APPLICATION TO THE

Ohio Power Siting Board

FOR A

Certificate of Environmental Compatibility and Public Need

FOR THE

Oregon Energy Center

SUBMITTED BY: **Clean Energy Future - Oregon, LLC**

CLEAN ENERGY FUTURE LLC

April 2017

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April 19, 2017

Via Hand Delivery

Ms. Barcy McNeal
Administration/Docketing
Ohio Power Siting Board
180 East Broad Street, 11th Floor
Columbus, Ohio 43215-3793

Re: Clean Energy Future–Oregon, LLC
Case No. 17-530-EL-BGN

Dear Ms. McNeal:

Enclosed for filing in the above-referenced case is a copy of the Application Clean Energy Future–Oregon, LLC for a Certificate of Environmental Compatibility and Public Need for an electric generating facility, Oregon Energy Center, in the City of Oregon, Lucas County, Ohio. In addition, we have provided Staff of the Ohio Power Siting Board ("Board") ten disks and five hard copies of the Application. Pursuant to Ohio Administrative Code Rule 4906-3-11(B), the Applicant makes the following declarations:

Name of Applicant:	Clean Energy Future–Oregon, LLC, whose president is William Siderewicz, P.E. 40 Beach Street, Suite 300 Manchester, MA 01944
Name/Location of Proposed Facility:	Clean Energy Future-Oregon, LLC Oregon, Ohio
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Since the pre application was filed, there have been no revisions that appear in the application.

Notarized Statement: See Attached Affidavit of William Siderewicz, P.E., on behalf of Clean Energy Future-Oregon, LLC

Sincerely on behalf of
CLEAN ENERGY FUTURE-OREGON, LLC

Sally W. Bloomfield

Attachment

BEFORE
THE OHIO POWER SITING BOARD

In the Matter of the Application of **Clean Energy Future-Oregon, LLC** for a Certificate of Environmental Compatibility and Public Need for an Electric Generating Facility in the City Oregon, Lucas County, Ohio	)))))	Case No. 17-530-EL-BGN

AFFIDAVIT OF WILLIAM SIDEREWICZ, P.E.,
CLEAN ENERGY FURTURE-OREGON, LLC

STATE OF MASSACHUETTS :
: ss.
COUNTY OF ESSEX :

I, William Siderewicz, P.E., being duly sworn and cautioned, state that I am over 18 years of age and competent to testify to the matters stated in this affidavit and further state the following based upon my personal knowledge:

1. I am executing this affidavit on behalf of Clean Energy Future-Oregon, LLC as its president.

2. I have reviewed Clean Energy Future-Oregon, LLC's Application to the Ohio Power Siting Board for a Certificate of Environmental Compatibility and Public Need for the Oregon Energy Center project.

3. To the best of my knowledge, information, and belief, the information and materials contained in the above-referenced Application are true and accurate.

4. To the best of my knowledge, information, and belief, the above-referenced Application is complete.

William Siderewicz, P.E.

Sworn to before and signed in my presence this 13th day of April 2017.

Notary Public

[SEAL]

RYAN ANDREWS
Notary Public
COMMONWEALTH OF MASSACHUSETTS
My Commission Expires
December 30, 2022

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ACRONYMS/ABBREVIATIONS

µg/m^3	microgram per cubic meter
µPa	microPascals
%	percent
°F	degrees Fahrenheit
amsl	above mean sea level
APE	Area of Potential Effect
BACT	Best Available Control Technology
BAT	Best Available Technology
bgs	below ground surface
BMP	Best Management Practice
Btu	British thermal unit
Calypso	Calypso Communications LCC
CCGT	combined cycle gas turbine
CEF-O	Clean Energy Future – Oregon, LLC
CEMS	Continuous Emission Monitoring System
CFR	Code of Federal Regulations
C-I	Commercial-Industrial
CO	carbon monoxide
CO_2	carbon dioxide
CO_{2e}	carbon dioxide equivalents
CSAPR	Cross-State Air Pollution Rule
CTG	combustion turbine generator
dB	decibels
dBA	A-weighted decibels
DCS	distributed control system
DdA	Del Ray loam, 0 to 3 percent slopes
DLN	dry-low-NO_X
the Eastern Laydown Area	a 42.5 acre property located east of the Project Site, to be used for temporary construction laydown
the Electrical Interconnection Property	an approximately 20-acre property on which the electric interconnection facilities will occupy
FAA	Federal Aviation Administration
FERC	Federal Energy Regulatory Commission

FirstEnergy	FirstEnergy Corporation
Fluor	Fluor Corporation
FuA	Fulton silty clay loam, 0 to 2 percent slopes
g/hp-hr	grams per horsepower-hour
GHG	greenhouse gas
g/kW-hr	grams per kilowatt-hour
GW	gigawatt
HAP	hazardous air pollutant
HHV	higher heating value
hp	horsepower
HRSG	heat recovery steam generator
kV	kilovolt
kW	kilowatt
the Lallendorf Switchyard	an existing 345-kV 5-breaker ringbus located northwest of the Project Site, into which the Project will interconnect to a proposed sixth breaker
lb CO_2/MW-hr	pounds of CO_2 per megawatt-hour
lb/MMBtu	pounds per million British thermal units
lb/MW-hr	pounds per megawatt-hour
Lc	Latty silty clay, till substratum, 0 to 1 percent slopes
L_{eq}	equivalent sound level
mgd	million gallons per day
ML	Monitoring Locations
MMBtu/hr	million British thermal units per hour
MMcf	million cubic feet
mph	miles per hour
MDEQ	Michigan Department of Environmental Quality
MW	megawatt
MW-hr	megawatt-hour
NAAQS	National Ambient Air Quality Standards
NESHAP	National Emission Standards for Hazardous Air Pollutants
NFPA	National Fire Protection Association
ng/J	nanograms per Joule
NH_3	ammonia
NHD	National Hydrography Dataset

NO	nitric oxide
NO_2	nitrogen dioxide
NO_X	nitrogen oxides
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standard
NSR	New Source Review
NWI	National Wetland Inventory
O_2	oxygen
O_3	ozone
OAC	Ohio Administrative Code
ODNR	Ohio Department of Natural Resources
OHI	Ohio Historic Inventory
Ohio EPA	Ohio Environmental Protection Agency
OPSB	Ohio Power Siting Board
O&M	operation and maintenance
OSHA	Occupational Safety and Health Administration
Pb	lead
PJM	PJM Interconnection, LLC
PM	particulate matter
PM_{10}	particulate matter with a diameter of less than or equal to 10 microns
$PM_{2.5}$	particulate matter with a diameter of less than or equal to 2.5 microns
POTW	publically owned treatment works
ppmvdc	parts per million by volume dry basis corrected to 15 percent O_2
the Project	Oregon Energy Center
the Project Site	an approximately 30-acre square-shaped property on which the Oregon Energy Center will be constructed
PSD	Prevention of Significant Deterioration
psig	pounds per square inch gauge
PTI	Permit to Install
ROW	right-of-way
SCR	selective catalytic reduction

SER	Significant Emission Rate
SHPO	State Historic Preservation Office
SIL	Significant Impact Level
SO_2	sulfur dioxide
the Southern Laydown Area	a 23.5 acre non-contiguous property located southwest of the Project Site, to be used for temporary construction laydown
STG	steam turbine generator
the Study Area	an approximately 138-acre area included in this Application associated with the Oregon Energy Center, including the Project Site, Eastern Laydown Area, Western Laydown Area, Southern Laydown Area, and the Electrical Interconnection Property
SU/SD	startup/shutdown
To	Toledo silty clay, 0 to 1 percent slopes
tpy	tons per year
ULSD	ultra-low sulfur distillate
USACE	United States Army Corps of Engineers
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service
the Utility Switchyard	a new 1-acre 138-kV 3-breaker ringbus, located on the Electrical Interconnection Property north of the Project Site,, into which the Project will connect
VOC	volatile organic compounds
the Western Laydown Area	a 22-acre property, located adjacent to the Project Site, to be used for temporary construction laydown

4906-4-02 Project Summary and Applicant Information

(A) SUMMARY OF THE PROPOSED PROJECT

Clean Energy Future – Oregon, LLC (CEF-O) is proposing to develop, finance, build, own, and operate the Oregon Energy Center (the Project), a new natural gas-fired combined cycle electric generating facility located in the City of Oregon, Lucas County, Ohio (Figure 02-1). Approval is currently being sought for a net capacity up to 955 megawatts (MW).

(1) General Purpose of the Project

The Project will help meet electricity demand in the region, particularly in light of the recent and planned retirements of existing coal-fired generating assets located in Ohio and throughout the PJM Interconnection, LLC (PJM) system.[1] A total of 16.3 gigawatts (GW) have retired in the PJM system since 2013 and another 5.1 GW are pending retirement by the end of 2020. Within Ohio alone, a total of 59 individual coal boilers have been decommissioned, which represents 10,003 MW of lost electrical generation. Notable coal plants that have closed located in the American Transmission System, Inc. transmission zone, the same transmission zone as the Project, include: Toledo – ACME (288 MW); J.R. Whiting (328 MW); and Bay Shore Units 1 through 4 (631 MW). Other economically challenged regional plants include: Avon Lake coal (778 MW) and Davis Besse nuclear (890 MW). The Project will help meet this need by providing additional base load and peaking capacity via its natural gas-fired combined cycle technology.

[1] PJM is the regional independent transmission organization that coordinates movement of wholesale electricity in all or part of 13 states (including Ohio) and the District of Columbia. Its name results from its origin serving Pennsylvania (P), New Jersey (J), and Maryland (M).

(2) Project Description

The Project is identified in its PJM interconnect application as a maximum net 955-MW capacity and energy facility, and will utilize advanced Siemens H-class gas turbine/steam turbine combined cycle technology to generate electricity. Consistent with the PJM interconnection application, this Ohio Power Siting Bard (OPSB) Application reflects a Project net generation capacity of 955 MW.

The Project (with the exception of limited-use emergency equipment) is designed to operate solely on natural gas and will not be designed to operate on fuel oil. CEF-O has determined that, based on a firm gas transportation plan and the abundant, low-cost natural gas in proximity to the Project, including Utica shale gas, a back-up fuel such as fuel oil is not required. The gas turbine and steam turbine power generating equipment will be located indoors, making the Project visually pleasing and a quieter neighbor.

As shown in Figure 02-1, the proposed location for the Project consists of a square-shaped parcel of land (outlined with a black border in Figure 02-1) totaling approximately 30 acres (the Project Site). Several properties are available for use as temporary construction laydown: an approximately 23.5 non-contiguous acres (outlined with an orange border in Figure 02-1) located to the southwest of the Project Site (the Southern Laydown Area); 22 acres (outlined with a yellow border in Figure 02-1) located west of the Project Site (the Western Laydown Area); and 42.5 acres (outlined with a pink border in Figure 02-1) located east of the Project Site (the Eastern Laydown Area). An approximately 20-acre property north of the Project Site and south of the FirstEnergy Corporation (FirstEnergy) electric transmission right-of-way (ROW) is outlined with a red border in Figure 02-1 and referred to herein as the Electrical Interconnection Property

(although not necessarily reserved entirely for that purpose, and to be used for construction laydown as well). The Project's electrical interconnection will include a collector bus located on the Project Site; a 1-acre 138-kilovolt (kV) 3-breaker ringbus (the Utility Switchyard) located on the Electrical Interconnection Property; an approximately 0.5-mile 345-kV interconnection from the on-site collector bus to an existing 345-kV switchyard (the Lallendorf Switchyard), in which a sixth breaker will be constructed; and an approximately 0.2-mile 138-kV interconnection from the on-site collector bus to the Utility Switchyard. The existing electric transmission ROW located north of the Project Site includes: the FirstEnergy Lallendorf 345- kV; Bayshore to Chev 138-kV; and Bayshore to Jeep No. 2 Strickney 138 kV lines. A total of approximately 138 acres are included in this Application for the Project (the Study Area). The Study Area is located entirely within Lucas County, east of North Lallendorf Road Avenue and north of Corduroy Road, in the City of Oregon, Ohio.

