CPV TOWANTIC, LLC

DEVELOPMENT AND MANAGEMENT PLAN

SUBMITTED TO CONNECTICUT SITING COUNCIL

JULY 17, 2015

(COPY)

Development and Management Plan

a) A final site plan showing all roads, structures and other improvements on the site. The final site plan shall, where possible, preserve existing vegetation on the site;

b) A detailed plan for the gas transmission interconnection showing gas metering and compressor station if applicable;

c) Water and sewer connection routes;

d) Detailed project schedules for all work activities and proposed construction hours;

e) Erosion and sedimentation control plans that reflect the complexity of developing the site;

f) Emergency response/safety plan per Condition No. 1(h) of the Decision;

g) Final noise mitigation measures and plans to demonstrate compliance with DEEP noise standards;

h) Final determination on black start capability and such design if applicable;

i) Stormwater pollution protection plan outlining best management practices;

j) Final stormwater design including evaluating the feasibility of not introducing stormwater into the wastewater;

k) Updated Water Supply/Management Plan;

l) Decommissioning Plan;

m) Updated fuel storage and handling plan including containment and other measures to protect against spillage when the ULSD tank is being refilled;

n) Containment and/or protective measures for the safe delivery and storage of hydrogen and aqueous ammonia;

o) Maintenance of detention basins;

p) Backup generator design and containment measures for fuel, oil, and coolant;

q) Final report on wildlife surveys performed in 2015 and any recommended measures to mitigate wildlife impacts due to construction and/or habitat loss;

r) Dewatering plan to address groundwater issues during construction;

s) Final construction traffic route plans;

t) Fence design and other site security measures;

u) Federal Aviation Administration lighting design for the stacks; and

v) Full geotechnical study performed on Lot 9A prior to finalizing construction plans.

**** Note: All referenced site plans in the various responses are located in Section 2(e).***

2(a)

A FINAL SITE PLAN SHOWING ALL ROADS, STRUCTURES AND OTHER IMPROVEMENTS ON THE SITE. THE FINAL SITE PLAN SHALL, WHERE POSSIBLE, PRESERVE EXISTING VEGETATION ON THE SITE.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.a – FINAL SITE PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.a), CPV Towantic, LLC hereby submits final site plans and descriptions for the CPV Towantic Energy Center's (the "Project") facilities.

Discussed below are the key points considered and evaluated in developing the final site plan:

- Site constraints and considerations.
- Adjusted Project facilities.
- Regulatory compliance.
- Final site plan and elevations.

Site Constraints and Considerations

The Project site is comprised of two (2) contiguous parcels totaling 26 acres, and located in the Town of Oxford's industrial zone, as shown on the attached site location map (C_305 Site Plan). The site is surrounded by industrial zones on all sides and is bordered on the north by the existing Algonquin natural gas pipeline right-of-way (ROW) and on the northwest by the existing Eversource 115-kV electric transmission line ROW. These two utility ROW's are important components of the site, since the respective interconnections to these utilities will be made on the plant site or within the ROW that borders the site. The strategic location of the plant site thus avoids disruption and impact to other properties due to interconnecting utility corridors between the ROW's and the Project site.

The existing Eversource 115-kV transmission line ROW easement, which includes three (3) 115-kV transmission lines, crosses the northwest corner of the site. The Project must interconnect to all three lines in this ROW in order to effectively and appropriately interconnect to the electric grid of New England. This requirement dictates the size and orientation of the Project switchyard.

The most efficient use of the site and surrounding land for the switchyard is to locate it as close as possible to the transmission line ROW, preferably at the point where the ROW crosses the Project boundary. This avoids additional ROW requirements to interconnect to these existing 115-kV lines. As such, the Project layout is oriented with the switchyard located in the northern portion of the site, immediately adjacent to the 115-kV lines that cross the northwest corner of the site. This switchyard location then dictates the orientation of the electric generators (two gas turbines and one steam turbine generator) and their associated step-up transformers in the northern portion of the site. Along with the placement of the generators, the switchyard orientation strongly influenced the arrangement of the steam turbine and administrative/warehouse building.

The location of the Waterbury-Oxford Airport also factored into the placement of the combustion turbine exhaust stacks. Runway 18 at the Waterbury-Oxford Airport, located about 0.6 nautical miles west of the site, enforces a Non-Precision Approach procedure that restricts structure heights on the western portion of our Project site. By electing to place the combustion turbines and associated stacks on the eastern

portion of the site, the FAA has confirmed that the stacks will not be a hazard to this air navigation pattern.

Another constraint that is unique to this Project is the use of an air-cooled condenser for the cooling and condensing of steam that drives the steam turbine generator. The air-cooled condenser minimizes water consumption (a reduction of over 90% percent) as compared to a conventional wet-cooling tower system. The air-cooled condenser requires approximately 70% more space as compared to a conventional wet-cooling tower and requires a very large steam duct interconnection to the steam turbine generator. Thus, the steam turbine generator and the air-cooled condenser are considered as one integral piece in the site arrangement.

The Project site is located on a north-south trending ridgeline that has elevations ranging from approximately 800 feet (southeast, southwest and northwest corners) to 860 feet (north central). To effectively use this ridgeline the Project will cut and fill the ridgeline to achieve a final site grade of 830 feet. This will require a significant amount of cut/fill and grading on the side slopes. However, on the north end of the site the existing grade and natural wooded area will be preserved to the greatest extent possible.

Another factor that affects the placement of facilities on the site is CPV Towantic's effort to remain consistent with the Town of Oxford's Zoning Regulations, which requires a minimum of 40 feet as buffer along all property boundaries. Facilities are prohibited from construction in this buffer area and only filling and grading are allowed. This 40 feet buffer area on the north end of the property will be part of a 0.95 acre wooded area which will be preserved in its existing natural state.

One final consideration with respect to the arrangement of site facilities was the placement of the stormwater detention ponds. Due to changes made in the Connecticut storm water regulations from the time of the original Docket No. 192 Decision and Order (June 23, 1999), the Project needed to incorporate additional stormwater retention on the project site. To facilitate compliance with this change in regulation, Towantic has entered in to an option agreement to purchase Lot 9A, comprised of approximately six (6) acres and located directly south of the original twenty (20) acre site.

Adjusted Site Facilities

The following facilities have been adjusted, see attached final site plan for the Project (M200-1 PLOT PLAN) with reference numbers that correspond to the adjustments below, since the site plan was submitted to the Connecticut Siting Council in CPV Towantic's Petition Reopen and Modify its Certificate of Environmental Compatibility and Public Need (CECPN) due to Changed Conditions on November 3rd, 2014:

1. Addition of fuel gas compression necessary to meet the gas turbine pressure requirements based on recent gas supply data provided by Algonquin Interstate Pipeline
2. Placement of condensate storage tank underneath the ACC to comply with vendor design
3. Placement of the combustion turbine gas heater, filter, and metering skid adjacent to the combustion turbine package to comply with vendor design
4. Increased size of the fin fan cooler to comply with vendor design necessary to meet the final facility auxiliary cooling loads

Regulatory Compliance Considerations

The final site plan has been analyzed and evaluated with respect to air quality compliance. This plan and corresponding revised analysis have been submitted to Connecticut Department of Energy and Environmental Protection (CT DEEP) as part of the Project's Air Permit application. A draft permit for the Project is currently being prepared by CT DEEP.

Noise modeling was also completed on the final site plan to demonstrate compliance with all local and state noise standards that limit the Project under normal operating conditions to 51 A-weighted decibels (dBA) at night at the boundaries of residential land use classifications and 70 dBA at all industrial property lines (essentially the Project site boundaries).

Final Site Plan and Elevations

The final site plan for the Project (M200-1 PLOT PLAN) incorporates all the site constraints, adjusted facilities, and regulatory considerations as addressed in the above sections. The final site plan incorporates a final grade elevation of 830 feet AMSL. The final elevations for each major piece of equipment are captured on the attached drawings:

- Drawing M301_D_GA ELEVATION LOOKING EAST
- Drawing M303_A_GA ELEVATION LOOKING WEST
- Drawing M304_B_GA ELEVATION LOOKING NORTH
- Drawing M305_A_GA ELEVATION LOOKING SOUTH

LOT 9

ALGONQUIN GAS TRANSMISSION, LLC
VOL. 332, P. 1093

LEGEND

- PROPERTY LINE
- EASEMENT
- PROPOSED FENCE

N/F
TOWANTIC ENERGY, LLC
884,344 SF = 20.302 ACRES
WETLANDS AREA = 21,062 SF

75.00' WIDE

20' WIDE ELECTRIC CONDUIT EASEMENT
+HAZARD BEACON EASEMENT # 2

DRAINAGE EASEMENT IN FAVOR OF CPV ARGOS

PLANT GRADE=±830.0

PLANT COORDINATE SYSTEM
E 2000.0
N 5000.0
CT STATE PLANE SYSTEM
E 498,293.1464
N 236,931.5459

LOT 9B

STORMWATER RENOVATION AREA "B"

STORMWATER RENOVATION AREA "A"

EQUIPMENT PAD AREAS:
12" LAYER OF 1-1/2 TO 2" CRUSHED STONE TO GRADE
CT DOT SPEC M.01.01 No. 3

SWITCHYARD AREA: 12" LAYER OF 1-1/2 TO 2" CRUSHED STONE TO GRADE
CT DOT SPEC M.01.01 No. 3

EQUIPMENT PAD AREAS:
PERVIOUS CRUSHED STONE TO GRADE

CONTROL HOUSE

TURBINE BUILDING

PUMP HOUSE

FAA CONSTRAINT AREA

CONDENSER AREA:
12" LAYER OF 1-1/2 TO 2" CRUSHED STONE TO GRADE
CT DOT SPEC M.01.01 No. 3

CONDENSER & FUEL STORAGE AREA:
PERVIOUS CRUSHED STONE TO GRADE

SWITCHYARD AREA:
PERVIOUS CRUSHED STONE TO GRADE

PROPOSED OVERHEAD LINE CONNECTIONS TO FUTURE CL&P TOWERS. PROVIDED BY CL&P.

