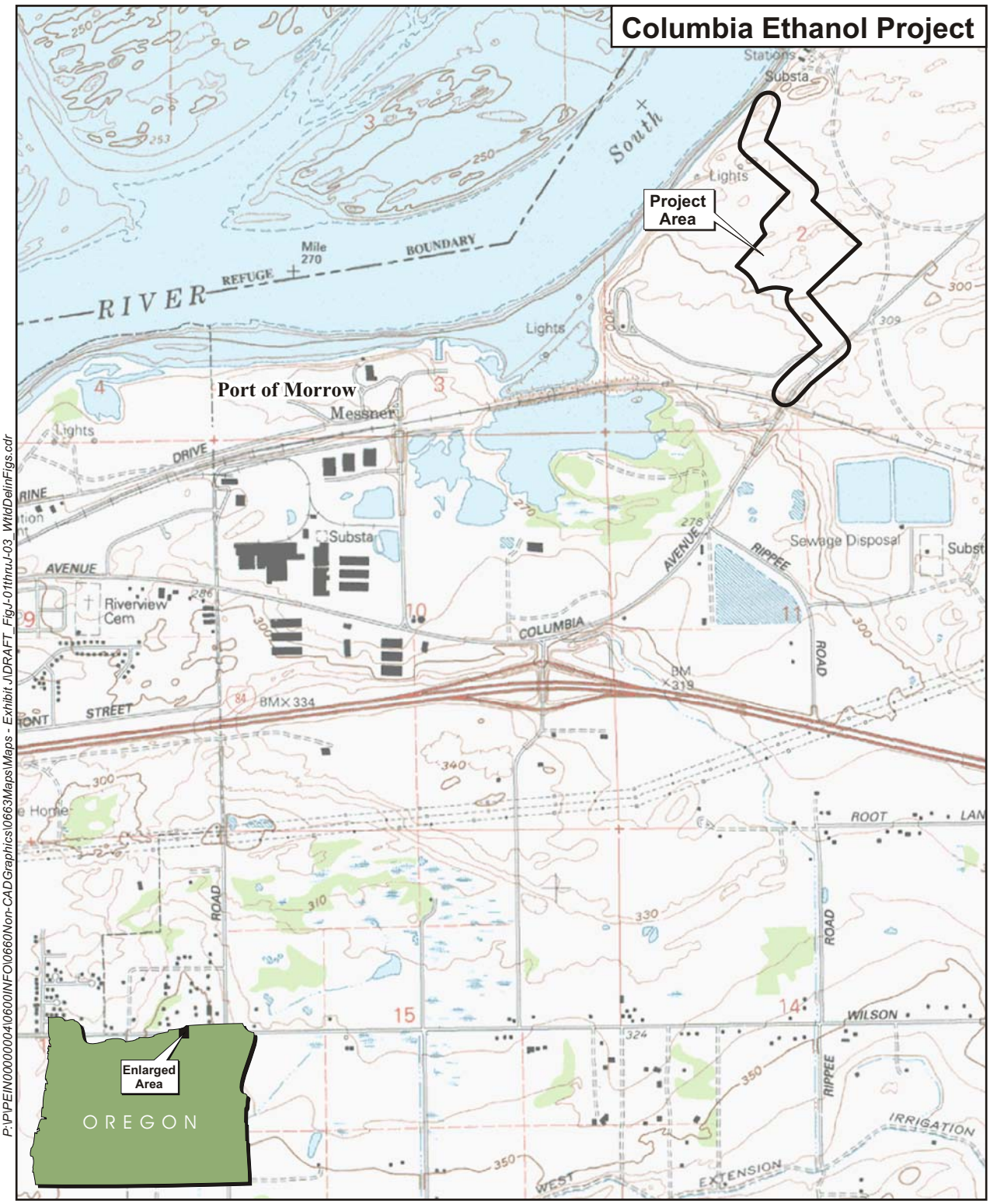
Hydric Soil Indicators:
☐ Histosol
☐ Histic Epipedon
☐ Sulfidic Odor
☐ Aquic Moisture Regime
☐ Redox Features (w/in 10")
☐ Gleyed or Low-Chroma Colors
☐ Concretions (w/in 3", >2mm)
☐ Organic Streaking in Sandy Soils
☐ High Organic Content in Surface Layer in Sandy Soils
☐ Listed on National Hydric Soils List
☐ Listed on Local Hydric Soils List
☐ Other (explain in remarks)

Remarks: No indicators of hydric soils.