The Project Site is zoned Commercial-Industrial (C-I) for commercial and industrial use and is located within the Cedar Point Development Park in an area designated for development, according to the City of Oregon 2025 Master Plan. The Project Site is located within an area of the Cedar Point Development Park designated as a Foreign Trade Zone. Other nearby industrial uses also exist, including the Oregon Clean Energy Center, which is located approximately 300 feet northwest of the Project Site.

Good access to the Project Site exists; the Project Site is located approximately 4.25 miles northeast of Interstate 280 and 2 miles north of Route 2. The local network of roads, including Parkway Road, North Lallendorf Road, and Corduroy Road, which

provide access to the Project Site, currently support traffic associated with other nearby industrial uses.

(3) Site Suitability

The Project Site selection process is described in greater detail in Section 4906-4-04. As outlined in that section, CEF-O's market knowledge identified this region of northwestern Ohio as one where the planned shutdown of existing coal-fired capacity will create the need for clean, efficient power generation. The City of Oregon and the proposed Project Site were selected based on consideration of a range of key characteristics for a successful Project. Upon identification of this Project Site, additional scrutiny of a range of issues was undertaken prior to initiating the engineering and environmental activities necessary for completion of the OPSB Application.

Key characteristics of the proposed Project Site that makes it suitable for Project development are outlined in Table 01-1.

TABLE 01-1
PROPOSED PROJECT SITE CHARACTERISTICS

Key Attribute	Site Conditions
Adequate Size	Adequate space for the Project layout exists within the approximately 30-acre property, with additional adjacent property available for ancillary equipment and temporary construction laydown.
Compatible Zoning and Land Use	The Project Site is within a C-I zone in a setting that includes other industrial facilities, including power generation.
Natural Gas Alternatives	There is an abundant, local, low-cost supply of natural gas in the region, including Utica shale gas.
Short Distance to Robust Electrical Interconnection	A FirstEnergy 345-kV and 138-kV transmission line corridor is located in close proximity to the Project Site.
Transmission Interconnection Alternatives	Undeveloped area between the Project Site and the existing FirstEnergy ROW allows for electrical interconnection route options.

Key Attribute	Site Conditions
Adequate Water Supply	There are existing robust underutilized sources of water in the immediate area capable of providing water to the wet-cooled Project. Adequate capacity exists such that community water use will not be affected.
Feasible Wastewater Discharge	There are adequate wastewater discharge alternatives capable of supporting the Project, including municipal wastewater disposal facilities.
Strong Transportation Network	The Project Site is located in close proximity to major highways (e.g., Interstate 280 and Route 2) and railways.
Lack of Significant Environmental Constraints	The Project Site is located in an attainment area with respect to National Ambient Air Quality Standards (NAAQS) for all criteria pollutants. The Project can be accommodated with limited additional environmental impact.

(4) Project Schedule

The Project schedule is based on the submission of this Application in April 2017, the issuance of the OPSB certificate by fall 2017, and the commencement of commercial operation by summer 2020 in order to meet the anticipated summer peak load demands within the PJM marketplace.

Any delay in the issuance of the OPSB certificate would have a significant negative commercial impact on the Project's planned summer 2020 operations and would jeopardize the Facility's ability to meet contractual PJM needs during this period of high power consumption.

CEF-O intends to bid into PJM's Incremental Capacity Auction, for delivery of Project capacity from summer 2020 through summer 2021. As part of this bid process, CEF-O will be making guarantees to PJM that the Project will be operational by summer 2020. If development delays occur, including issuance of permits, CEF-O will be subject to substantial financial penalties by PJM, since PJM would be relying upon capacity not operational when needed the most.

CEF-O is confident that this schedule is achievable and that the Project will be producing electricity in the summer of 2020 when the State of Ohio needs new electricity resources.

(B) ADDITIONAL INFORMATION

(1) Description of Future Plans/Plans for Future Additions

No additional generating units are planned on the Project Site.

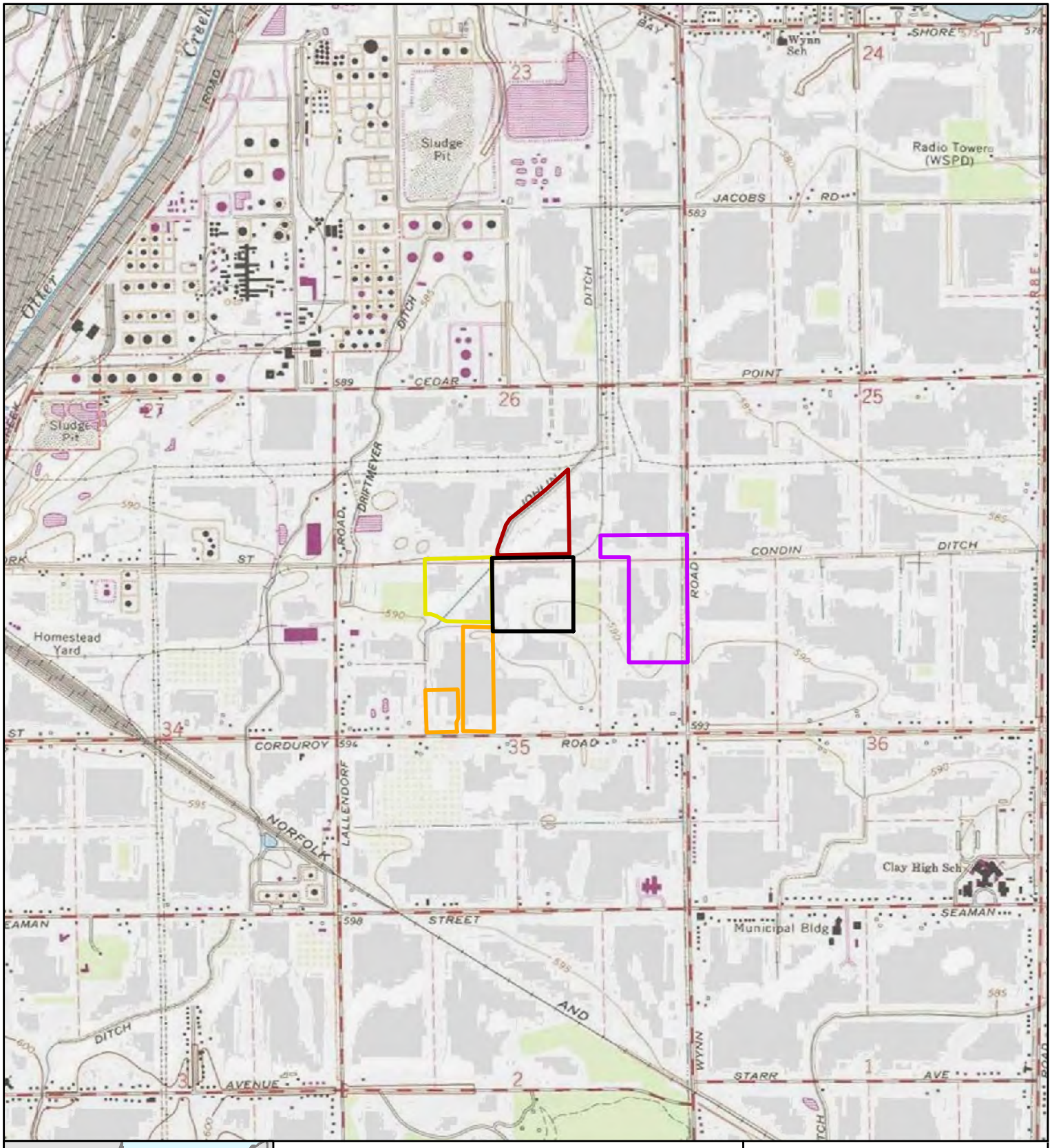
(2) Applicant Information

CEF-O is a subsidiary of Clean Energy Future, LLC, a Massachusetts-based development company focused on non-utility electricity projects in the United States. President William Siderewicz has over 37 years of experience in developing and building non-utility power plants. Mr. Siderewicz was the principal responsible for developing and permitting the Oregon Clean Energy Center, located just north of the Project Site. Clean Energy Future, LLC was also the parent company of Clean Energy Future – Lordstown, LLC (the entity responsible for permitting the Lordstown Energy Center, currently under construction in Trumbull County, Ohio) and Clean Energy Future – Trumbull, LLC (the entity currently permitting a proposed 940-MW natural gas-fired combined cycle electric generating facility also located in Trumbull County, Ohio).

Through a competitive bid process, Fluor Corporation (Fluor), a global engineering firm, was selected as the Engineering, Procurement, and Construction contractor for the Project, and is also serving as the design engineer to support the environmental permitting process. With more than 60,000 employees in over 100 countries, Fluor has extensive experience on similar projects.

Section 4906-4-02: Figures

- **Figure 02-1: Project Location**



Legend

- Project Site
- Electrical Interconnection Property
- Eastern Laydown Area
- Southern Laydown Area
- Western Laydown Area

N

0 0.25 0.5 Miles

Figure 02-1
Project Location

Oregon Energy Center
Lucas County, Ohio

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4906-4-03 Project Description and Schedule

(A) DETAILED DESCRIPTION OF THE PROJECT AREA

(1) Project Map

Figures 03-1A and 03-1B identify: the proposed Project; major population centers and administrative boundaries; major transportation routes and utility corridors; named rivers, streams, and other bodies of water; and major institutions, parks, and recreational areas within a 2-mile radius of the Study Area.

(2) Project Area

The approximately 138-acre Study Area includes the 30-acre Project Site, 42.5-acre Eastern Laydown Area; 22-acre Western Laydown Area; 23.5-acre Southern Laydown Area; and 20-acre Electrical Interconnection Property. These properties are illustrated on Figure 03-2, with the proposed Project layout overlain within the boundaries of the Project Site. Additional detail is provided in Figure 03-3, a plot plan that labels the various Project components. A computer-generated color rendering of the Project is included as Figure 03-4.

(B) PROPOSED PROJECT DESCRIPTION

As shown in Figure 03-2, the proposed Project is situated on the approximately 30-acre Project Site, with ancillary features, such as the retention ponds and electrical interconnection, on adjacent parcels. The following sections describe key aspects of the proposed Project.