TOWER 460

TOWER STR 11166

TOWER 459

TOWER STR 11165

CL & P MONUMENT FOUND

CL & P COMPANY EASEMENT

55.00'

55.00'

PERIMETER PLANT ROAD – PAVED

PLANT ACCESS ROAD – PAVED

LOT 9A
269,731 SF = 6.192 ACRES
N/F
WOODRUFF HILL VIEW, LLC
VOL. 365, P. 57

WOODRUFF HILL ROAD

ROCKS

EXISTING DRAINAGE EASEMENT IN FAVOR OF TOWANTIC ENERGY, LLC OVER LOT 8

EXISTING 30' WIDE DRAINAGE EASEMENT IN FAVOR OF TOWANTIC ENERGY, LLC OVER LOT 8

VENT

8" GAS LINE

30" GAS LINE

COMPANY EASEMENT

NO.	REVISION	DATE

Previous Editions Obsolete

LEGEND–POWER PLANT

1. STACK
2. HEAT RECOVERY STEAM GENERATOR (HRSG)
3. AQUEOUS AMMONIUM STORAGE TANK/UNLOADING AREA
4. BLOWDOWN TANK
5. AUXILIARY COOLING SYSTEM FIN FAN COOLER
6. AIR COOLED CONDENSER
7. DEMINERALIZED WATER TRAILERS
8. DEMINERALIZED WATER STORAGE TANKS (TWO (2) TANKS EACH 875,000 GAL.)
9. FIRE/SERVICE WATER STORAGE TANK
10. COMBUSTION TURBINE GENERATOR (CTG)
11. CTG STEP-UP TRANSFORMER
12. ISOLATION/EXCITATION TRANSFORMERS
13. CONTROL HOUSE
14. SWITCHYARD
15. GAS METERING/REGULATION STATION
16. ELECTRICAL/BATTERY ROOMS/WAREHOUSE/ MAINTENANCE SHOP GROUND FLOOR OFFICE/CONTROL ROOMS SECOND FLOOR
17. STEAM TURBINE GENERATOR WITH ENCLOSURE
18. GAS HEATER,FILTER AND METERING
19. STORM WATER DETENTION POND
20. CONDENSATE RECEIVER/PUMPS/VACUUM PUMPS
21. FIRE PROTECTION FOAM SYSTEM
22. ACC ELECTRICAL PDC
23. FUEL OIL STORAGE TANK WITH SECONDARY STEEL CONTAINMENT (1,500,000 GAL.)
24. FUEL OIL UNLOADING AREA
25. FUEL OIL FORWARDING PUMP SKID
26. CEMS ENCLOSURE
27. HRSG CHEM FEED
28. BOILER FEED WATER PUMPS ENCLOSURE
29. AUXILIARY BOILER ROOM (GROUND FLOOR)
30. STANDBY DIESEL GENERATOR
31. LOAD COMMUTATING INVERTER (LCI) AND EXCITER COMPARTMENT
32. PACKAGE ELECTRONIC AND ELECTRICAL CONTROL COMPARTMENT (PEECC)
33. BATTERY COMPARTMENT
34. STG STEP-UP TRANSFORMER
35. EQUIPMENT REMOVAL AREA
36. GAS COMPRESSORS
37. EXCITATION TRANSFORMER
38. LP ECONOMIZER RECIRCULATION PUMP
39. AMMONIA VAPORIZER SKID
40. FUEL GAS ABSOLUTE SEPARATOR
41. LUBE OIL MODULE
42. LIQUID FUEL OIL FILTRATION SKID
43. GT FIRE PROTECTION (WATER MIST)
44. AUXILIARY COOLING PUMP AREA
45. POWER DISTRIBUTION CENTER (PDC)
46. UNIT AUXILIARY TRANSFORMER
47. GENERATOR CIRCUIT BREAKER
48. H2/CO2 STORAGE
49. WATER WASH SKID
50. WATER WASH DRAIN TANK
51. DUCT BURNER BLOWER SKID
52. DUCT BURNER GAS CONTROL SKID
53. DEMINERALIZED WATER PUMPS AREA
54. FIRE WATER PUMP HOUSE AND SERVICE WATER PUMPS AREA

SITE PLAN

CPV TOWANTIC ENERGY CENTER

OXFORD CONNECTICUT

CIVIL 1
CORNERSTONE PROFESSIONAL PARK, SUITE D-101
43 SHERMAN HILL ROAD
WOODBURY (203) 266-0778 CONNECTICUT

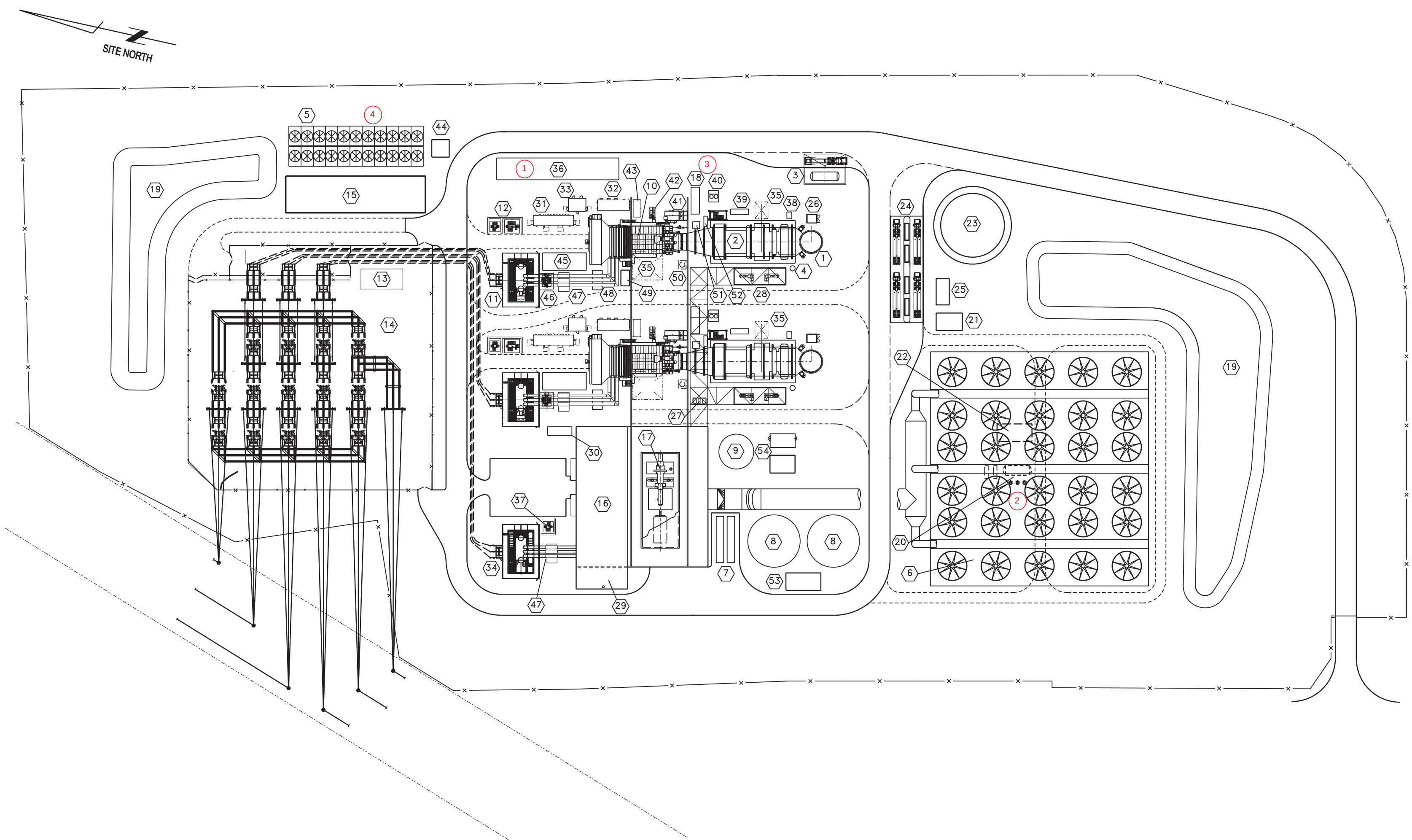
60 0 30 60 120

1 inch = 60 ft.