WETLAND DETERMINATION

Hydrophytic Vegetation Present?	☐ Yes	☒ No	Is this Sampling Point Within a Wetland?	☐ Yes	☒ No			
Wetland Hydrology Present?	☐ Yes	☒ No						
Hydric Soils Present?	☐ Yes	☒ No						

Remarks: Plot located along bank of Columbia River, above ordinary high water line.



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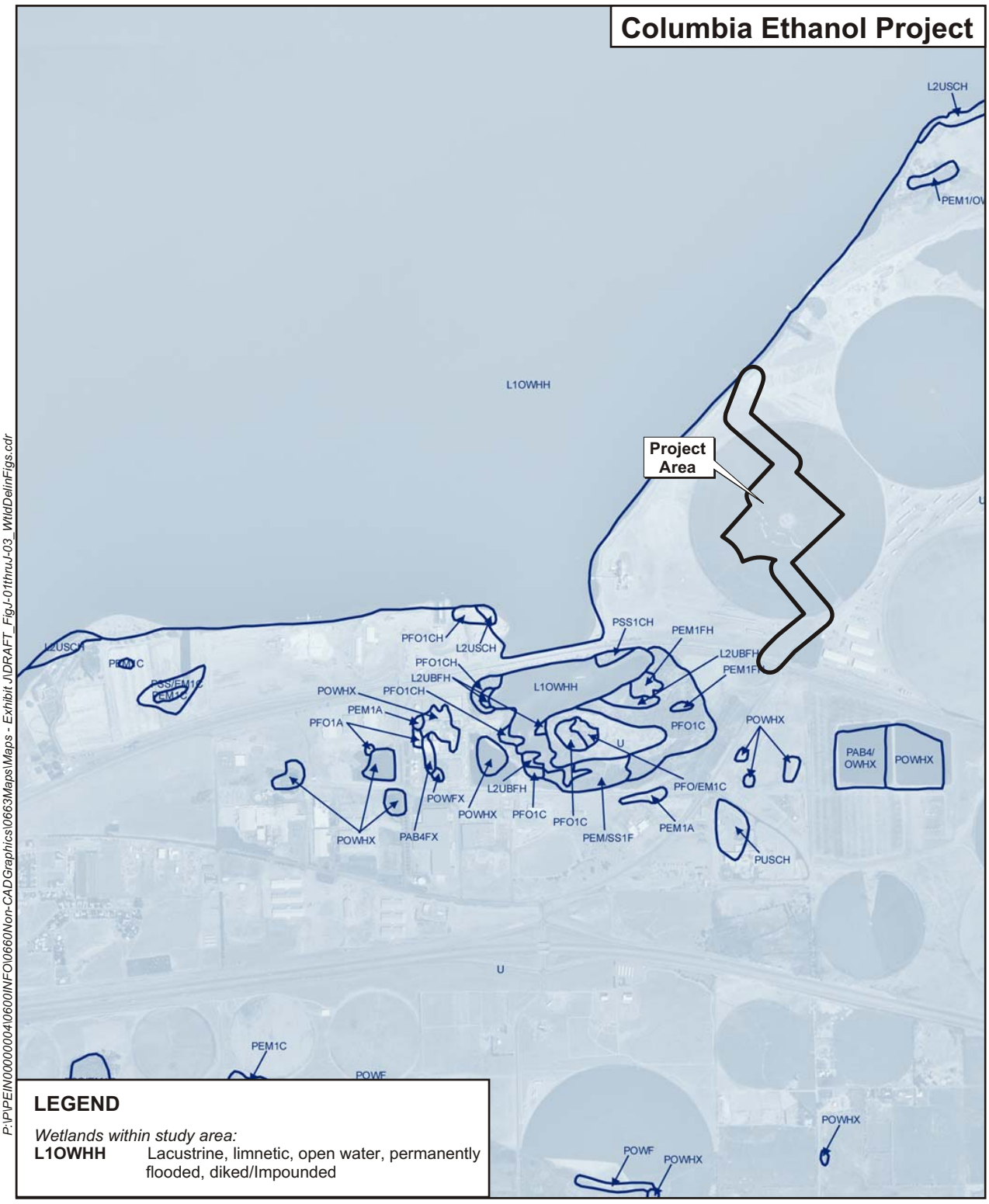
USGS 7.5 Minute Quadrangle: Boardman, Oregon-Washington 1993