(1) Project Details

The Project will include two Siemens combustion turbine generators (CTGs) with natural gas as the fuel; evaporative coolers for inlet air cooling; two Siemens three-pressure-level heat recovery steam generators (HRSGs); two duct burners; and one

Siemens reheat, condensing steam turbine generator (STG). Additionally, the Project will utilize a 10-cell cooling tower and a steam-surface condenser. An auxiliary steam boiler will be used for heating steam to accommodate a faster plant startup. The Project will include two 20- to 345-kV step-up transformers (for one CTG and the STG) and one 20- to 138-kV step-up transformer for the second CTG, all located in an on-site collector bus. The CTGs and STG will be located indoors. Off-site electrical components associated with the Project are also included in this Application. These include the proposed 138-kV Utility Switchyard; the 0.2-mile 138-kV interconnection from the Project Site to the Utility Switchyard; and the 0.5-mile 345-kV interconnection to a proposed sixth breaker within the existing Lallendorf Switchyard.

(a) Generation Units

The Project is designed with a nominal net 955-MW electric generation capacity and will consist of two Siemens SCC6-8000H CTGs each capable of generating a nominal output of approximately 299 MW and a maximum output of approximately 314 MW. Each gas turbine will be equipped with power augmentation in the form of evaporative coolers. The Project will be capable of operating up to 8,760 hours per year, although its actual hours of operation will be dependent upon energy needs in the region and will incorporate downtime for planned and unplanned maintenance events. Based on power market data for northeastern Ohio, it is anticipated that the Project will initially operate over 86 percent of the year. The Project will also include one Siemens three-pressure HRSG with duct burners for each of the two combustion turbines and one Siemens

reheat, condensing STG utilized by both HRSGs. The Project will be designed to operate in combined cycle mode only.

(b) Wind Turbine Blade Dimensions

Since the proposed Project does not include the installation of any wind turbine equipment, this section is not applicable.

(c) Fuel Quantity and Quality

The fuel will be natural gas supplied at an approximate pressure of 450 to 500 pounds per square inch gauge (psig) depending on the season. The natural gas provider will deliver fuel to the on-site Project metering station. A liquids removal, pre-heating system, metering, and gas compression system (as required) will be installed as part of the natural gas fuel system. The high efficiency gas turbines will require that the natural gas has a minimum pressure of about 550 psig upon entry to the gas turbines. This higher pressure of gas will be achieved via on-site electric-drive gas compressor. Table 03-1 is a summary of the natural gas characteristics.

TABLE 03-1
FUEL CHARACTERISTICS

Characteristics	Natural Gas
Ash (percent [%])	--
Sulfur Content (grains per 100 dry standard cubic feet)	0.5
British thermal unit (Btu) Value (Btu/standard cubic foot, higher heating value [HHV])	1,028

(d) Pollutant Emissions

Construction impacts on air quality will consist of relatively minor emissions from the construction equipment required for site preparation and from fugitive dust emissions. General construction vehicles (both gasoline- and diesel-

powered) and other diesel-powered engines will emit insignificant amounts of volatile organic compounds (VOCs), sulfur dioxide (SO_2), carbon monoxide (CO), nitrogen oxides (NO_X), and particulate matter (PM). These emissions are not expected to cause any significant adverse impact on the Project Site or beyond the Study Area.

Atmospheric dispersion modeling has been performed to predict maximum concentrations for a range of Project operating conditions, and has confirmed that Project impacts will be below Significant Impact Levels (SILs) for all steady-state operating conditions. The model accounts for emission rates, stack heights of 185 feet, exhaust parameters, meteorological data (wind speed, direction, atmospheric stability, and temperature), and the topography around the Project Site. The following is a list of the federal criteria pollutants that will be emitted from the Project: SO_2, particulate matter with a diameter of less than or equal to 10 microns (PM_{10}), particulate matter with a diameter of less than or equal to 2.5 microns ($PM_{2.5}$), NO_X, CO, and VOCs. Several non-criteria pollutants will be emitted, including sulfuric acid mist, ammonia (NH_3), and formaldehyde.

The air pollution controls proposed for this Project are proven technologies. The primary control devices include dry-low-NO_X (DLN) combustors in each of the two gas turbines, and selective catalytic reduction (SCR) systems and oxidation catalysts in each of the two HRSGs. The SCR and oxidation catalyst systems reduce emissions of both NO_X and CO to 2 parts per million by volume dry basis, corrected to 15 percent oxygen (O_2), or ppmvdc. In addition, emissions from the Project will be continuously tracked using a Continuous Emission Monitoring

System (CEMS). In the unlikely event of a control equipment failure, it would be immediately detected by the distributed control system (DCS) and corrective actions would be initiated. It is unlikely that any unforeseen outage of pollution control systems would result in a significant impact before corrective actions could be taken.

(e) Water Volume Requirement

CEF-O has selected a closed-loop cooling system employing a wet mechanical draft cooling tower. This system has been identified as an appropriate water use option that maintains the economic viability of the Project and balances other resources issues. Comparable generation using once-through cooling would likely require around 325 million gallons per day (mgd) of cooling water flow, as compared to the Project's estimated maximum withdrawal of up to a maximum of approximately 5.4 mgd, which is based on a 105 degrees Fahrenheit (°F) day with maximum duct-firing and full utilization of evaporative coolers. Conversely, at -5°F and with duct-firing off, the Project's water need drops to approximately 2.6 mgd. A detailed water balance for the average case, which is based on a 59°F day with maximum duct firing and evaporative coolers, is provided in Figure 03-5. The Project's average water use is approximately 4.8 mgd.

Water needs of the Project (including process water, fire protection, and domestic use) will be met with potable water from City of Toledo. The City of Toldeo's water supply pipes will reliably provide adequate water for the Project.

The approximately 5.4 mgd maximum water use reflects operating the Project with full utilization of evaporative coolers and 100 percent duct-firing at an

average ambient temperature of 105°F for a 24-hour period. The Project's average daily water use of approximately 4.8 mgd (shown on Figure 03-5) is estimated based on operating the Project with 100 percent duct-firing, full utilization of evaporative cooling, and an average ambient temperature 59°F.

Project wastewater, mostly made up of cooling tower blowdown water, will also vary seasonally, from approximately 0.28 to 0.58 mgd. Project wastewaters will be discharged to the existing City of Oregon publicly owned treatment works (POTW) via a tie-in to the existing pipeline in North Lallendorf Road. Wastewater will be treated prior to discharge to meet the POTW water quality standards.

Stormwater flows from the developed Project Site will be controlled through the use of detention ponds and other features. Preliminary stormwater control calculations and features are shown in Appendix A.

(2) Description of Construction Method and Project Components

(a) Generation Equipment

The Project will include two CTGs with natural gas as the fuel; evaporative coolers for inlet air cooling; two three-pressure-level HRSGs; two duct burners; and one reheat, condensing STG. Additionally, the Project will utilize a 10-cell cooling tower and a steam-surface condenser. An auxiliary boiler will be used for heating steam to accommodate a faster Project startup. The Project will include two 20- to 345-kV step-up transformers (for one CTG and the STG) and one 20- to 138-kV step-up transformer for the second CTG. The CTGs and STG will be located indoors.

(b) Storage Facilities

On-site storage facilities include several storage tanks containing water, fuel, and other materials required for Project operations. Table 03-2 outlines the on-site storage facilities.

TABLE 03-2
STORAGE FACILITIES

Material	Size/Volume
Aqueous Ammonia Storage Tank	40,000 gallons
Fire Water Tank	300,000 gallons
Demineralized Water Tank	150,000 gallons
Blowdown Tank	Two, 3,750-gallon tanks
STG Drains Tank	2,700 gallon
Hydrogen Storage Bottles	Three 16 cylinder pack, 261 standard cubic feet per cylinder
Seal Oil Storage Tank	275 gallons

All storage tanks containing hydrocarbons will be contained within secondary containment capable of holding 110 percent of the volume of the tank. Drains will be placed in unloading areas to catch and contain any released material.

In association with ancillary equipment, as described in Section 4906-4-03(B)(2)(g), a 400-gallon double containment ultra-low sulfur distillate (ULSD) storage tank will be incorporated into the fire water pump, and a 1,800-gallon double containment ULSD storage tank integrated into the emergency generator.

(c) Processing Facilities

Natural gas will be supplied to the Project by one of four possible local gas transporters. The CTG requires a minimum pressure of 550 psig. All of the potential gas suppliers, with the exception of the yet-to-be-built NEXUS gas line, are expected to have sufficient pressure available without the need for an on-site natural gas compressor.

The Project will incorporate a condensate system, which will be designed to provide water sufficiently de-aerated and with the proper water chemistry to meet HRSG and steam turbine requirements. The condensate system will provide sufficient capacity for operation over the entire ambient range and supply water to the auxiliary boiler.

Boiler feedwater will be supplied by a three-element feedwater control system for each section of the HRSG. Chemical treatment of the boiler feedwater will be accomplished using chemical feed equipment. Although the particular treatment program for this Project has not yet been determined, a typical program would include corrosion inhibitor injected to the HRSG steam drum, oxygen scavenger injected into the HRSG, and pH control amine injected into the boiler feedwater pump suction piping.

(d) Water Supply and Discharge

As described in Section 4906-4-03(1)(*e*), 100 percent of the Project's water supply will be potable water from the City of Toledo, providing an opportunity for Toledo and Oregon to connect their systems for added flexibility and reliability.

Wastewater will be discharged to the existing City of Oregon POTW via an interconnection to the existing pipeline in North Lallendorf Road.

(e) Transmission Facilities

The Project will interconnect to the FirstEnergy Lallendorf 345-kV and Bayshore-Chev GM Powertrain 138kV transmission lines, located approximately 1,200 feet north of the Project Site. Electrical infrastructure includes two 20- to 345-kV step-up transformers and one 20- to 138-kV step-up transformer located in a collector bus on the Project Site, west of the generating equipment. From the Project Site, an approximately 0.5-mile 345-kV electrical interconnection will connect the on-site collector bus to the sixth breaker to be constructed in the existing Lallendorf Switchyard. An approximately 0.2-mile 138-kV electrical interconnection will connect the on-site collector bus to the new 138-kV Utility Switchyard. Tie-in to the regional grid will be the responsibility of FirstEnergy.

CEF-O has multiple options for the delivery of natural gas to the Project. The primary option is to utilize the existing North Coast Gas Transmission line that currently serves the nearby Oregon Clean Energy Center. Sufficient excess available capacity exists in this 24-inch diameter gas lateral to also serve the Project's needs. However, because the contractual arrangement is not yet finalized or certain, CEF-O has been actively pursuing three additional options to meet the Project's fuel needs. The existing Dominion and Columbia systems and a new NEXUS gas line are among the options under consideration. The natural gas infrastructure will be the subject of separate regulatory proceedings under the

jurisdiction of either the Federal Energy Regulatory Commission (FERC) or the OPSB.

(f) On-Site Electric Components

Two 20- to 345-kV step-up transformers (for one CTG and the STG), and one 20- to 138-kV step-up transformer for the second CTG will make up the collector bus located in the western portion of the Project Site. A 0.5-mile, 345-kV transmission line will stretch from the on-site collector bus to the Lallendorf Switchyard, located northwest of the Project Site. A 0.2-mile, 138-kV transmission line will stretch from the on-site collector bus to the new 138-kV Utility Switchyard, proposed on 1 acre within the Electrical Interconnection Property.

(g) Ancillary Facilities

In addition to the power generation equipment, the Project will comprise various ancillary facilities, including: an auxiliary boiler; an emergency fire pump; and a stand-by emergency diesel generator.