STATE OF CONNECTICUT · CURTIS C. JONES · No. 17208 · LICENSED PROFESSIONAL ENGINEER

DRAWN:	BB
APPROVED:	CJ
SCALE:	1" = 60'
DATE:	30 JUN 15
PROJ. NO.:	98132
CADD FILE NAME:	98132
DRAWING NO.:	C 305

1 2 3 4 5 6 7 8



LEGEND

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52. DUCT BURNER GAS CONTROL SKID
53. DEMINERALIZED WATER PUMPS AREA
54. FIRE WATER PUMP HOUSE AND SERVICE WATER PUMPS AREA

A B C D

GRAPHIC SCALE

0 30 60 120 180 FEET

1"= 60'

USERNAME $$$$$$SYTIME$$$$$ $$$$$$$$$$$$$$$DGNSPEC$$$$$$$$$$$$$$$$$$$$$$$$$

INTER-DISCIPLINE REVIEW

DISC	CSA	ELECT	I&C	MECH	OPEN	OPEN	OPEN
DATE							
INIT							

REV	REVISIONS	DATE	DRN	DSGN	CKD	APPDT	APPDP
D							

DSGN	JGF
DRN	JGF
CKD	
SCALE:	1"=60'-0"

Gemma

GEMMA POWER SYSTEMS, LLC.

POWER Burns and Roe
A division of POWER Engineers

CONNECTICUT CERTIFICATE OF AUTHORIZATION NO. 781

GEMMA POWER SYSTEMS, LLC

CPV TOWANTIC ENERGY CENTER

PLOT PLAN

JOB NUMBER 137682

REV D

DRAWING NUMBER M200-1

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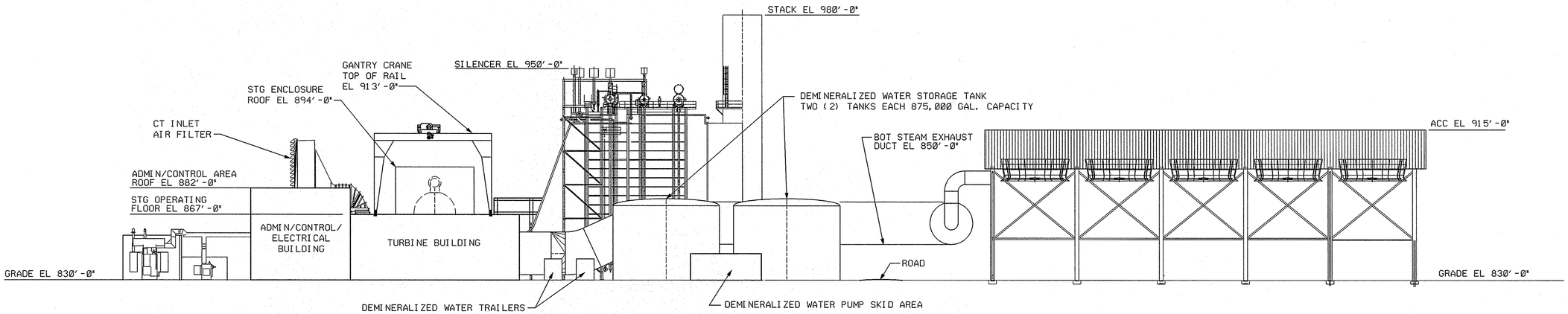

ELEVATION LOOKING EAST

GRAPHIC SCALE

0 15' 30' 60' 90'

1" = 30.0'

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

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For Information	RJH	6/25/15	[illegible]	6/29/15
For Comment				
For Bid				
For Fabrication				
For Construction				

Engineering Review		
Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Instr		

Drawn	Designed	Checked
JGF	JGF	

Lead Engineer | Date | Scale 1:30'-0"

CPV TOWANTIC ENERGY CENTER
OXFORD, CONNECTICUT

GENERAL ARRANGEMENT
ELEVATION LOOKING EAST

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ
Connecticut License No. PEC 39

Approved for Construction
Chief MECHANICAL Engineer

Work Order	Drawing No	Sh	Rev
3328	M301		D

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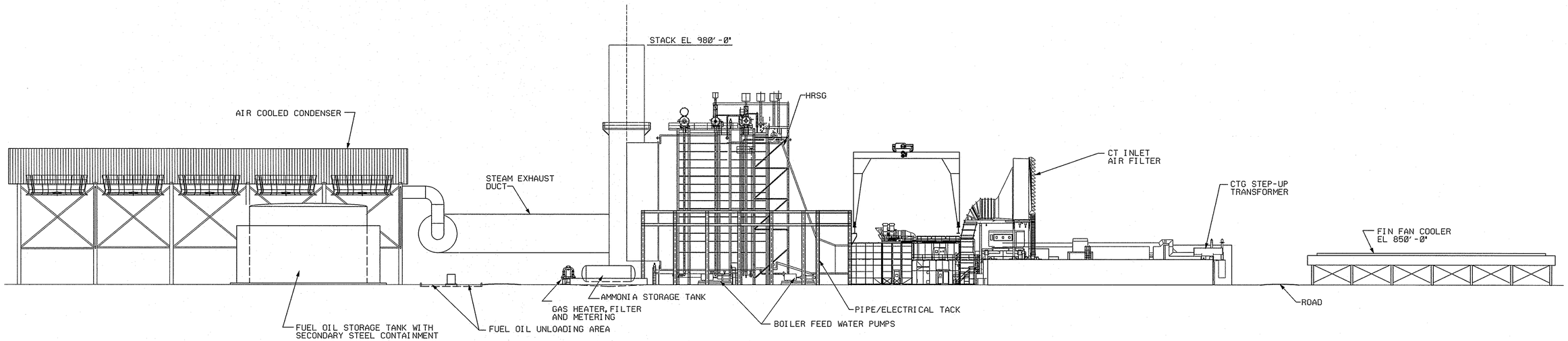

ELEVATION LOOKING WEST

GRAPHIC SCALE

Ø 15' 30' 60' 90'

1" = 30.Ø'

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

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Purpose	Approved By	Date	Released By	Date
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For Comment				
For Bid				
For Fabrication				
For Construction				

Engineering Review		
Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Instr		

Drawn	Designed	Checked
JGF	JGF	

Lead Engineer | Date

Scale 1"=30'-0"

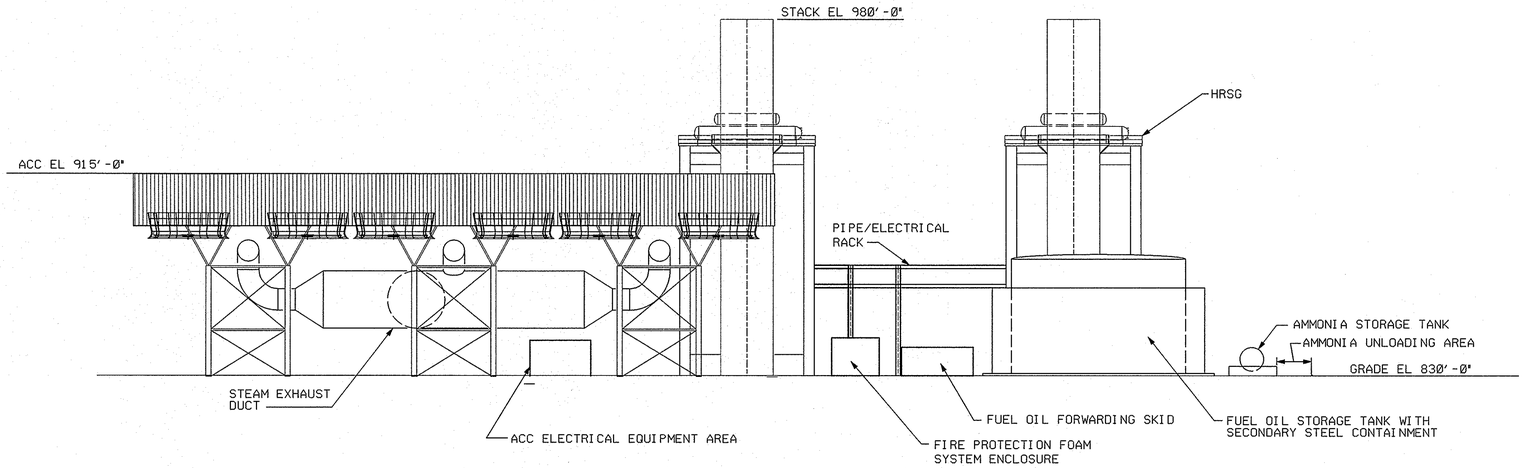
CPV TOWANTIC ENERGY CENTER
OXFORD, CONNECTICUT

GENERAL ARRANGEMENT
ELEVATION LOOKING WEST

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ
Connecticut License No. PEC 39

Approved for Construction	Work Order	Drawing No	Sh	Rev
Chief MECHANICAL Engineer	3328	M3Ø3		A

$$DGNFILENAME$$ $$TIME$$ $$DATE$$



ELEVATION LOOKING NORTH

GRAPHIC SCALE

0 15' 30' 60' 90'

1" = 30.0'

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

Drawing Control				
Purpose	Approved By	Date	Released By	Date
For Information				
For Comment				
For Bid				
For Fabrication				
For Construction				

Engineering Review		
Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Instr		

Drawn	Designed	Checked
JGF	JGF	

Lead Engineer | Date

Approved for Construction | Chief MECHANICAL Engineer | Scale 1"=30'-0"

CPV TOWANTIC ENERGY CENTER
OXFORD, CONNECTICUT

GENERAL ARRANGEMENT
ELEVATION LOOKING NORTH

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ
Connecticut License No. PEC 39