Figure J-1
Vicinity

Scale - 1 : 24 000



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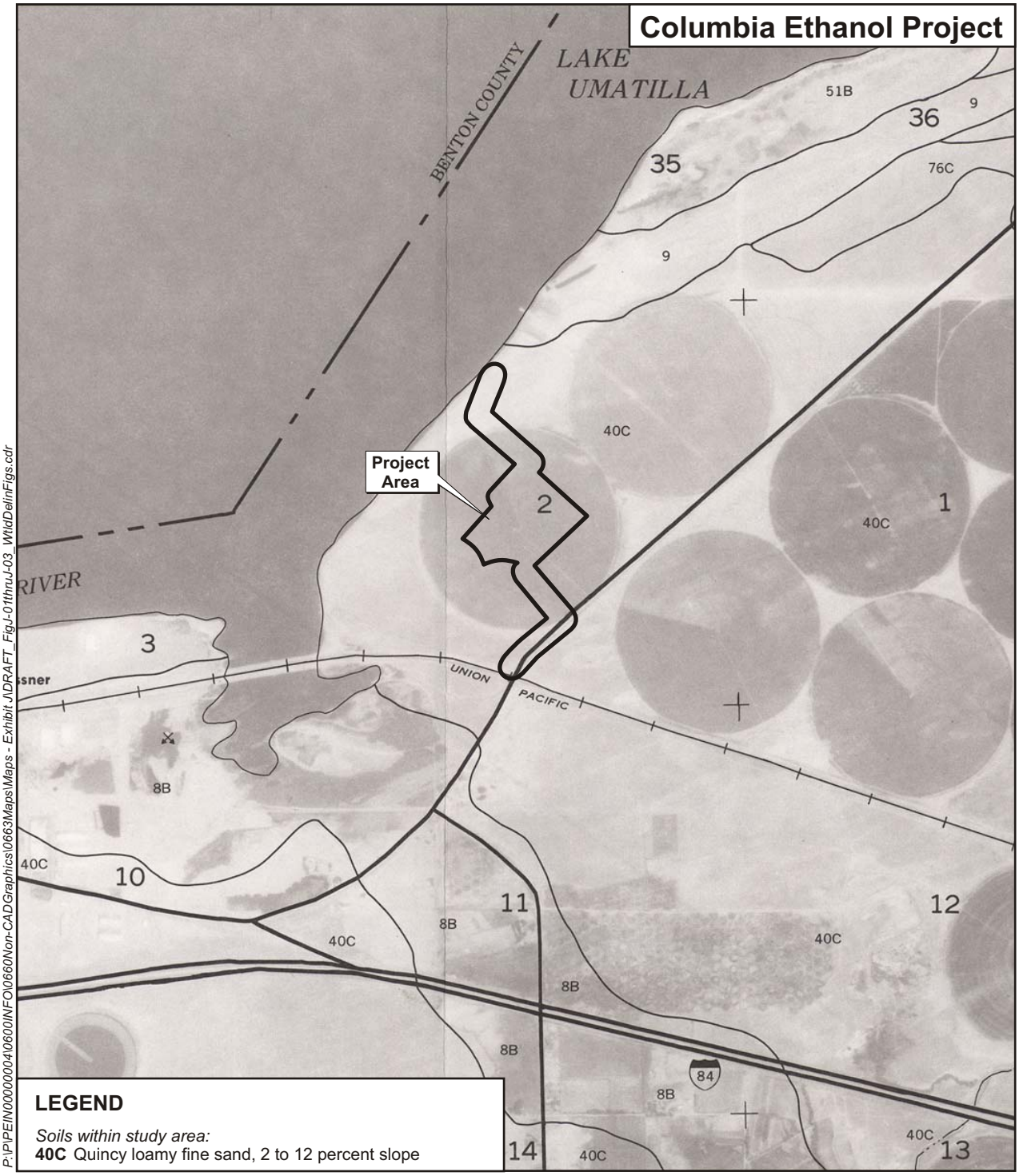
National Wetlands Inventory: Boardman, Oregon-Washington 1998

Figure J-2

National Wetlands Inventory

Scale - 1 : 24 000



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Soil Survey of Morrow County, Oregon 1983

Figure J-3
Soil Survey

Scale - 1 : 20 000

EXHIBIT K

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

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APPENDICES

K.1 INTRODUCTION AND LAND USE REVIEW PATH

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

Response: The applicant elects to address the council's land use standard by obtaining local land use approvals under ORS 469.504(1)(a).