The auxiliary boiler will use natural gas as the primary fuel, and operate as needed to keep the HRSG warm during periods of shutdown and provide steam to the STG during startups. The auxiliary boiler will have a maximum input capacity of 37.8 million British thermal units per hour (MMBtu/hr), and will be limited to 2,000 hours of total operation per year.

A complete fire protection/detection system will be designed and incorporated into the Project. Detection will include automatic ionization or photo-electric smoke detectors, heat detectors, flame detectors, and gas detectors, as well as manual push button alarms. The fire extinguishing system will include fixed

water fire suppression systems, fire hose stations, hydrants, potable fire extinguishers, and detection and control systems. The system will include a motor-driven fire pump and an ULSD engine-driven fire water pump (an approximately 400-gallon double containment ULSD storage tank will be integrated into the unit). It will designed in accordance with National Fire Protection Association (NFPA) standards and insurer's recommendations. All fire protection equipment and systems will be Underwriters' Laboratory-approved and comply with the requirements of the City of Oregon's fire protection authority and CEF-O's insurance carrier.

The emergency generator will be a 1,140-kilowatt (kW) (mechanical) diesel engine-driven generator designed to safely shut the Project down in the event of a disruption of power delivery. The generator will provide power to essential services necessary to protect the equipment. ULSD will be utilized, stored in an approximately 1,800-gallon double containment tank integrated into the skid equipment.

(h) Meteorological Towers

Since the proposed Project does not include the installation of any meteorological towers, this section is not applicable.

(i) Transportation Facilities

The Project Site is located in close proximity to a strong transportation network, including several major highways (Interstate 280 and Route 2) and railways. Temporary access roads off Corduroy Road may be used during construction; however, permanent Project access will be off Parkway Road, which

extends eastward off North Lallendorf Road. A Traffic Management Plan is provided in Appendix B that describes anticipated transportation during construction.

Access associated with the electrical interconnection will be determine in consultation with FirstEnergy; several potential access road options are shown on Figure 03-2. The gravel access road will lie within a 100-foot easement, and will be approximately 20 feet wide. Depending upon the option selected, either one or two ditch crossings will be required. Appropriate culvert sizing and authorization by the United States Army Corps of Engineers (USACE) will be obtained for the selected option, and other appropriate environmental studies (e.g., cultural resource investigations) will be completed prior to construction.

(j) Laydown Areas

A total of 88 non-contiguous acres, encompassing nine nearby properties, are available for temporary laydown during Project construction. The 23.5-acre Southern Laydown Area is the primary area proposed for temporary construction laydown, with additional area available on the Western Laydown Area, the Eastern Laydown Area, and the Electrical Interconnection Property.

(k) Security

There will be no public access to the proposed Project. A security fence will be installed around the Project with card-activated gates and Project operator access control.

(l) Other Installations

No other installations have been identified.

(3) Description of New Transmission Facilities

(a) Electric Transmission Line

System interconnection studies have been initiated with PJM for 955 MW, with the input of FirstEnergy. The PJM Feasibility Study was completed in June 2016 (Appendix C), with completion of the System Impact Study anticipated in April 2017.

The Project will interconnect with both the adjacent FirstEnergy Lallendorf 345-kV line and the Bayshore-Chev GM Powertrain 138-kV line, located approximately 1,200 feet north of the Project Site. These transmission circuits were identified as the primary Points of Interconnection within the Feasibility Study analysis initially completed by PJM/FirstEnergy, as part of the Project's PJM Queue Evaluation. In order to accommodate the Project's interconnection and FirstEnergy's 345-kV and 138-kV circuits, the existing 345-kV Lallendorf Switchyard (a 5-breaker ringbus) will be expanded to a 6-breaker ringbus. In addition, the Utility Switchyard (a new 3-breaker 138-kV ringbus) will be constructed. Both will be located adjacent to and south of the FirstEnergy ROW in which lie the 345-kV and 138-kV circuits.

Each of the three power generators (the two CTGs and the STG) will have three generator leads. Power generated by one of the CTGs and the STG will be "stepped up" to 345 kV prior to being conveyed to the existing 345-kV Lallendorf Switchyard, in which a sixth breaker will be constructed. Power generated by the other CTG will be "stepped up" to 138 kV prior to be conveyed to the new off-site 138-kV Utility Switchyard.

(b) Natural Gas Pipelines

The Project is designed to burn natural gas as its only fuel to make electricity. Assuming that the Project is operating at the maximum net output of 955 MW it will consume approximately 146 million cubic feet (MMcf) per day of natural gas, or an hourly consumption of 6.1 MMcf.

Because the City of Oregon has a variety of industrial and commercial entities along Lallendorf Road and in the broader surrounding area, gas transmission infrastructure exists throughout the City. Figure 03-6 illustrates existing gas infrastructure located in northwestern. The Project is located in Lucas County, within close proximity of several existing lines, including the North Coast Gas Transmission LCC -99 line and the Columbia Gas Transmission Corp 18 line. In addition, the new NEXUS gas line is slated to pass just south of Oregon.

Once the options are more fully evaluated, the appropriate option will be selected. The natural gas infrastructure will be the subject of separate regulatory proceedings under the jurisdiction of either the FERC or the OPSB.

(4) Map of Project Site

Figure 03-2 illustrates the proposed Project on an aerial photograph overlain with the Project layout, showing surrounding road names and major features of the proposed Project.

(C) DETAILED PROJECT SCHEDULE

(1) Schedule

The planning stages for the Project began in the middle of 2015, with an ultimate goal of being fully functional and operational by summer 2020 in order to sell

capacity/energy into the grid as early as June 1, 2020. PJM's Capacity Auction process dictates the timeline as to when capacity should be made available. The PJM Capacity Auction dictated that a facility must commit to supply capacity starting June 1, 2020 and continue for a year. With a goal of Project operation by summer 2020, CEF-O would like to have all essential permits approved by fall 2017. Once permits are obtained, financing can be concluded at the end of 2017 and construction can begin in early 2018.

Figure 03-7 provides the proposed Project schedule for major activities and milestones. This schedule is based on the submission of this Application in April 2017, the receipt of the OPSB certificate in the fall of 2017, and placing the Project into commercial operation by summer 2020.

(2) Construction Sequence

Initial construction activities will commence following certification by the OPSB and receipt of other environmental permits. Site preparation and demolition, grading, Project Site access, stormwater management, and underground utilities will be completed, followed by equipment foundations.

As equipment foundations are completed, CTGs, tanks, pumps, and electric equipment will be installed. During this same period, electrical cable, piping, and pre-engineered metal buildings will be installed. As the various equipment components are installed, system checkout and testing activities will be performed to ensure the plant conforms to design specifications. After completing checkout, inspection, and testing activities, the Project will be started up for operation.

In conjunction with initial startup and testing of the Project, finish coatings, insulation, paving, and landscaping activities will be completed.

(3) Delays

It is crucial that the proposed in-service date of summer 2020 be achieved in order to meet the anticipated summer peak load demand. CEF-O intends to enter the PJM Incremental Capacity Auction to for delivery of power from summer 2020 to summer 2021. Therefore, the OPSB certificate must be issued prior to a late summer construction start date in order for the Project to be completed on schedule. A delay in the schedule before the beginning of construction would jeopardize the Project's ability to meet summer demand in 2020, potentially lowering the region's available capacity and resulting in significant performance penalties payable by CEF-O for not meeting PJM's contractual performance date (starting in June 2020). Based on PJM's Incremental Capacity Auction rules/procedures, CEF-O must make contractually binding commitments to supply capacity beginning in June 2020 (for a one-year contractual capacity supply period).

Section 4906-4-03: Figures

- **Figures 03-1A and B: Surrounding Area within Two Miles**
- **Figure 03-2: Proposed Project and Vicinity**
- **Figure 03-3: Plot Plan**
- **Figure 03-4: Project Rendering**
- **Figure 03-5: Water Balance**
- **Figure 03-6: Natural Gas Options**
- **Figure 03-7: Project Schedule**