Work Order	Drawing No	Sh	Rev
3328	M304		B

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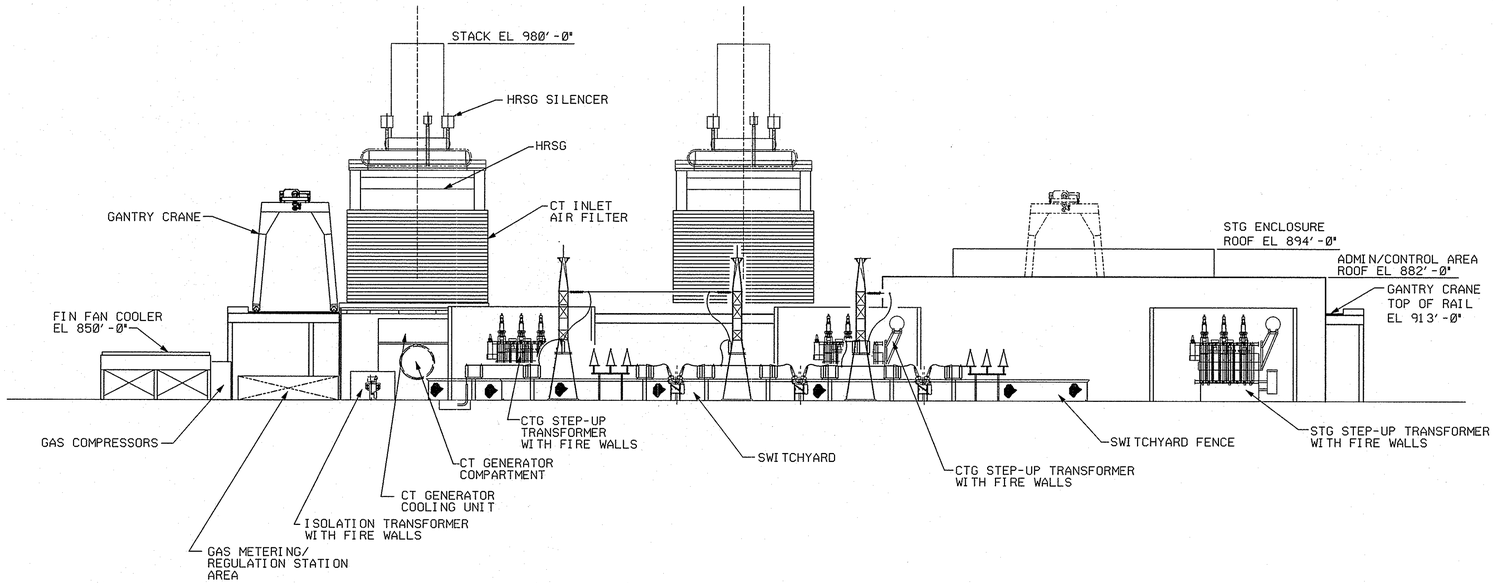


ELEVATION LOOKING SOUTH

GRAPHIC SCALE

0 15' 30' 60' 90'

1" = 30.0'

Rev No	Revision	Date	Dwn	Chkd	Approved Chief Engr

Drawing Control				
Purpose	Approved By	Date	Released By	Date
For Information	[illegible]	9/15/15	[illegible]	9/15/15
For Comment				
For Bid				
For Fabrication				
For Construction				

Engineering Review		
Disc	Engr	Date
Mech		
Elec		
Civil		
Arch		
Instr		

Drawn	Designed	Checked
JGF	JGF	

Lead Engineer | Date | Scale 1"=30'-0"

CPV TOWANTIC ENERGY CENTER
OXFORD, CONNECTICUT

GENERAL ARRANGEMENT
ELEVATION LOOKING SOUTH

BURNS AND ROE ENTERPRISES, INC.
Engineers and Constructors - Oradell, NJ
Connecticut License No. PEC 39

Approved for Construction | Work Order 3328 | Drawing No M305 | Sh | Rev A

Chief MECHANICAL Engineer

$$DGNFILENAME$$ $$TIME$$ $$DATE$$

2(b)

A DETAILED PLAN FOR THE GAS TRANSMISSION INTERCONNECTION SHOWING GAS METERING AND COMPRESSOR STATION IF APPLICABLE.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.b – FUEL GAS INTERCONNECTION PLANS

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.b), CPV Towantic, LLC hereby submits preliminary plans for the fuel gas metering, regulation, and compression station. CPV Towantic anticipates it will construct these facilities based on Spectra's final specifications.

FUEL GAS INTERCONNECTION PLAN

This outline represents a preliminary design for the Project's fuel gas system which includes fuel gas metering, regulation and compression. As the Project moves through final design and into construction, refinements in the design are anticipated to continue. The pressure metering and regulation station and compression area will reside on the Project's site and will be supplied with fuel gas by a lateral off of the Algonquin Gas Transmission Company facilities.

Transmission-pressure gas (390 to 750 psig) will be supplied by a lateral off of the Algonquin Gas Transmission line owned and operated by Spectra Energy. The lateral enters the metering and regulation (M&R) station where gas is first filtered, then metered, heated and regulated. Gas compression facilities are also provided inside the power plant fence line to boost gas pressure in the event that inlet pressure is lower than required for the power plant gas turbines. The M&R station will be designed for a maximum flow rate of 132,000 dekatherms/day (5,400 Mscfh), with a maximum allowable operating pressure (MAOP) of 750 psig.

Gas filtration is provided by a filter separator vessel, which collects any remaining liquid or solid particles greater than 5 microns present in the gas. Gas metering equipment is housed inside a pre-fabricated metal building. Metering facilities will consist of a 12" ultrasonic meter to handle the design gas flow, and a further 2" rotary, orifice or coriolis meter sized to handle low flow metering. A metering flow control valve is also present to curtail flow in the event that the plant exceeds its design flow demand.

An emergency shutdown (ESD) valve with actuator and remote pressure and temperature sensors will be included downstream of metering (and prior to heating & regulation), outside of the building. This valve will close in any fire, gas or overpressure event.

Gas heating will be provided, if needed, to avoid any freezing issues post-regulation. Gas temperature is governed by a temperature control valve on the cooling medium side.

Gas regulation is provided by three separate monitor-regulator and working-regulator runs. The monitor-regulator / working-regulator setup of each run provides the required 49 CFR 192 compliance for pressure limiting devices. Two runs are each sized with 6" Becker T-ball style monitor and working regulators. Each of the two runs is sized to handle the full design flow and effectively provide 100% redundancy for pressure regulation. The Becker T-ball valves are installed below grade (outdoors) for increased noise attenuation. The third run is sized with 2" regulators to provide effective gas regulation during low-flow conditions, and improve design-flow pressure response. The third run is installed above-ground and outdoors.

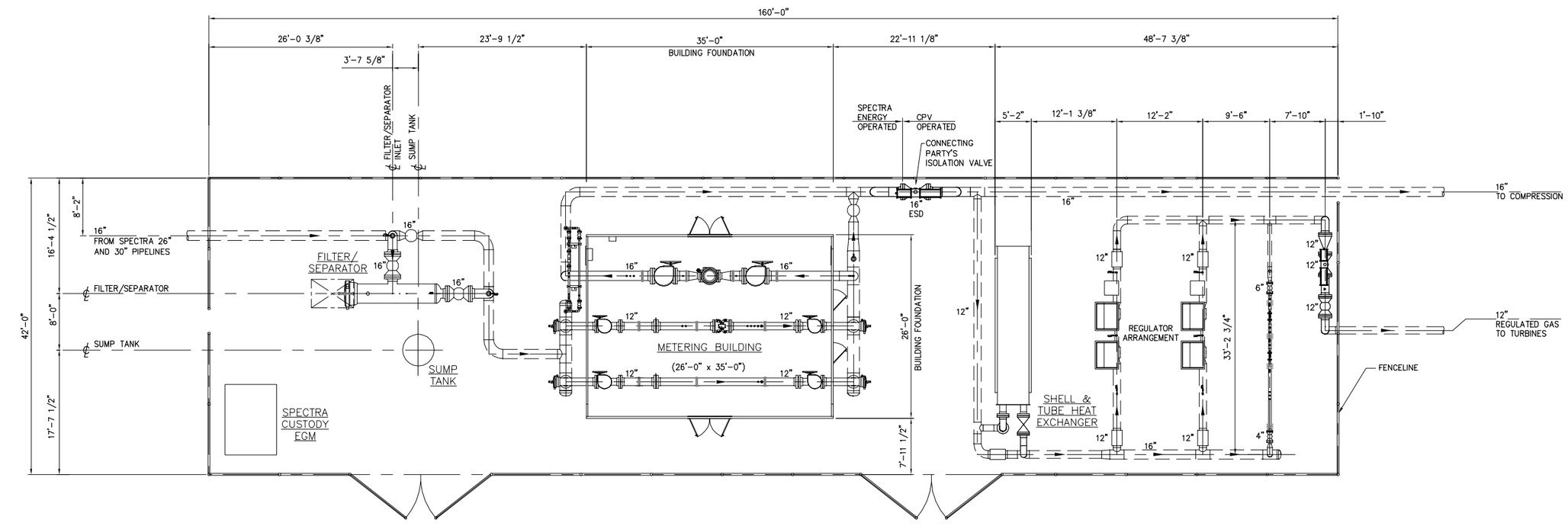
The M&R station includes an electronic gas metering building operated by Spectra Energy. This building provides Spectra remote feedback of station pressure, temperature and flow as well as fire and gas alarm signals. Fire and gas sensors will be installed inside all buildings and at suitable points outdoors. A range of pressure, temperature, flow & alarm signals are also delivered to the power plant control system for monitoring and remote operation.

A galvanic cathodic protection (CP) is provided on all lateral and station below grade piping to protect against corrosion. Further, drain legs (accessible from grade) are provided at suitable low points in the event that any liquids collect.