1. *The proposed facility complies with applicable substantive criteria from the affected local government's acknowledged comprehensive plan and land use regulations that are required by the statewide planning goals and in effect on the date the application is submitted, and with any Land Conservation and Development Commission administrative rules and goals and any land use statutes directly applicable to the facility under ORS 197.646(3);*

2. *For an energy facility or a related or supporting facility that must be evaluated against the applicable substantive criteria pursuant to subsection (5) of this section, that the proposed facility does not comply with one or more of the applicable substantive criteria but does otherwise comply with the applicable statewide planning goals, or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section; or*

3. *For a facility that the council elects to evaluate against the statewide planning goals pursuant to subsection (5) of this section, that the proposed facility complies with the applicable statewide planning goals or that an exception to any applicable statewide planning goal is justified under subsection (2) of this section.*

Response: The facility will be located within the Port Industrial (PI) Zoning District, as identified in the Morrow County Comprehensive Plan (1986) and Morrow County Zoning and Subdivision Code (2001). Both the Comprehensive Plan, and Zoning and Subdivision Code identify the project site as PI. The PI District (Development Code Section 3.073) lists specific uses that are permitted outright. Such uses include: chemical and primary metal industrial uses, which are port-related (3.073(A)(3)), and manufacturing, refining, processing, or assembling of any agricultural, mining, or industrial products (3.073(A)(7)). A letter from Morrow County is attached as Appendix K-1, which states that the facility will be considered a use permitted outright and will not require land use approval from the county.

As stated, the facility complies with the Morrow County Comprehensive Plan, and Zoning and Subdivision Code, which have been acknowledged by the Land Conservation and Development Commission (LCDC) and is consistent with statewide planning goals. No exception to statewide planning goals is required to construct or operate the facility at the proposed site.

K.2 LAND USE ANALYSIS AREA AND MAP

OAR 345-021-0010(1)(k)(A) *Include a map showing the comprehensive plan designations and land use zones of the facility site, all areas that may be temporarily disturbed by any activity related to the design, construction and operation of the proposed facility and property adjacent to the site.*

Response: A map of the land use analysis area is attached as Appendix K-2. The Comprehensive Plan and zoning designations are the same for the project area. Both documents identify the project site and surrounding area as Port Industrial (PI).

K.3 ENERGY FACILITY AND RELATED OR SUPPORTING FACILITIES

Response: Three related and supporting facilities are proposed as part of the facility, as described in Exhibit B. Morrow County did not consider related or supporting facilities as separate projects requiring land use approval. Rather, Morrow County considered the natural gas line, electric supply line, and ethanol pipeline as part of the overall project when identifying the facility as a use permitted outright.

K.4 COUNCIL DETERMINATION ON LAND USE

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

Response: Not Applicable.

K.5 ZONING ORDINANCE CRITERIA

Response: As stated in Section K.1, the facility is considered a use permitted outright and will not require local land use approval other than ensuring new structures meet setback standards. See the letter attached as Appendix K-1, which states that no land use approvals will be required for construction of the facility.

K.6 COMPLIANCE WITH APPLICABLE COMPREHENSIVE PLAN PROVISIONS

Response: The facility complies with the Morrow County Comprehensive Plan. The facility is a permitted use within the PI District as identified in the Comprehensive Plan, and Zoning and Subdivision Code, and will be consistent with the surrounding development pattern that is dominated by similar heavy industrial development. In addition, the facility supports several of the Comprehensive Plan's goals and objectives identified in the Economic Element of the Comprehensive Plan, particularly Goals 2, 5, and 6, which identify the need to improve and diversify the Morrow County economy

and increase the income level of local residents by hiring and training area residents for new jobs that the facility will generate.

K.7 COMPLIANCE WITH ADDITIONAL ZONING ORDINANCE PROVISIONS

Response: Setbacks will apply to the facility as identified in Section 3.073(D) of the Zoning and Subdivision Code and the letter from the Morrow County Planning Department, attached as Appendix K-1. The facility is sited near a public right-of-way (Columbia Lane) and is required to have a 90-foot setback from that road. Rear and side yard setbacks of 10 feet also apply. The facility will meet all of these requirements.

K.8 DIRECTLY APPLICABLE STATUTES, GOALS AND LCDC RULES

Response: The Morrow County Comprehensive Plan and Zoning and Subdivision Ordinance have been acknowledged by the LCDC and are consistent with statewide land use goals and policies. The facility is consistent with these plans because it is allowed outright within the PI Zoning District, as identified in the Morrow County Comprehensive Plan, and Zoning and Subdivision Code. The facility, therefore, complies with statewide land use goals and policies. No other criteria are required to be met.