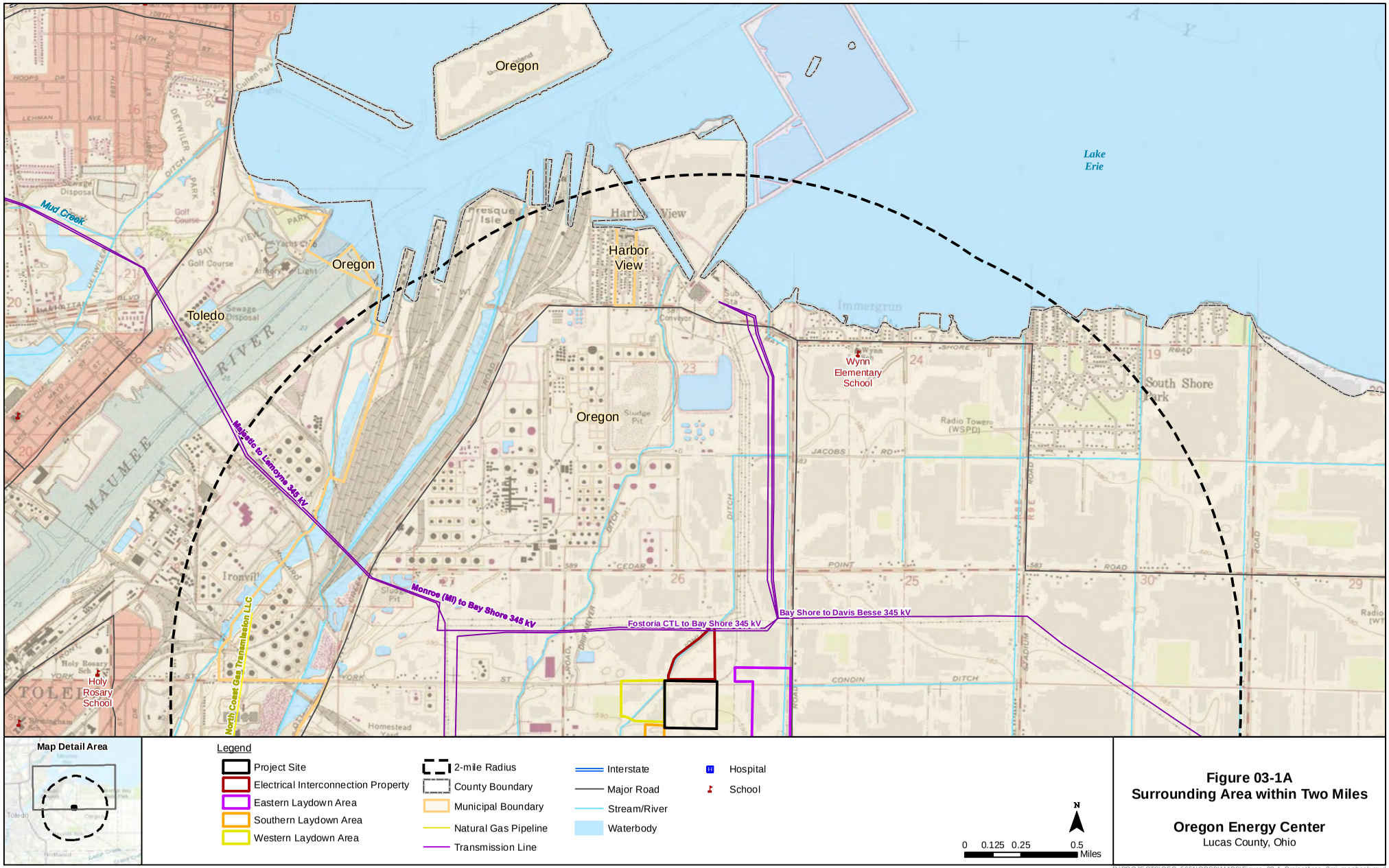

Figure 03-1A
Surrounding Area within Two Miles

Oregon Energy Center
Lucas County, Ohio

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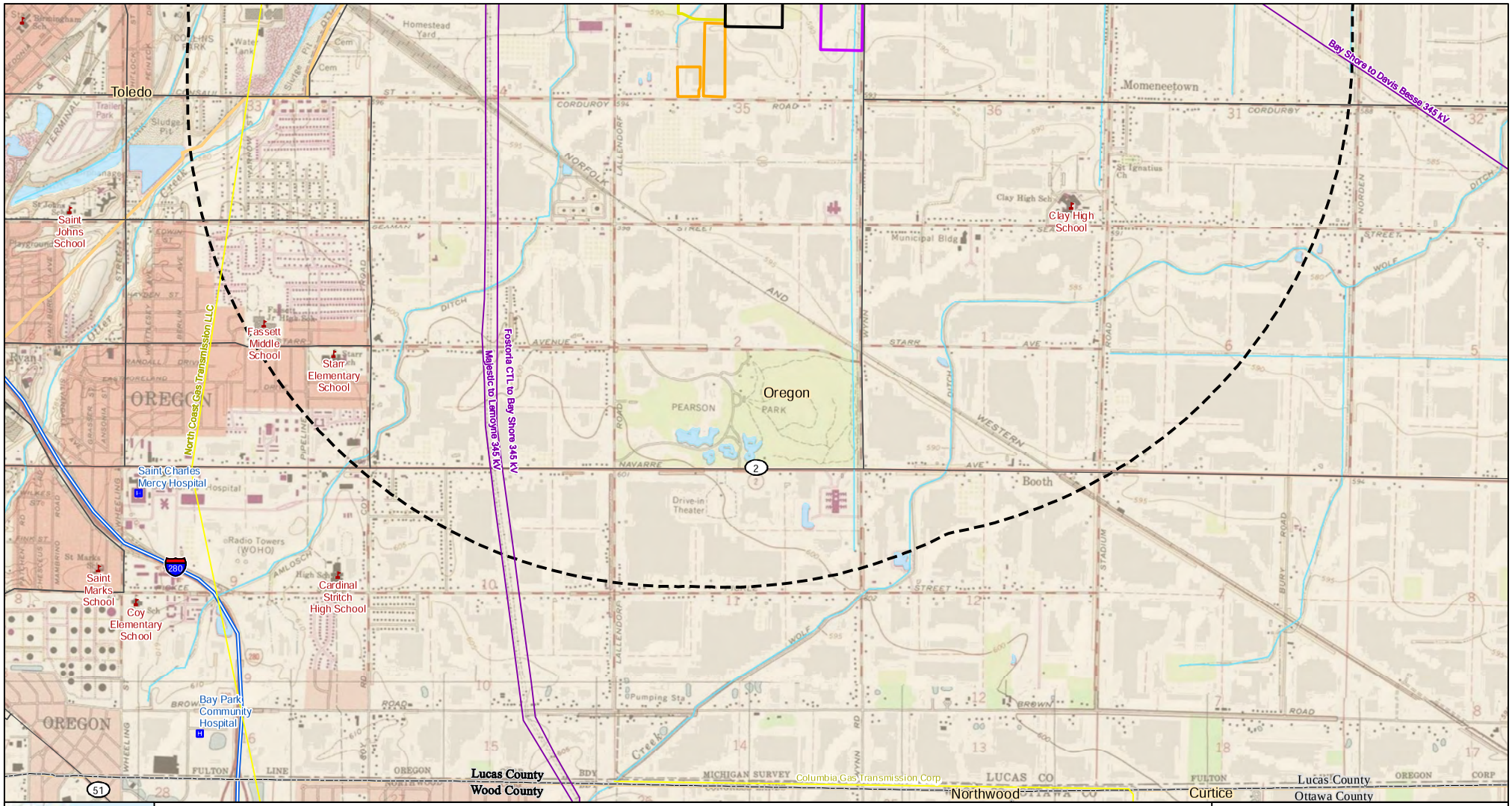

Map Detail Area

Legend

- Project Site
- Electrical Interconnection Property
- Eastern Laydown Area
- Southern Laydown Area
- Western Laydown Area
- 2-mile Radius
- County Boundary
- Municipal Boundary
- Natural Gas Pipeline
- Transmission Line
- Interstate
- Major Road
- Stream/River
- Waterbody
- Hospital
- School

N

0 0.125 0.25 0.5 Miles

Figure 03-1B
Surrounding Area within Two Miles

Oregon Energy Center
Lucas County, Ohio

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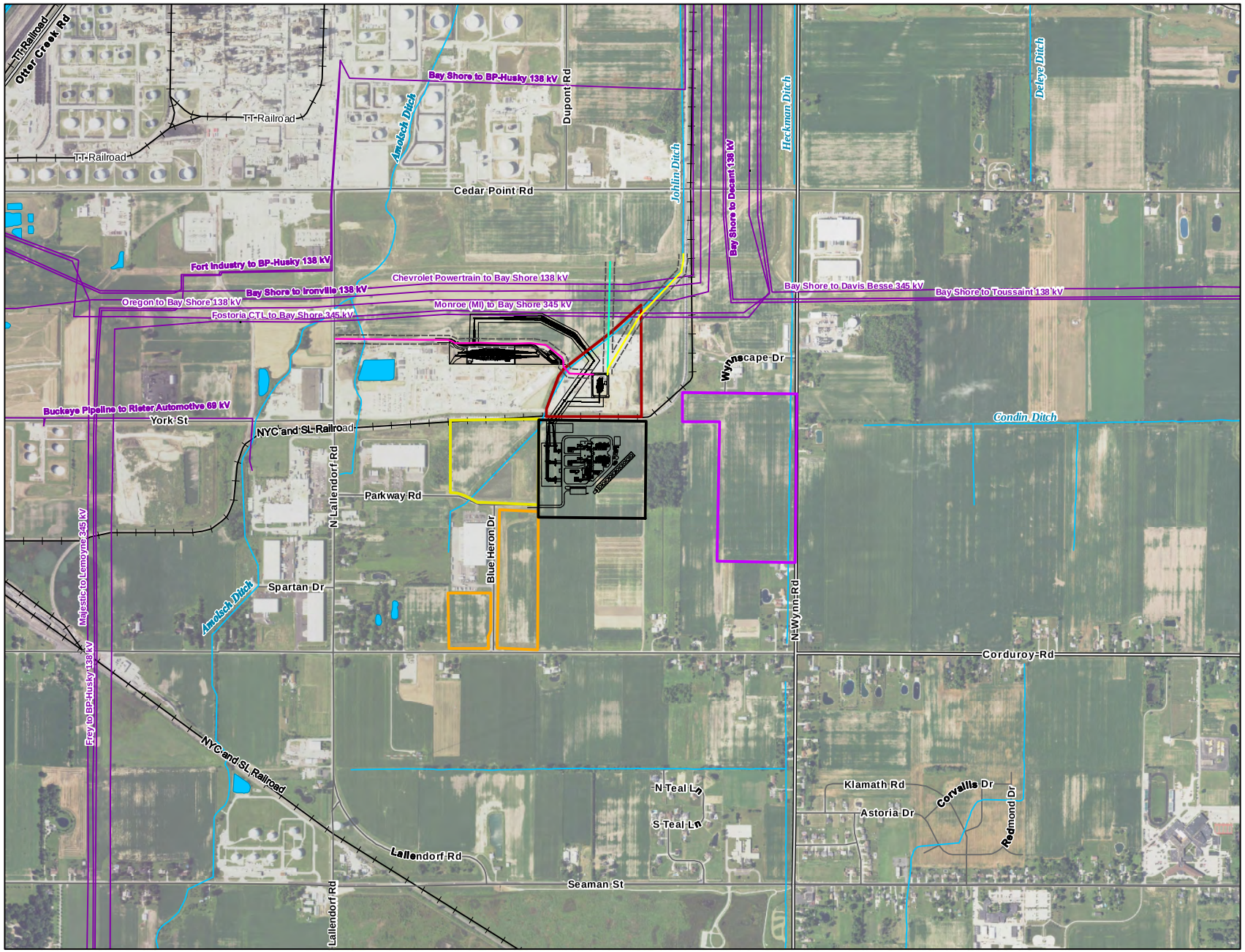

Figure 03-2
Proposed Project and Vicinity

Oregon Energy Center
Lucas County, Ohio

Legend

- Project Site
- Electrical Interconnection Property
- Eastern Laydown Area
- Southern Laydown Area
- Western Laydown Area
- Access Option #1
- Access Option #2
- Access Option #3
- Access Road Easement
- Facility Footprint
- Major Road
- Local Road
- Railroad
- Transmission Line
- NHD Stream
- NHD Waterbody

No Natural Gas pipelines in the map vicinity.

N

0 0.2 0.4
Miles

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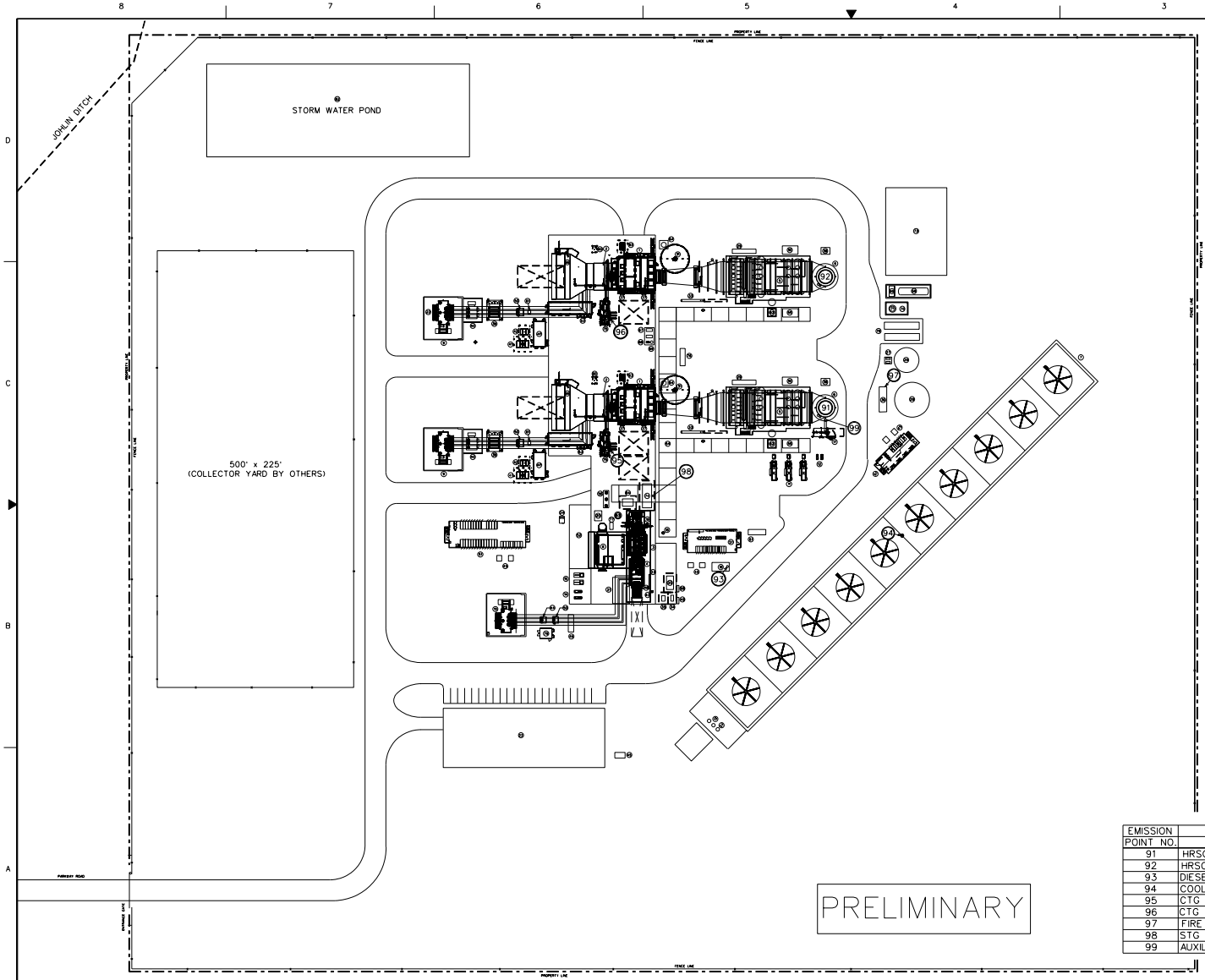