CONCEPTUAL DRAWINGS

The conceptual design for the above-discussed plan is attached hereto as:

- 30068 – CPV Towantic – Rev C Conceptual Set - 060915



METERING & GAS REGULATING PLAN

SCALE: 1/8"=1'-0"

CONCEPTUAL

NOT FOR CONSTRUCTION

CHA
111 Winners Circle, PO Box 5269
Albany, NY 12205-0269
518.453.4500 | www.chacompanies.com

Competitive Power Ventures
CPV TOWANTIC ENERGY CENTER

No.	Submittal / Revision	Appr'd. By	Date
3	REVISED: CONCEPTUAL	GEW	APM 06/09/15
2	REVISED: CONCEPTUAL	GEW	APM 06/03/15
1	CONCEPTUAL	GEW	APM 05/12/15

METERING & REGULATION PLAN

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	1/8" = 1'-0"

Drawing No.:
30068-5200

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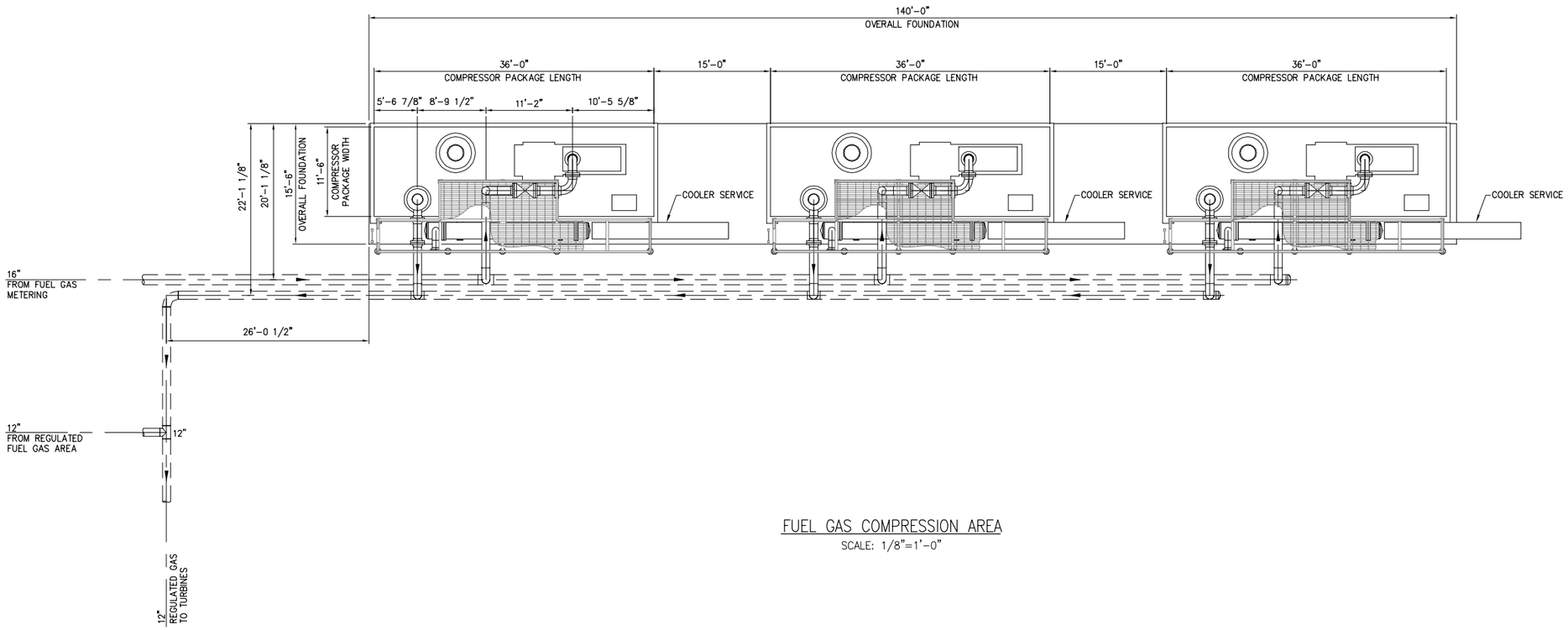

FUEL GAS COMPRESSION AREA

SCALE: 1/8"=1'-0"

CONCEPTUAL

NOT FOR CONSTRUCTION

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No.	Submittal / Revision	Appvd. By	Date
3	REVISED: CONCEPTUAL	GEW	APM 06/09/15
2	REVISED: CONCEPTUAL	GEW	APM 06/03/15
1	CONCEPTUAL	GEW	APM 05/12/15

FUEL GAS COMPRESSION PLAN

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	1/8"=1'-0"

Drawing No.:

30068-5201

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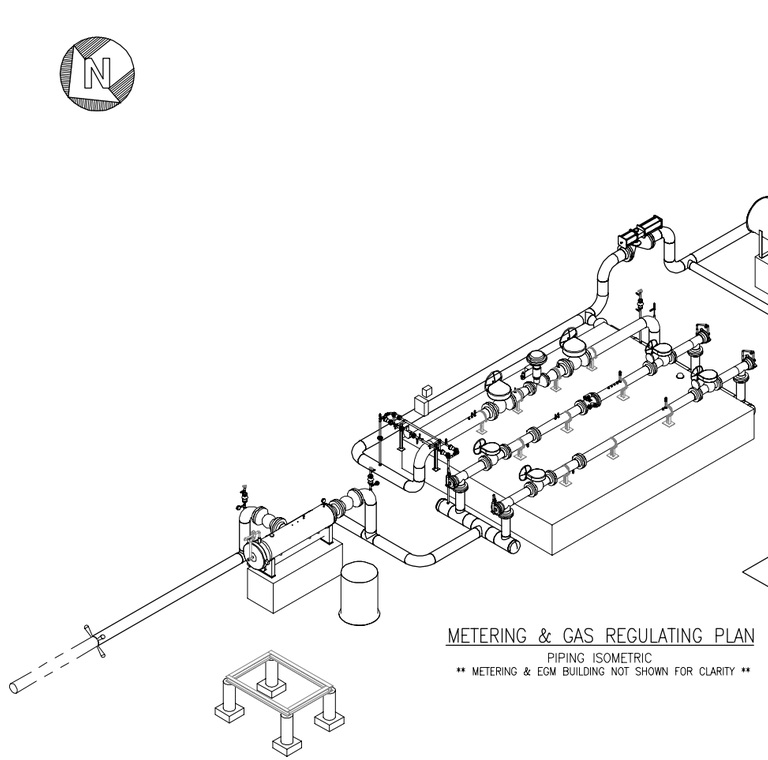
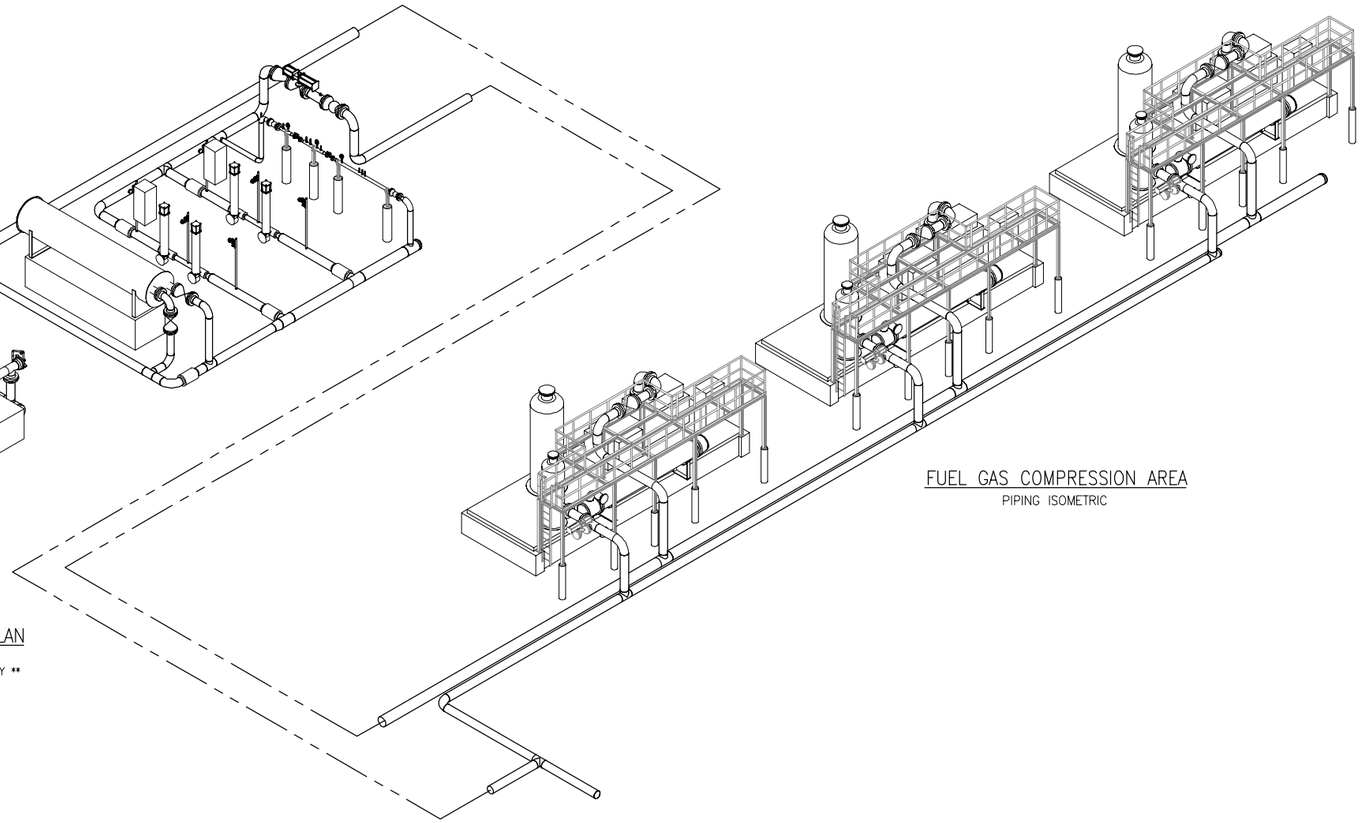