K.9 FEDERAL LAND MANAGEMENT PLANS

OAR 345-021-0010(1)(k)(D) *If the proposed facility will be located on federal land:*

1. *Identify the applicable land management plan adopted by the federal agency with jurisdiction over the federal land;*
2. *Explain any differences between state or local land use requirements and federal land management requirements;*
3. *Describe how the proposed facility complies with the applicable federal land management plan;*
4. *Describe any federal land use approvals required for the proposed facility and the status of application for each required federal land use approval;*
5. *Provide an estimate of time for issuance of federal land use approvals; and*
6. *If federal law or the land management plan conflicts with any applicable state or local land use requirements, explain the differences in the conflicting requirements, state whether the applicant requests Council waiver of the land use standard described under paragraph (B) or (C) of this subsection and explain the basis for the waiver.*

Response: The facility will not be located on federal land; it will be located on land leased from the Port of Morrow, which manages the land for industrial use.

K.10 REFERENCES

Morrow County Comprehensive Plan. 1986.

Morrow County Zoning and Subdivision Ordinance. 2001.

Appendix K-1

Letter from Morrow County

Appendix K-2

Land Use Analysis Area – Map

PLANNING DEPARTMENT

P. O. Box 40 • Irrigon, Oregon 97844
(541) 922-4624 or (541) 676-9061 x 5503
FAX: (541) 922-3472

May 1, 2006

Tom Koehler
Pacific Ethanol, Inc.
5711 N West Avenue
Fresno CA 93711

RE: Morrow County Zoning Permit

Dear Mr. Koehler:

The Zoning Permit for the proposed ethanol facility to be built by Pacific Ethanol at the Port of Morrow in Boardman, Oregon has been approved. The following clarifies some of the requirements as well as provides some general information to the applicant corporation and its agents.

Port Industrial Zone

- The proposed use, processing of ethanol, is an outright use in the Port Industrial Zone. This use zone does have a set back requirement of 90 feet from the roadway shown on the plot plan which was provided. There are additional side and rear yard setbacks of 10 feet.
- A Traffic Impact Analysis (TIA) is required if the proposed use will generate more that 400 passenger car equivalent trips per day. Given the most likely and planned for scenario the proposed use does not trigger the need for a TIA based on information provided by Brent Paulsen, TKDA. However, if the decision should be made to bring corn to the facility by truck and not by rail this would change and a TIA would be required. The Port of Morrow is working on road improvements in the Port area and has indicated that a TIA is to be conducted for this area of development. The Port's study could meet the requirements for a TIA, if needed, for this development.

Site Plan Review

- Section 4.040 and 4.050 require parking and loading facilities. Section 4.060 provide the standards to which those facilities should be built. Additionally the Building Official will apply any standards found in the Building Code.
- The proposed facility is not within a floodplain. It is, however, located in the Lower Umatilla Basin Groundwater Management Area (LUB GWMA). The Department of Environmental Quality designated the LUB GWMA in 1990 due to elevated nitrate concentrations in groundwater. It is recommended that wells used for drinking water be tested at least annually to determine nitrate concentrations. The goal of the LUB GWMA Action Plan (which was developed by state agencies and local stakeholders) is to reduce nitrate concentrations throughout the region. The Umatilla and Morrow County Soil and Water Conservation Districts are the lead agencies implementing the Action Plan. DEQ

and the Oregon Department of Agriculture have oversight responsibility. More information about the LUB GWMA can be found at http://www.deq.state.or.us/wq/groundwa/LUBGWMgmtArea.htm.

- Columbia Boulevard is a County road; Rail Loop Drive is a Port road. Any access permit for your facility from Rail Loop Drive would need to be approved by the Port of Morrow.
- While the Zoning Ordinance does not have a specific landscaping requirement, Planning Staff do encourage landscaping appropriate to the local environment. There is a requirement that any native tree species on the property be maintained with the exception of Russian Olive trees as they are identified as an invasive species.
- The development area is not identified as a Significant Resource area, however there are areas identified in the larger vicinity that serve as habitat to water fowl.
- Solid waste disposal shall be in accordance with the Morrow County Solid Waste Management Plan and Ordinance adopted on April 19, 2006. Your facility is in an area served by Sanitary Disposal for solid waste collection. The County also encourages recycling whenever possible.

A final area to be evaluated is the use of public services. The property is not currently served with domestic water or sewer, nor is there a mechanism to dispose of process waste water. According to the Port of Morrow those services will be available by the time the facility will be ready for occupancy and possibly sooner. If that should not be the case, or if services need to be available during the construction phase, and other arrangements need to be made, please contact the Planning Department as soon as possible.