EQUIPMENT NUMBER	EQUIPMENT NAME
1	COMBUSTION TURBINE (CT)
2	COMBUSTION TURBINE GENERATOR (CTG)
3	LP STEAM TURBINE (ST)
4	STEAM TURBINE GENERATOR (STG)
5	HEAT RECOVERY STEAM GENERATOR (HRSG)
6	EXHAUST STACK
7	COOLING TOWER
8	SURFACE CONDENSER
9	CTG MAIN TRANSFORMER
10	STG MAIN TRANSFORMER
11	BOILER FEED PUMPS
12	CONDENSATE RECIRCULATION PUMPS
13	MAIN CIRCULATING WATER PUMPS
14	CLOSED COOLING WATER PUMPS
15	CLOSED COOLING WATER EXCHANGERS
16	CLOSED COOLING WATER EXPANSION TANK
17	AUXILIARY BOILER
18	DIESEL GENERATOR
19	HP/IP STEAM TURBINE
20	ST GLAND STEAM CONDENSER
21	ST VACUUM UNITS
22	ADMIN & CONTROL AND WAREHOUSE BUILDING
23	ST SEAL OIL STORAGE TANK
24	STG DRAINS TANK SUMP PUMPS
25	ST SEAL OIL SKID
26	DEMINERALIZED WATER TANK
27	DEMINERALIZED WATER PUMPS
28	FIRE WATER TANK
29	DUCT FIRE SKID
30	SCR SKID
31	FUEL GAS MAIN
32	COLLECTOR YARD
33	FUEL GAS CONDITIONING PACKAGE
34	ST HYDROGEN SKID
35	ST BEARING EXHAUSTER
36	FIREWATER PUMP HOUSE WITH DIESEL, ELECTRIC AND JOCKEY PUMPS
37	CTG FIRE PROTECTION SKID
38	CEMS ENCLOSURE
39	GENERATOR CIRCUIT BREAKER
40	UNIT AUXILIARY TRANSFORMER
41	SFC TRANSFORMER
42	CT EXCITATION TRANSFORMER
43	ST LIQUID LEVEL DETECTOR RACK
44	ST EXCITATION TRANSFORMER
45	MV/LV TRANSFORMERS
46	STG CONTROL CABINETS
47	SFC/BEE PACKAGE
48	ST GAS DRYER SKID
49	ST HYDROGEN STORAGE BOTTLES
50	VTSA CABINET
51	POWER DISTRIBUTION CENTER (PDC)
52	AUX ELECTRICAL ROOM
53	SIEMENS ELECTRICAL COMPARTMENT
54	PIPE RACK
55	FEEDWATER CHEMICALS
56	CONDENSATE EXTRACTION PUMPS
57	AUXILIARY COOL DOWN PUMP
58	AQUEOUS AMMONIA STORAGE TANK
59	ST ARGON STORAGE BOTTLES
60	WATER WASH SKID (PORTABLE UNIT)
61	OIL/WATER SEPARATOR & PUMPS
62	BLOWDOWN TANK/SUMP
63	STG DRAINS TANK
64	WATER WASH DRAIN TANK
65	AMMONIA FORWARDING PUMPS
66	AIR INLET FILTER HOUSE
67	AIR COMPRESSORS
68	AIR DRYER
69	AIR RECEIVER
70	CIRC WATER CHEMICALS
71	SODIUM HYPOCHLORITE STORAGE TANK
72	NOT USED
73	FUEL GAS COMPRESSORS
74	ST LUBE OIL SKID
75	LUBE OIL SKID
76	SAMPLING PANEL
77	ELECTRIC STEAM SUPERHEATER
78	DEMIN TRAILERS
79	ST EXCITATION PACKAGE
80	NOT USED
81	STARTING SWITCH / VT AND SA CUBICLE
82	RETENTION POND
83	GT AIR PROCESSING UNIT
84	ST HYDRAULIC SKID

PRELIMINARY

EMISSION POINT NO.	DESCRIPTION	UTM COORDINATE SYSTEM (ZONE 17, NAD83) NORTH (METERS)	EAST (METERS)
91	HRSG 1 STACK	4,615,514.534	297,092.816
92	HRSG 2 STACK	4,615,560.133	297,092.754
93	DIESEL GENERATOR STACK	4,615,459.166	297,058.776
94	COOLING TOWER	4,615,469.996	297,119.555
95	CTG 1 LUBE OIL VENT	4,615,499.482	297,018.106
96	CTG 2 LUBE OIL VENT	4,615,545.107	297,018.043
97	FIRE PUMP STACK	4,615,522.076	297,113.775
98	STG LUBE OIL VENT	4,615,483.741	297,032.804
99	AUXILIARY BOILER	4,615,510.444	297,092.827

REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REV	DATE	REVISION DESCRIPTION	BY	CHK	APPV	REFERENCE DWG NUMBER	REFERENCE DRAWINGS
G11	3/9/17	ISSUED FOR REVIEW	TD	MS	TQ								

PLOT DATE:

FILEPATH: \AVSPFIL013\AV_POWERGROUP\CEF\CEF OREGON OH\CEF SEIMENS PLOT PLAN UPDATE\REV G11\CEFO-PP-5-01 REV G11.DGN

FLUOR.

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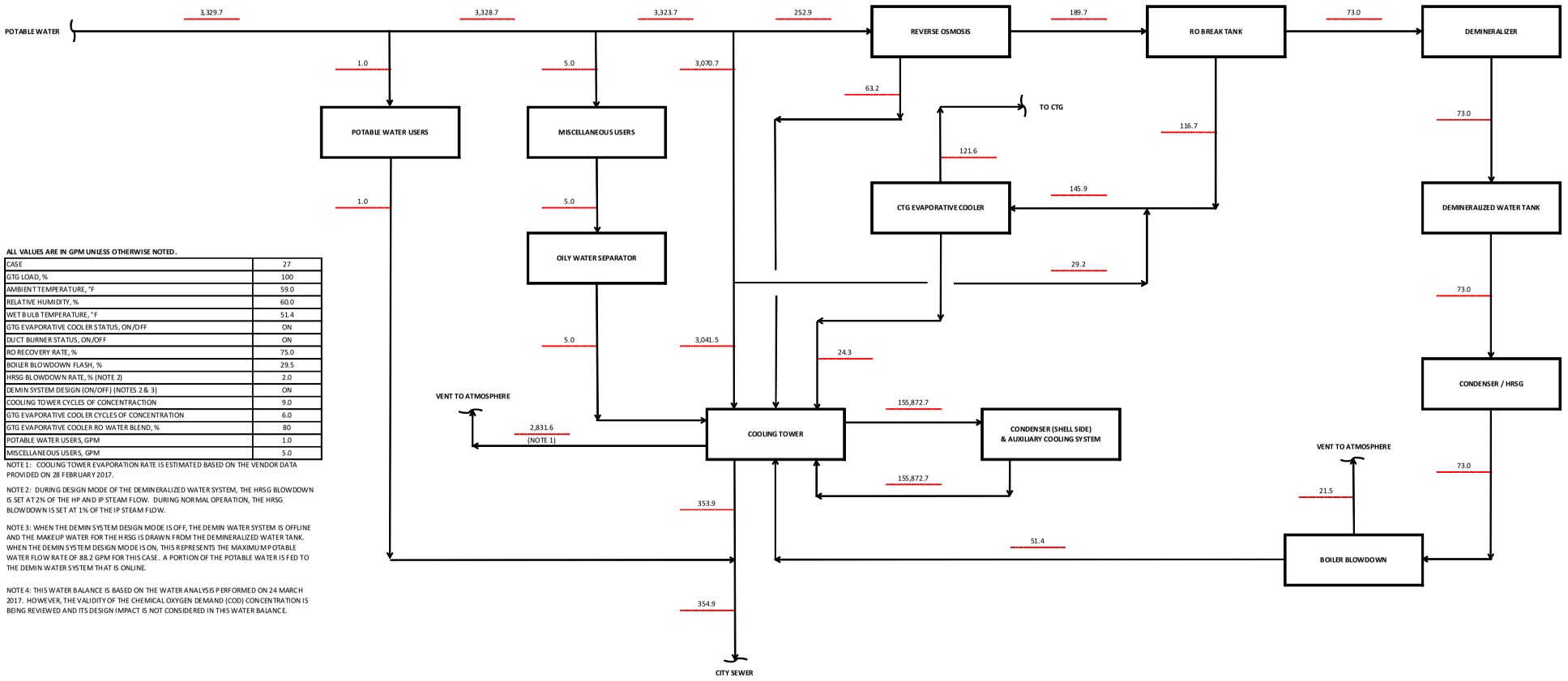
CONTRACT	C3F.A	
DESIGNED BY	TD	
CHECKED BY	MS	
SUPERVISOR	TQ	APP DATE 10/12/16
LEAD ENGR/SPEC.	JG	APP DATE 10/12/16
FLUOR	CJ	APP DATE 10/12/16
CLIENT		APP DATE

Figure 03-3
Plot Plan

Oregon Energy Center
Lucas County, Ohio

Figure 03-4
Project Rendering

Oregon Energy Center
Lucas County, Ohio



ALL VALUES ARE IN GPM UNLESS OTHERWISE NOTED.