METERING & GAS REGULATING PLAN

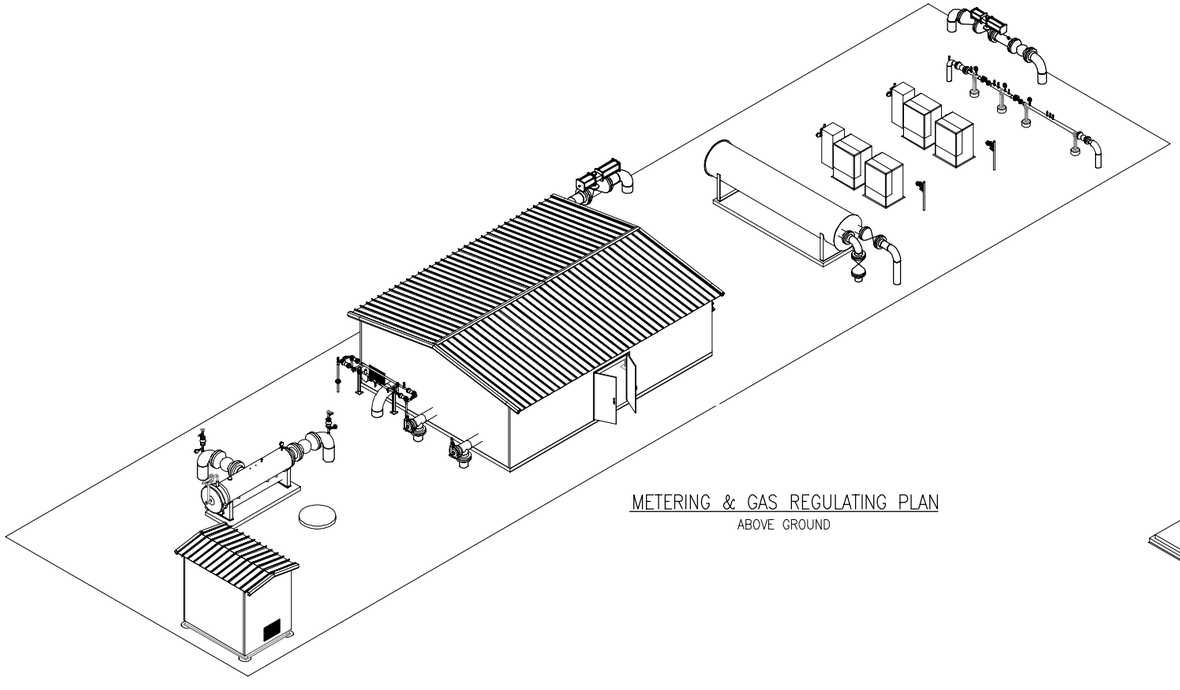
PIPING ISOMETRIC

** METERING & EGM BUILDING NOT SHOWN FOR CLARITY **



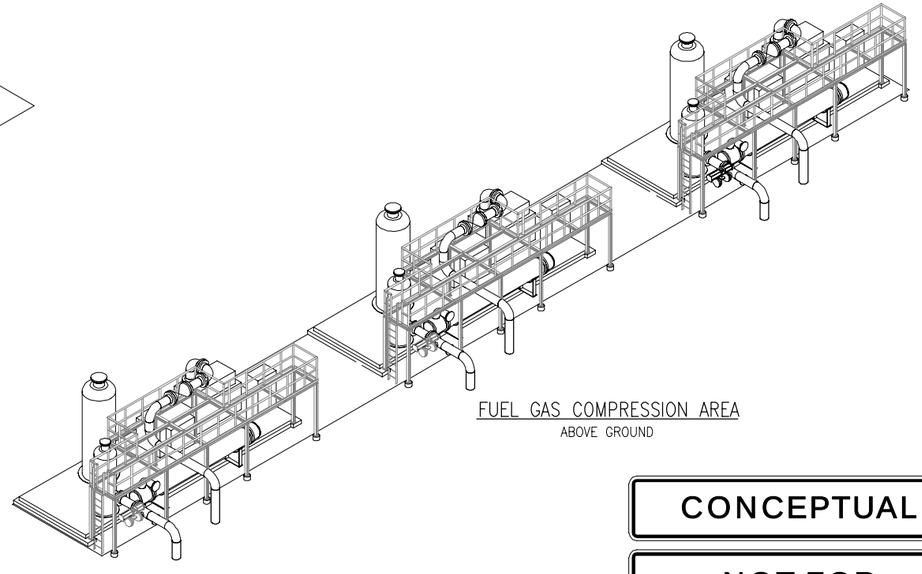
FUEL GAS COMPRESSION AREA

PIPING ISOMETRIC



METERING & GAS REGULATING PLAN

ABOVE GROUND



FUEL GAS COMPRESSION AREA

ABOVE GROUND

CONCEPTUAL

NOT FOR CONSTRUCTION

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Competitive Power Ventures

CPV TOWANTIC ENERGY CENTER

No.	Submittal / Revision	Appvd. By	Date
3	REVISED: CONCEPTUAL	GEW / APM	06/09/15
2	REVISED: CONCEPTUAL	GEW / APM	06/03/15
1	CONCEPTUAL	GEW / APM	05/12/15

ISOMETRIC RENDERINGS

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	1/8" = 1'-0"

Drawing No.:

30068-5202

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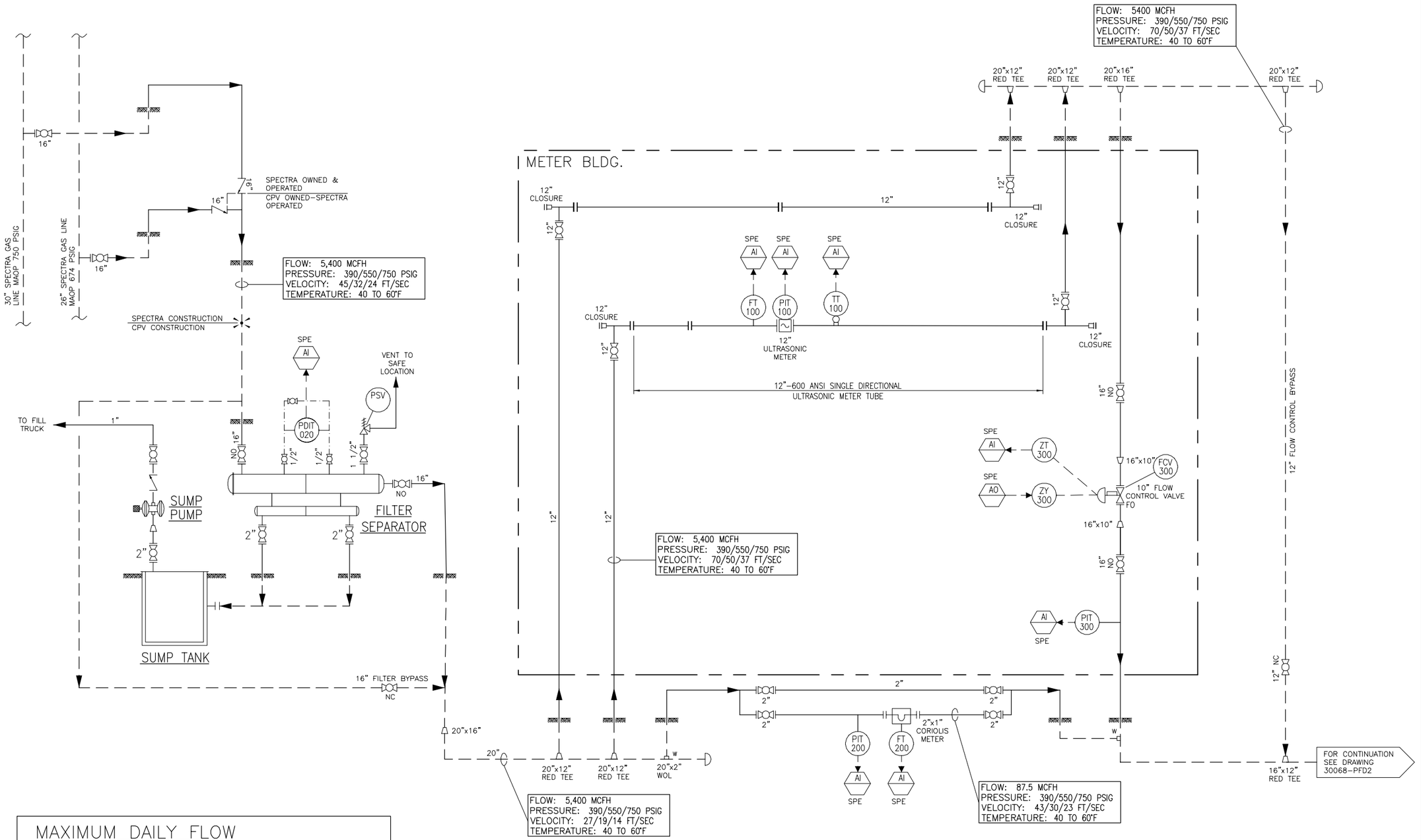

MAXIMUM DAILY FLOW

DESIGN FLOW = 132,000 DTH (5,400 MCFH)
INLET PRESSURE (MIN/MAX/DESIGN MAOP) = 390/750/750 PSIG
OUTLET PRESSURE (OPERATING/DESIGN MAOP/ 12" PIPELINE MAWP) = 525/750 PSIG

SUMP TANK
DOUBLE WALL INNER TANK
SIZE: 4'–0"ø, 6'–0" OAH
DESIGN ATM @ AMBIENT
CAPACITY 500 GAL.