It has been a pleasure working with you on this project. If you have any questions or need further information I can be reached at 541-922-4624 or by email at cmclane@co.morrow.or.us.

Cordially,

Carla McLane
Planning Director

cc: Brent Paulsen, TKDA
Gary Neal, Port of Morrow
Greg Sweek, County Assessor
Brett Cook, Building Official

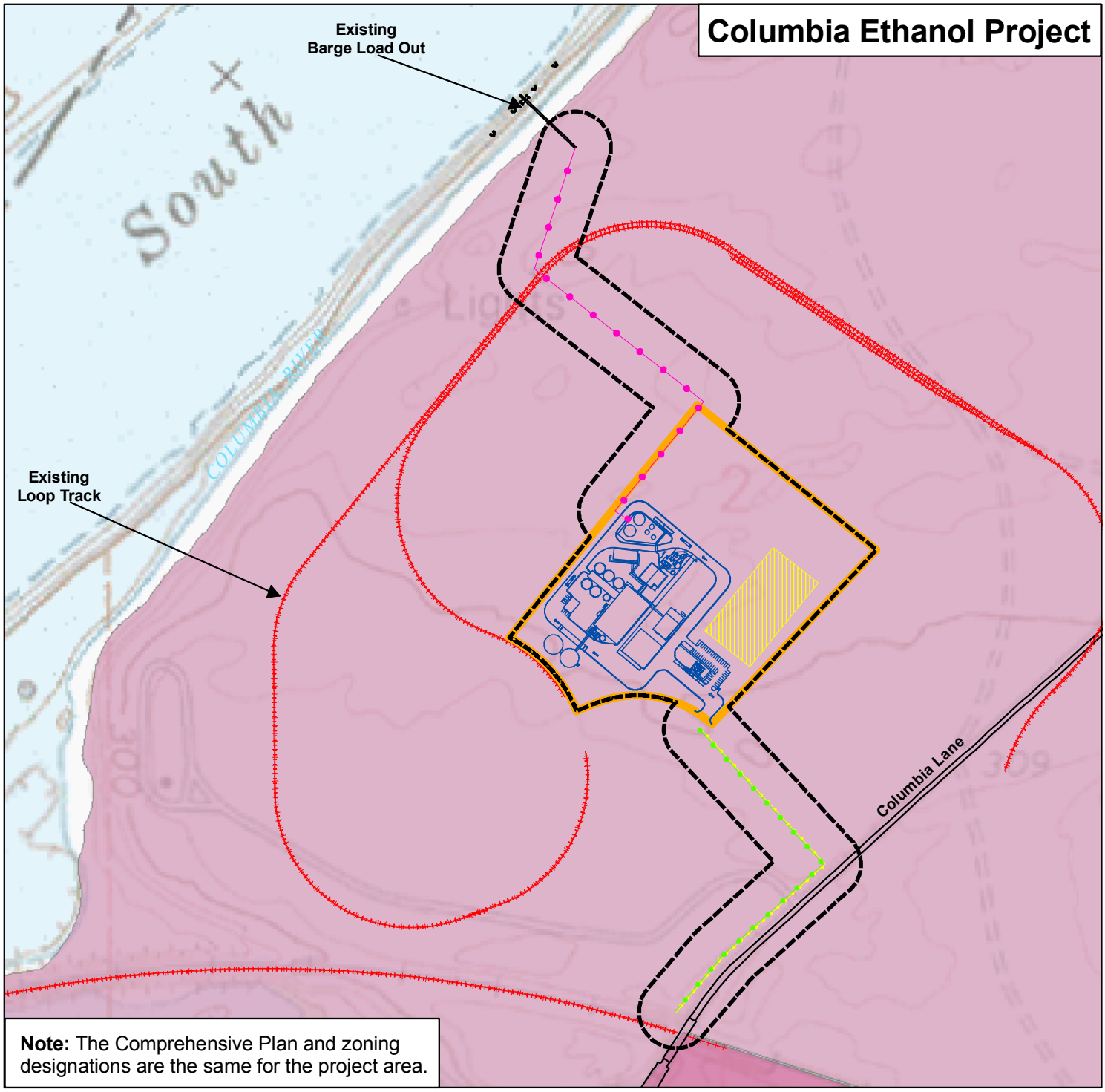

FIGURE K-2

Land Use Analysis Area

EXHIBIT L

IMPACTS ON PROTECTED AREAS
OAR 345-021-0010(1)(L)