CASE	27
GTG LOAD, %	100
AMBIENT TEMPERATURE, °F	59.0
RELATIVE HUMIDITY, %	60.0
WET BULB TEMPERATURE, °F	51.4
GTG EVAPORATIVE COOLER STATUS, ON/OFF	ON
DUCT BURNER STATUS, ON/OFF	ON
RO RECOVERY RATE, %	75.0
BOILER BLOWDOWN FLASH, %	29.5
HRSG BLOWDOWN RATE, % (NOTE 2)	2.0
DEMIN SYSTEM DESIGN (ON/OFF) (NOTES 2 & 3)	ON
COOLING TOWER CYCLES OF CONCENTRACTION	9.0
GTG EVAPORATIVE COOLER CYCLES OF CONCENTRATION	6.0
GTG EVAPORATIVE COOLER RO WATER BLEND, %	80
POTABLE WATER USERS, GPM	1.0
MISCELLANEOUS USERS, GPM	5.0

NOTE 1: COOLING TOWER EVAPORATION RATE IS ESTIMATED BASED ON THE VENDOR DATA PROVIDED ON 28 FEBRUARY 2017.

NOTE 2: DURING DESIGN MODE OF THE DEMINERALIZED WATER SYSTEM, THE HRSG BLOWDOWN IS SET AT 2% OF THE HP AND IP STEAM FLOW. DURING NORMAL OPERATION, THE HRSG BLOWDOWN IS SET AT 1% OF THE IP STEAM FLOW.

NOTE 3: WHEN THE DEMIN SYSTEM DESIGN MODE IS OFF, THE DEMIN WATER SYSTEM IS OFFLINE AND THE MAKEUP WATER FOR THE HRSG IS DRAWN FROM THE DEMINERALIZED WATER TANK. WHEN THE DEMIN SYSTEM DESIGN MODE IS ON, THIS REPRESENTS THE MAXIMUM POTABLE WATER FLOW RATE OF 88.2 GPM FOR THIS CASE. A PORTION OF THE POTABLE WATER IS FED TO THE DEMIN WATER SYSTEM THAT IS ONLINE.

NOTE 4: THIS WATER BALANCE IS BASED ON THE WATER ANALYSIS PERFORMED ON 24 MARCH 2017. HOWEVER, THE VALIDITY OF THE CHEMICAL OXYGEN DEMAND (COD) CONCENTRATION IS BEING REVIEWED AND ITS DESIGN IMPACT IS NOT CONSIDERED IN THIS WATER BALANCE.

REV	DATE	DESCRIPTION	ENG	CHK	APP
C	April 3, 2017	REISSUED FOR REVIEW	KYC	MS	CL
B	November 4, 2016	ISSUED FOR REVIEW	KYC	MS	CL
A	July 13, 2016	ISSUED FOR INFORMATION	KYC	STT	GGW

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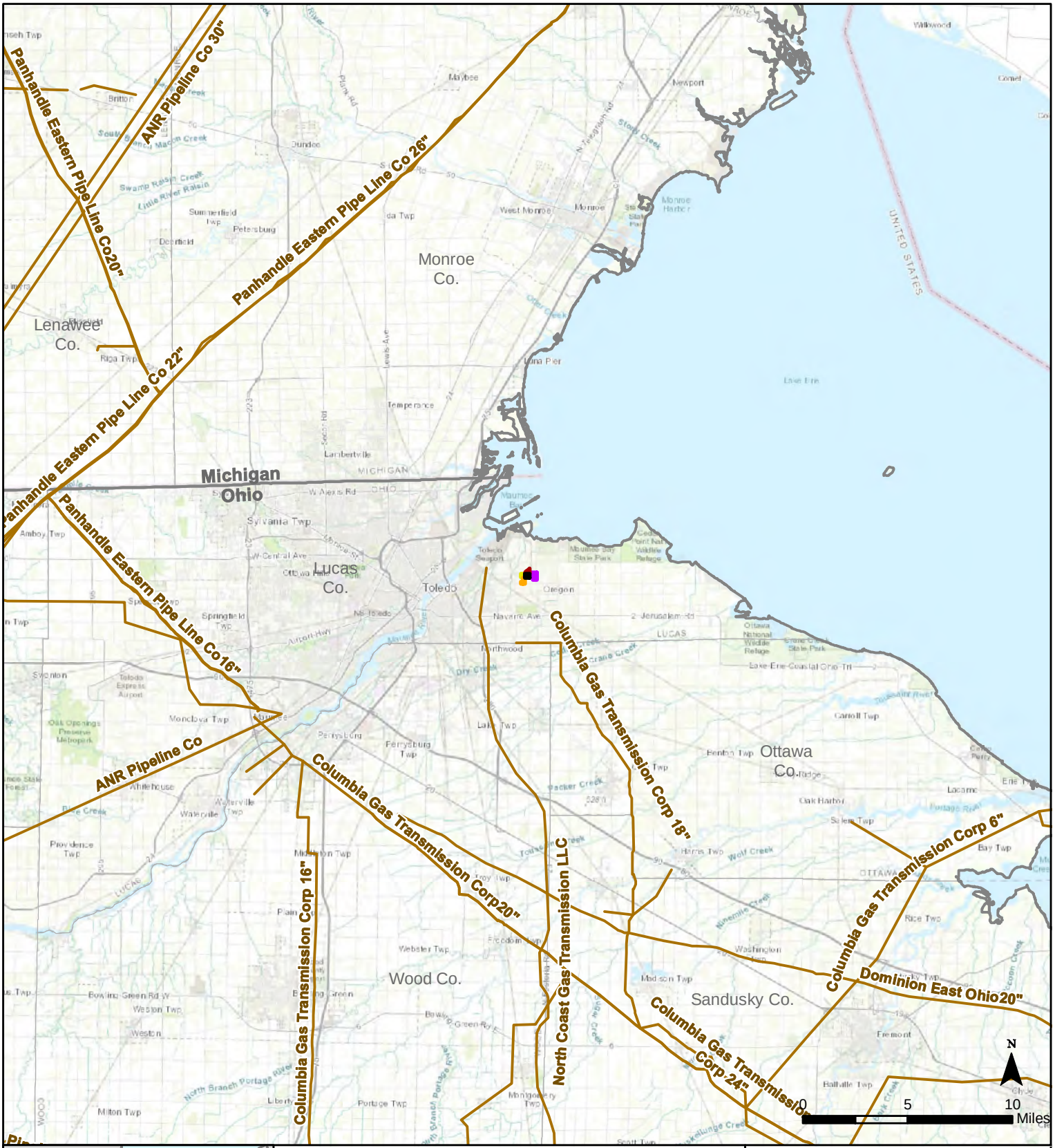
Figure 03-5
Water Balance

Oregon Energy Center
Lucas County, Ohio



Legend

- Project Site
- Electrical Interconnection Property
- Eastern Laydown Area
- Southern Laydown Area
- Western Laydown Area
- Natural Gas Pipeline (Owner and Diameter)

Figure 03-6
Natural Gas Options

Oregon Energy Center
Lucas County, Ohio

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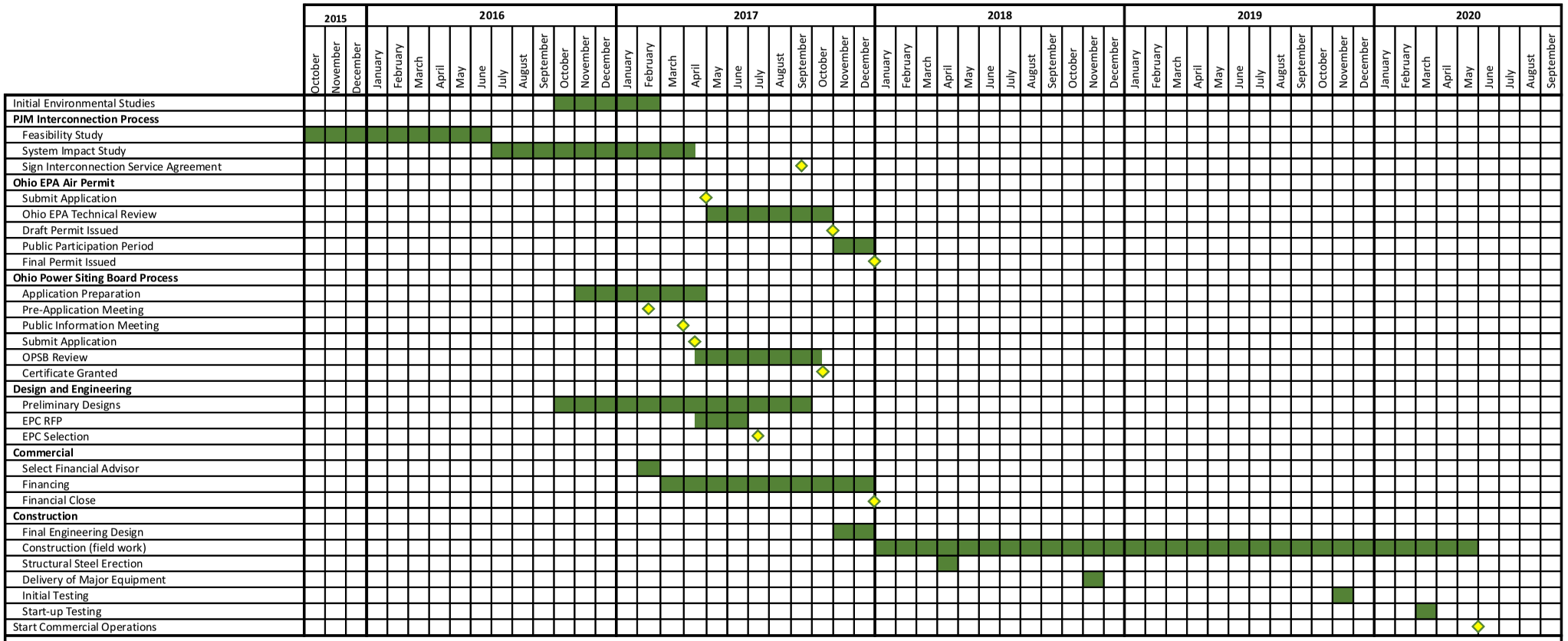

Figure 03-7
Project Schedule

Oregon Energy Center
Lucas County, Ohio

4906-4-04 Project Area Selection and Site Design

(A) SITE SELECTION PROCESS

(1) Description of Study Area

CEF-O has extensive experience in understanding energy markets and locations for potential electricity demand. Research beginning in the summer of 2010 focused on the potential future closure of several thousand megawatts of aging and environmentally challenged coal-fired power plants throughout the 13-state PJM system. Within Ohio alone, 10,003 MW of coal-fired generation has closed. Within northwestern Ohio and southern Michigan, the coal retirements include: Toledo – ACME (288 MW); J.R. Whiting (328 MW); and Bay Shore, Units 1 through 4 (631 MW). Economically challenged regional plants include: Avon Lake coal (778 MW) and Davis Besse nuclear (890 MW). With these existing and upcoming closures, the northwestern Ohio region will soon be short of capacity and dependent on imported power, resulting in higher prices for electricity by ratepayers in that region. Terry Boston, the then President and Chief Executive Officer of PJM, labeled the coal plant closures in the greater Lake Erie region as "unprecedented" in PJM's 2013 Annual Report.[2]

The low cost of gas and the high efficiency of the combined cycle gas turbine (CCGT) technology as compared to coal-burning makes electrical energy from coal 100 percent higher than energy from CCGT, making the remaining coal-fired units at risk of closure.