SUMP PUMP
MAOP: 100 PSIG @ –20°F/150°F
RATE: 10 GPM @ 35 PSID

FILTER/SEPARATOR
MAOP: 750 PSIG
VESSEL SIZE: 11'–0" S/S, 32" OD
WEIGHT: 15,500 LBS (OPERATING)
FILTRATION: 5 MICRONS

ULTRASONIC METERING
SIZE / TYPE: 12" RUN SIZE, SINGLE DIRECTIONAL
MANUFACTURER: DANIELS OR SIK MAHIAK
FLOW: 520 TO 5,400 MCFH (DESIGN)

CORIOLIS METERING
SIZE / TYPE: 2X1"
MANUFACTURER: EMERSON MICROMOTION ELITE
FLOW: 11.7 TO 87.5 MCFH (DESIGN)

FLOW CONTROL VALVE
SIZE / TYPE: 10"
MANUFACTURER: FISHER DVC 6200
FLOW: 5400 MCFH (DESIGN)

CONCEPTUAL

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No.	Submittal / Revision	Appvd	By	Date
3	REVISED: CONCEPTUAL	GEW	APM	06/09/15
2	REVISED: CONCEPTUAL	GEW	APM	06/03/15
1	CONCEPTUAL	GEW	APM	05/12/15

METERING

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	NTS

Drawing No.:
30068-PFD1

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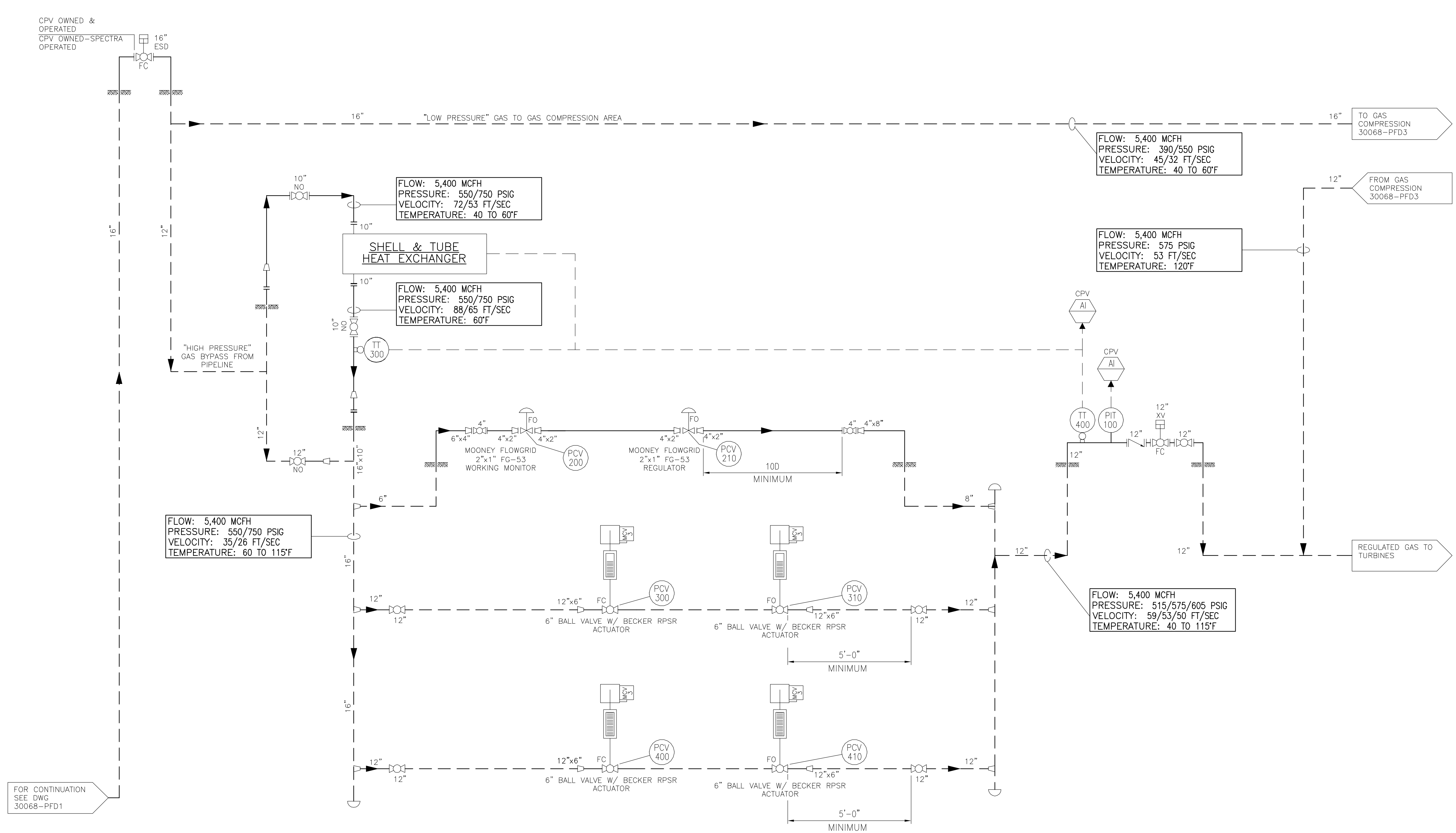

SHELL & TUBE HEAT EXCHANGER

MAOP: 750 PSIG @ 250°F
HEATER SIZE: 20'–0" S/S 54" SHELL O.D.
HEATER DUTY: 0 TO 3.5 MMBTU/HR
WEIGHT: TBC
NOTE: HEATER DUTY IS DEPENDENT ON OVERALL RANGE OF COINCIDENT INLET PRESSURES & TEMPERATURES AND OUTLET TEMPERATURE REQUIREMENTS

6" BECKER RPSR

SIZE / TYPE: 6"
MANUFACTURER: GE BECKER
FLOW: TBC MCFH (DESIGN)

2" MOONEY FLOWGRID

SIZE / TYPE: 2" X 1"
MANUFACTURER: GE MOONEY
FLOW: TBC MCFH (DESIGN)

CONCEPTUAL

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Competitive Power Ventures
CPV TOWANTIC ENERGY CENTER

No.	Submittal / Revision	Apprd.	By	Date
3	REVISED: CONCEPTUAL	GEW	APM	06/09/15
2	REVISED: CONCEPTUAL	GEW	APM	06/03/15
1	CONCEPTUAL	GEW	APM	05/12/15

REGULATION

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	NTS

Drawing No.:

30068-PFD2

FOR CONTINUATION SEE DWG 30068-PFD2

16"

TO GAS TURBINES SEE DWG 30068-PFD2

12"

8"

FLOW: 2,700 MCFH
PRESSURE: 390/550 PSIG
VELOCITY: 79/56 FT/SEC
TEMPERATURE: 40 TO 60 DEGF

8" SDV FC

SUCTION FILTER

SPILL-BACK VALVE

MOTOR

COMPRESSOR

SEPARATOR AND OIL RESERVOIR

COALESCING OIL SEPARATOR

PIT

3" BDV FO

3"

VTA

FLOW: TBC MCFH
PRESSURE: ATM PSIG
VELOCITY: TBC FT/SEC
TEMPERATURE: 120 DEG F

8" SDV FC

8"

12"

FLOW: 2,700 MCFH
PRESSURE: 575 PSIG
VELOCITY: 49 FT/SEC
TEMPERATURE: 120 DEGF

OIL

OIL-COOLER

WATER OUT

WATER IN

FUEL GAS COMPRESSOR #1

FUEL GAS COMPRESSOR #2

FUEL GAS COMPRESSOR #3

3X50% FUEL GAS COMPRESSOR #1

OPERATING DISCHARGE: 575 PSIG @ 120 DEGF
CAPACITY: 2,700 MCFH (64.8 MMCFD)
MOTOR: 1,750 HP 3,600 RPM
COMPRESSOR PACKAGE SIZE: 36'-0" x 11'-6" O.A.
PACKAGE WEIGHT: 90,000 LBS

3X50% FUEL GAS COMPRESSOR #2

OPERATING DISCHARGE: 575 PSIG @ 120 DEGF
CAPACITY: 2,700 MCFH (64.8 MMCFD)
MOTOR: 1,750 HP 3,600 RPM
COMPRESSOR PACKAGE SIZE: 36'-0" x 11'-6" O.A.
PACKAGE WEIGHT: 90,000 LBS

3X50% FUEL GAS COMPRESSOR #3

OPERATING DISCHARGE: 575 PSIG @ 120 DEGF
CAPACITY: 2,700 MCFH (64.8 MMCFD)
MOTOR: 1,750 HP 3,600 RPM
COMPRESSOR PACKAGE SIZE: 36'-0" x 11'-6" O.A.
PACKAGE WEIGHT: 90,000 LBS

CONCEPTUAL

NOT FOR CONSTRUCTION

CHA
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Main: (518) 453-4500 · www.chacompanies.com

Competitive Power Ventures
CPV TOWANTIC ENERGY CENTER

No.	Submittal / Revision	Appvd	By	Date
1	REVISED: CONCEPTUAL	GEW	APM	06/09/15
2	REVISED: CONCEPTUAL	GEW	APM	06/03/15
3	CONCEPTUAL	GEW	APM	05/12/15

COMPRESSION

Designed By:	Drawn By:	Checked By:
APM	APM	GEW
Issue Date:	Project No:	Scale:
05/12/15	30068	NTS

Drawing No.:
30068-PFD3

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2(c)

WATER AND SEWER CONNECTION ROUTES.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.c – WATER AND SEWER CONNECTION ROUTES

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.c), CPV Towantic, LLC hereby submits plan sets and a narrative describing the Project's planned water and sewer connection routes.