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TABLES

APPENDICES

L.1 INTRODUCTION

Exhibit L addresses impacts the proposed facility would have on Protected Areas in the analysis area. The exhibit responds to the requirements of OAR 345-021-0010(1)(L), as follows:

OAR 345-021-0010(1)(L) *Information about the proposed facility's impact on Protected Areas, providing evidence to support a finding by the Council as required by OAR 345-022-0040, including:*

Response: OAR 345-022-0040 requires that the application for site certificate for the proposed energy facility address impacts to Protected Areas as defined in OAR 345-022-0040(l)(a)(p). Except under special circumstances defined in OAR 345-022-0040(2), the Council will not issue a site certificate for a proposed facility located in a Protected Area. For facilities located outside these areas, 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 Protected Areas]".

This Exhibit is organized in accordance with the application requirements contained in OAR 345-021-0010(1)(L) and provides evidence to support a finding by the Council as required by OAR 345-022-0040.

L.2 MAP OF PROPOSED FACILITY IN RELATION TO PROTECTED AREAS

OAR 345-021-0010(1)(L)(A) *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: The analysis area for impacts on Protected Areas includes the area within the site boundary and extends 20 miles beyond the site boundary. Figure L-1 (in Appendix L-1) illustrates the analysis area and 11 identified Protected Areas within the analysis area. Table L-1 lists these Protected Areas and their approximate minimum distance from the proposed facility.

The proposed facility is not located within any of the Protected Areas as defined by OAR 345-022-0040.

L.3 POTENTIAL IMPACTS

OAR 345-021-0010(1)(L)(B) *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: Through an evaluation of potential impacts, it has been determined that the design, construction, and operation of the facility are not likely to result in significant adverse impact to Protected Areas. The evaluation is described below.

Table L- 1. Protected Areas Within Analysis Area and Their Approximate Minimum Distance from the Proposed Facility

Protected Area	Direction and Distance from Columbia Ethanol site (miles)
Umatilla National Wildlife Refuge	N, 4.6
Irrigon Hatchery	NE, 7.6
Umatilla Hatchery	NE, 7.4
Crow Butte State Park (WA)	NW, 9.1
Hermiston Agricultural Research and Extension Center	E, 17.53
National Historic Oregon Trail ACEC	SE, 19.4
Horn Butte ACEC	W, 17.3
Coyote Springs Wildlife Area	SE, 1.3
Irrigon Wildlife Area	NE, 13.7
Power City Wildlife Area	E, 17.7
Willow Creek Wildlife Area	W, 14.8

(i) Noise resulting from facility construction or operation;

Response: As detailed in Exhibit X, projected noise levels resulting from facility construction and operation would be minimal. The nearest sensitive noise receptor, a residential property located approximately 0.9 miles from the proposed facility, would not be affected by the proposed facility. Coyote Springs Wildlife Area (WA) is the closest Protected Area to the proposed facility at 1.3 miles. It follows that the remaining Protected Areas would not be affected by noise resulting from facility construction or operation.

(ii) Increased traffic resulting from facility construction or operation;

Response: A detailed description of traffic resulting from facility construction and operation is included in Exhibit U.

The assumed route of construction-related traffic is to take I-84 to exit 165, east of Boardman, onto Laurel Lane. Trucks would travel a short distance north to the Laurel Lane/Columbia Boulevard intersection where trucks would travel east on Columbia Boulevard to the project site. Workers traveling from Washington would take I-82 south across the Columbia River bridge at Umatilla and then travel west on I-84 to exit 165. Construction-related traffic would then travel east on Columbia Boulevard, located north of I-84 to the project site. Columbia Lane is two-lane paved facility.

No adverse impacts are anticipated to the local transportation system. All of the corn that would be processed at the proposed facility would be delivered by rail via 110-car unit trains. It is possible that if a local supplier were found, that a portion of the corn could be supplied locally and delivered to the facility in trucks, although, by far, the majority of corn would not be shipped via truck.

Umatilla National Wildlife Refuge (NWR) and Coyote Springs WA are the only Protected Areas in relative proximity that would potentially be impacted by increased traffic. Access to Umatilla NWR is actually very limited in the project vicinity; primary access to the refuge is via Patterson Ferry Road from Highway 730. Demand on Coyote Springs WA is assumed to be light given the small size and limited development of the parking area located at that facility. Roads within the project area are lightly traveled and would be able to accommodate the increased traffic, even in a worst case scenario where all materials would transported via truck, as opposed to rail and barge, as currently planned.