[2] PJM, 2013. *Annual Report (Issued May 2014)*. Retrieved from http://www.pjm.com/about-pjm/who-we-are/annual-report.aspx.

In addition to the near-term need for electricity in the Ohio region projected by PJM in its public reports and meetings, CEF-O also has extensive experience working within this particular region, most notably in Oregon, Ohio; Fremont, Ohio; and Lordstown, Ohio. For these reasons, CEF-O determined that identifying a site within the PJM region, with a specific focus on northwestern Ohio, would be more appropriate than within other regions of the United States.

(2) Maps of Evaluated Alternate Sites

Within the very expansive 13-state PJM region, several states were considered, including Indiana, Maryland, Pennsylvania, Ohio, and Virginia. In addition to capacity needs, transmission constraints, and pricing structure were considered as well as other economic factors and the complexity and anticipated timeline associated with applicable regulatory processes. CEF-O intended to focus its efforts and resources on a single project with the most favorable characteristics possible. Through this evaluation, it was determined that Ohio – and specifically, potential locations in northwestern and northeastern Ohio – yielded the most favorable balance of attributes.

(3) Siting Criteria

Careful site evaluation was undertaken to determine suitability for the proposed Project. In addition to the need for new generation, CEF-O considered the following criteria in selecting and evaluating sites:

- Adequate site size;
- Compatible zoning and land use;
- Availability of natural gas alternatives;
- Proximity of robust electrical interconnection;

- Water supply and wastewater discharge alternatives to support a water-cooled facility (due to the higher energy efficiency associated with that cooling technology);
- Strong transportation network;
- No environmental fatal flaws; and
- Community political support for industrial development and this type of project.

(4) Process for Identifying the Proposed Site

Northwestern Ohio was selected as the focus area, as several power generation units, including Toledo ACME (288 MW), J.R. Whiting (328 MW), and Bay Shore Units 1 through 4 (631 MW), have retired or have announced plans to retire generation. In addition, both Avon Lake (coal) (778 MW) and Davis Besse (nuclear) (890 MW) are in precarious financial status. Potential locations within northwestern Ohio were considered using the criteria noted above.

As sites were identified, they were then evaluated as to whether they met the minimum siting criteria. A number of sites were considered that met some, but not all, of the identified and required attributes. In a separate development proposal, a nearby parcel was selected for the Oregon Clean Energy Center, which is currently under construction. The proposed Project Site is 0.05-mile (285 feet) southeast of the Oregon Clean Energy Center, adjacent to and south of a Norfolk Southern rail line and the temporary construction laydown for the Oregon Clean Energy Center. The Project Site, which has historically been used for agricultural production, has minimal vegetation and is characterized by relatively flat topography.

CEF-O, therefore, secured approximately 30 acres of property at the end of Parkway Road as the Project Site. With that option in place, CEF-O filed for a queue position in PJM (AB1-107) to verify the robust nature of the selected point of interconnection, and undertook detailed assessments to review characteristics of the Project Site and confirm key site selection criteria were met.

(5) Factors in Selecting the Proposed Site

The Project Site was one of the locations identified by CEF-O as suitable for the proposed development. Evaluation of key characteristics that would indicate suitability was undertaken to determine feasibility of the Project in this location.

Regional attributes included confirmation that several major coal-fired power plants in Ohio were planning to close before 2020, supporting a need for additional energy generation.

The City of Oregon encourages industrial development, in particular within this portion of the City, which is zoned for commercial and industrial development. The City of Oregon is currently home to several heavy industrial plants, including a coal-fired power plant, two refineries, and the natural gas-fired Oregon Clean Energy Center, which is under construction northwest of the Project Site. From CEF-O's initial introduction of the Project, the City leadership was cooperative and supportive. Discussions with regional entities indicated a robust infrastructure network exists for the Project to tie into, including abundant water sources from the City of Oregon and the City of Toledo.

In addition, the Project Site has significant services and infrastructure in place, such as abundant and economically priced water supply and sewage disposal; direct access to high voltage electrical transmission lines proximate to the Project Site; reinforced roads

and bridges (important when transporting heavy equipment); and other strong transportation attributes such as an active port and a rail spur adjacent to the Site, which are all particularly important during construction phase.

Additionally, the location of the Project Site allows for consideration of several gas supply options, an unusual advantage when developing an independent power production plant. Flexibility in fuel source can lead to particularly competitive pricing, resulting in lower overall energy costs.

(B) PROJECT LAYOUT DESIGN

With the results of independent studies confirming the Project Site as favorable for the proposed Project, CEF-O continued with the more detailed environmental and other studies, as well as Project engineering design, to support the OPSB Application for the Project.

(1) Constraints Map

Figure 04-1 provides constraint mapping completed as part of the critical issues assessment for the Project.

(2) Project Layout and Alternatives Considered

As illustrated in Figure 04-1, known features on the Project Site and in the surrounding area were considered when designing the Project layout. Features considered included: transmission lines; natural gas pipelines; zoning information; nearby sensitive land uses (i.e., schools, parks, residences); transportation corridors; and mapped wetlands and streams. Additionally, although modeling was not completed at this stage, consideration was given to the potential air emissions and noise contribution of the Project. Ancillary components also had to consider these features, specifically,

the electrical interconnection route and equipment, including a sixth breaker added to the Lallendorf Switchyard (which currently has five breakers) and a new Utility Switchyard (with a 3-breaker ringbus configuration). Although more extensive wetland review was conducted following selection of the Project Site, National Wetland Inventory (NWI) mapping did not identify any wetland resources on the Project Site; however, the Johlin Ditch, a National Hydrography Dataset (NHD) riverine lies north of the Project Site between the Project Site and the FirstEnergy ROW, and traverses the Western Laydown Area. According to NWI, a NHD riverine, orientated north-south running parallel to North Wynn Road, lies along the eastern boundary of the Eastern Laydown Area. NWI did not identify any other wetlands or waterbodies within the Study Area; however, a freshwater, forested/shrub wetland is located adjacent to the east of the Project Site, on land between the Project Site and the Eastern Laydown Area. Field delineations confirmed the NWI mapping and did not identify any additional wetland or surface water resources within the Study Area.

Selection of equipment depended mostly on negotiations with vendors, with consideration given to the air emissions, noise emissions, and overall dimensions of the proposed equipment. CEF-O's extensive experience with these type of power generation facilities allowed for a scrupulous evaluation and selection of the proposed Project equipment.

(3) Comments Received

A public informational meeting was held on March 30, 2017, with more than 30 attendees present. Information displayed at the meeting is presented in Appendix D, along with blank copies of the sign-in and comment sheets utilized. No written comments

from the people in attendance were received. Attendees expressed interest in details of the Project location, and in potential job opportunities. Given the construction of the Oregon Clean Energy Center in the immediate vicinity, some discussion focused on those ongoing activities. CEF-O will continue to coordinate with local residents and officials throughout all phases of the Project.

Section 4906-4-04: Figures

- **Figure 04-1: Site Selection Constraints**

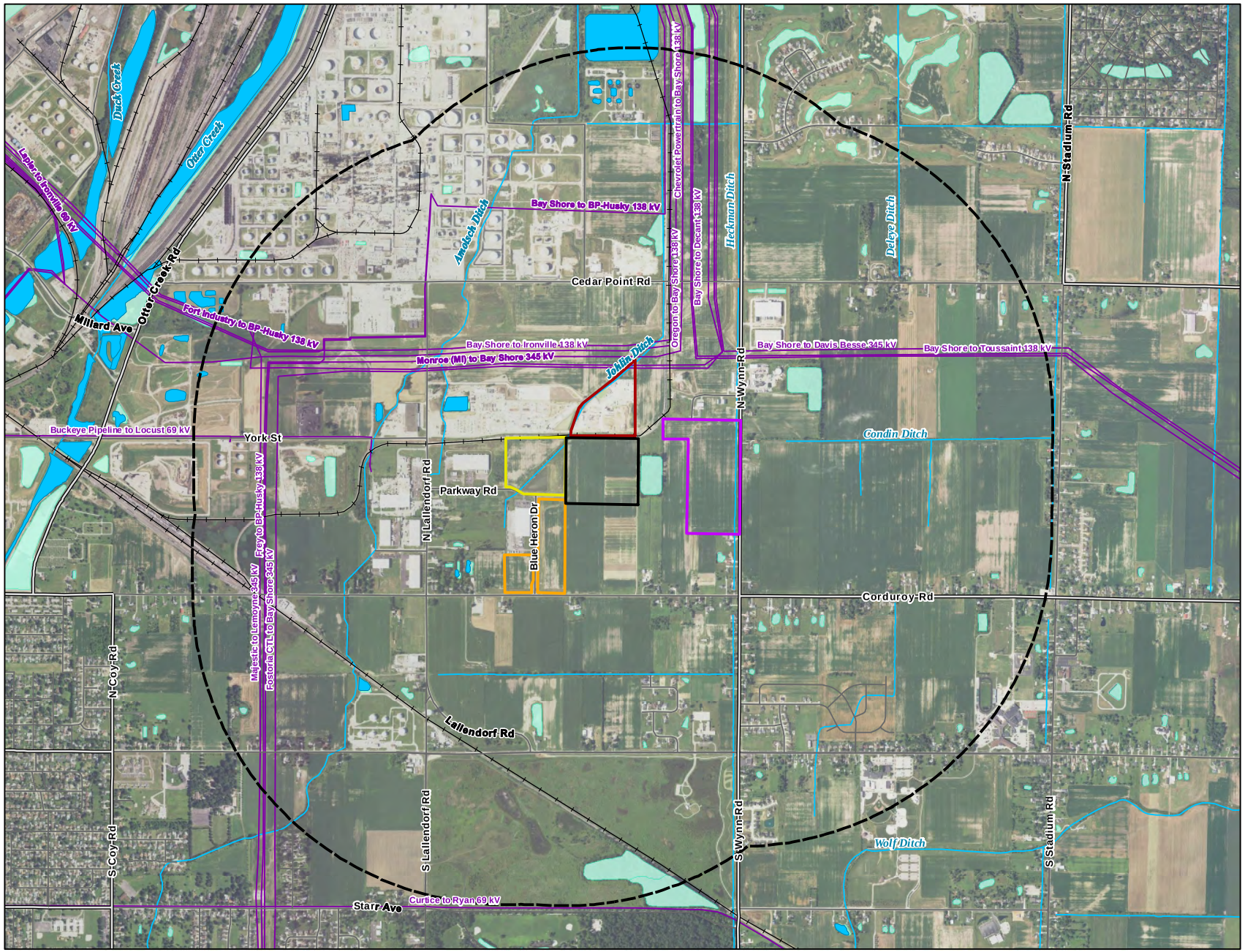

Figure 04-1
Site Selection Constraints

Oregon Energy Center
Lucas County, Ohio

Legend

- Project Site
- Electrical Interconnection Property
- Eastern Laydown Area
- Southern Laydown Area
- Western Laydown Area
- 1-mile Buffer
- Major Road
- Local Road
- Railroad
- Transmission Line
- NHD Stream
- NHD Waterbody
- NWI Wetlands

*No known schools or recreational facilities in project vicinity.

N

0 0.25 0.5
Miles

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Summary: Application of Clean Energy Future-Oregon, LLC Part 1: Application through Section 4 electronically filed by Teresa Orahood on behalf of Sally W. Bloomfield