Increased traffic is expected to be limited and will not adversely affect Protected Areas.

(iii) Water use during facility construction or operation;

Response: As stated in Exhibit O, no significant impact to resources is expected as a result of water use during facility construction or operation.

The facility will purchase water from the Port of Morrow, which supplies users in the Boardman Industrial Park with water for industrial use. The water is obtained from a horizontal Ranney well collection system adjacent to and under the Columbia River. No new water right will be needed. It is not anticipated that the Ranney well collection system would impact the McCormack Unit of the Umatilla NWR, because the water needed for facility operation would be drawn from the Columbia River and the shallow marsh habitat at the McCormack Unit is driven primarily by groundwater, not river levels (Allen 2006).

Water use during facility construction or operation would not adversely affect Protected Areas in the analysis area.

(iv) Wastewater disposal resulting from facility construction or operation;

Response: As stated in Exhibit V, wastewater will be generated during construction from washdown of equipment during earthwork and construction phases. Concrete trucks could also be cleaned after concrete loads have been emptied. Washdown will be up to the contractor and will likely occur at a contractor owned batch plant. Portable toilets will be provided for on-site sewage handling during construction and will be pumped and cleaned regularly by the construction contractor. No other wastewater will be generated during construction.

Industrial wastewater, generated during operations, will be treated at the Port of Morrow industrial wastewater treatment facility. Wastewater from the toilets and sinks will be treated at the Boardman wastewater treatment plant, located in Boardman.

Based on the above, wastewater resulting from facility construction or operation will not affect Protected Areas in the analysis area.

(v) Visual impacts of facility structures, including cooling tower or other plumes, if any; and

Response: Analysis described in Exhibit R was used to determine whether the proposed facility would be visible from the identified Protected Areas. The proposed facility would not be visible from Crow Butte State Park, Hermiston Agricultural Research and Extension Center, Oregon Trail ACEC, Willow Creek WA, and Power City WA.

The proposed facility structures (i.e., cooling tower and distilling towers) would not be visible from the Irrigon Hatchery, Umatilla Hatchery, or the Irrigon WA. It is possible that portions of any plume may be visible under ideal atmospheric conditions from these Protected Areas; however, it is also possible that vegetation would screen the plume from view.

The proposed facility, including any plume, will be visible from the Umatilla NWR and Coyote Springs WA. The proposed facility, including any plume, may be visible from the Horn Butte ACEC, but at a distance of approximately 20 miles.

As determined through a review of applicable management plans and interviews with agency staff, none of the Protected Areas from which the proposed facility may be visible are managed for visual quality or are considered outstanding or remarkable scenic or aesthetic resources (Allen, Brian 2006, Allen, Steve 2006, Linehan 2006, USDI 1986). As stated in Exhibit R, the proposed facility would be compatible with any scenic or visual goals, objectives, or policies identified in applicable federal and local management plans. Consequently, the proposed facility would not result in adverse visual impacts to Protected Areas in the analysis area.

(vi) Visual impacts from air emissions resulting from facility construction or operation, including, but not limited to, impacts on Class 1 visual resources as described in OAR 340-204-0050;

Response: Air emissions from the facility have been permitted by DEQ, and are not expected to have adverse visual impacts on the Protected Areas.

Dust may be generated during construction and will be controlled through the construction period by watering. Any potential impacts are anticipated to be temporary and negligible

There are no Class 1 Visual Resources in the analysis area.

L.4 CONCLUSION

The proposed project complies with all applicable regulatory guidelines concerning Protected Areas as previously discussed in OAR 345-021-0010(l)(L)(A) and (B). The design, construction, and operation of the proposed facility are not likely to result in

significant adverse impact to Protected Areas, and the Council may find that the standard in OAR 345-022-0040 is satisfied.

REFERENCES

Telephone Contacts/Personal Interviews

Allen, Brian. Operational Manager. Umatilla National Wildlife Refuge. Telephone conversation with Sean Sullivan. June 24, 2006.

Allen, Steve. Fish and Wildlife Manager III. Oregon Department of Fish and Wildlife. Telephone conversation with Sean Sullivan. June 30, 2006.

Linehan, Dave. Project Leader. Mid-Columbia River National Wildlife Refuge Complex. U.S. Fish and Wildlife Service. Telephone conversation with Sean Sullivan. June 22, 2006.

Website/Document References

USDI Bureau of Land Management. Two Rivers Resource Management Plan Record of Decision. June 1986.

APPENDIX L-1

Figure L-1: Protected Areas – Map