WATER AND SEWER CONNECTION ROUTES

When Woodruff Hill Road was constructed by the Town of Oxford, utilities including electric, water, sanitary sewer and a stormwater collection system were installed concurrently with the construction of the road to accommodate Spectra Corporation's development of Lot 9 (east and adjacent to the CPV Towantic site).

The connections for water and sewer have already been stubbed into both the twenty (20) acre parcel and lot 9A, the six (6) acre parcel. Each can be seen on the drawing attached hereto as WHIP_CPVParcels_Water&SewerConnections.PDF.

Detailed design associated with items such as piping, wiring, instrumentation, undergrounds, etc., will not be completed until a notice-to-proceed (NTP) for construction has been issued, as is customary with projects of this type and scope. For that reason, a detailed schematic indicating where water and sewer piping will be routed on site is not yet available and is not expected until approximately 3-6 months post-NTP.

In addition to these connections, CPV Towantic will be providing for the design and construction of a water pump station to be located on Lot 5 of the Woodruff Hill Industrial Park (WHIP) subdivision. The pump station will be required to provide adequate pressure to both the CPV Towantic project and the balance of the lots in WHIP. The pump station can be seen on the drawing attached hereto as WHIP_PumpStationEasementMap.PDF.

PACT AREA – LOT 8 & 9

MATCH SHEET 10

N/F
TOWANTIC
ENERGY, LLC

IMPACT AREA LOT #8

OODRUFF HILL ROAD

MATCH SHEET 7

Water & Sewer Stubs

9A

18,525 SF

MATCH SHEET 12

Flagged Centerline Intermittent Watercourse WA-01-NH-01

NO.	REVISION	DATE
1	REVISED PER TOWN CONSULTANTS	20 JUL 06
2	WL DELIN. UPDATED-LOT 9	13 MAR 07
3	REVISED FOR IWA SUBMISSION	14 FEB 09

Previous Editions Obsolete

40 0 20 40 80

1 inch = 40 ft.

TOWN OF OXFORD

SITE PLAN
GRADING PLAN
EROSION CONTROL PLAN

WOODRUFF HILL
INDUSTRIAL PARK
WOODRUFF HILL ROAD & E COMMERCE DRIVE
OXFORD CONNECTICUT

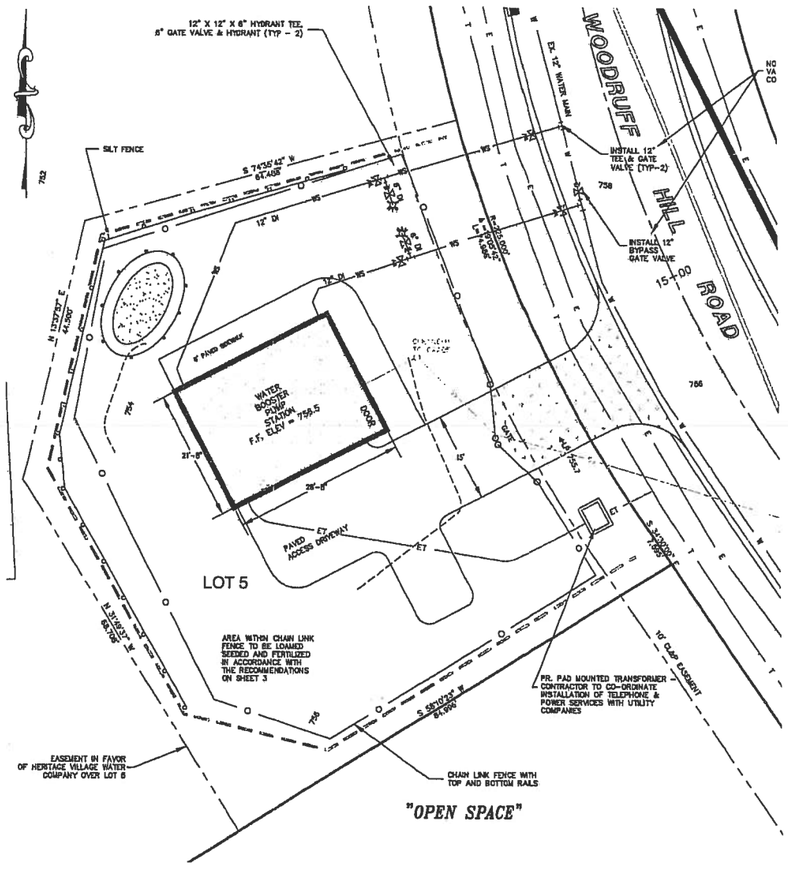
CIVIL 1
CORNERSTONE PROFESSIONAL PARK, SUITE D-101
43 SHERMAN HILL ROAD
WOODBURY (203) 266-0778 CONNECTICUT

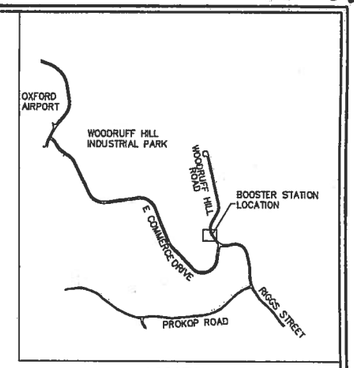
DRAWN: BB APPROVED: CJ
SCALE: 1" = 40'
DATE: 09 JUNE 06
PROJ NO.: 98132
CADD FILE NAME: 98132 WHIP
DRAWING NO.:

11 OF 27

35-224

35-224





LOCATION MAP

SCALE: 1"=1,000'

DRAWING NUMBER 35-224

DRAWING NUMBER 35-224

DRAWING NUMBER 35-224

DRAWING NUMBER 35-224

MAP REFERENCES:

1. "WOODRUFF HILL INDUSTRIAL PARK, WOODRUFF HILL ROAD & E COMMERCE DRIVE" DATED OR JULY 2010, SCALE 1" = 10', BY CIVIL ONE, CORNERSTONE PROFESSIONAL PARK, SUITE D-101, 43 SHERMAN HILL ROAD, WOODBURY, CONNECTICUT, ON FILE TOWN CLERK'S OFFICE

SURVEY NOTES:

1. This survey and map have been prepared in accordance with Sections 20-300b-1 thru 20-300b-20 of the Regulations of Connecticut State Agencies - "Minimum Standards for Surveys and Maps in the State of Connecticut" as endorsed by the Connecticut Association of Land Surveyors, Inc. It is a PROPERTY SURVEY and DATA ACCUMULATION PLAN based on a DEPENDENT RESURVEY conforming to Horizontal Accuracy Class "A-2" and is intended to be used for an EASEMENT Map.

LOCATION AND ELEVATION OF UNDERGROUND UTILITIES UNLESS OTHERWISE NOTED IS UNKNOWN AND MUST BE FIELD VERIFIED BY CONTRACTOR PRIOR TO CONSTRUCTION

ANY USE OR REUSE OF ORIGINAL OR ALTERED CAD DESIGN MATERIALS BY THE CLIENT, CONTRACTOR OR OTHER PARTIES WITHOUT THE EXPRESS AND WRITTEN APPROVAL OF AN AUTHORIZED REPRESENTATIVE OF NAFIS & YOUNG ENGINEERS, INC. SHALL BE AT THE SOLE RISK OF CLIENT, CONTRACTOR, OR OTHER PARTY AGREES TO DEFEND, INDEMNIFY, AND HOLD NAFIS & YOUNG ENGINEERS, INC. HARMLESS FROM ALL CLAIMS, EXPENSES, DAMAGES, LOSSES, EXPENSES AND ATTORNEY'S FEES ARISING OUT OF THE MODIFICATION OR REUSE OF THESE MATERIALS.

TO MY KNOWLEDGE AND BELIEF, THIS MAP IS SUBSTANTIALLY CORRECT AS NOTED HEREON.

DAVID L. NAFIS, L.S. #22924

STATE OF CONNECTICUT DAVID L. NAFIS No. 22924 LICENSED LAND SURVEYOR

THIS MAP PRODUCED BY ORIGINAL INK DRAWING ON POLY FILM OR LINEN

NAFIS & YOUNG ENGINEERS, LLC.
1355 MIDDLETOWN AVE.
NORTHFORD, CT 06472

10 0 10 20 30

Scale 1" = 10'

BOOSTER PUMP STATION
WOODRUFF HILL ROAD
OXFORD, CONNECTICUT

EASEMENT IN FAVOR OF HERITAGE VILLAGE WATER COMPANY

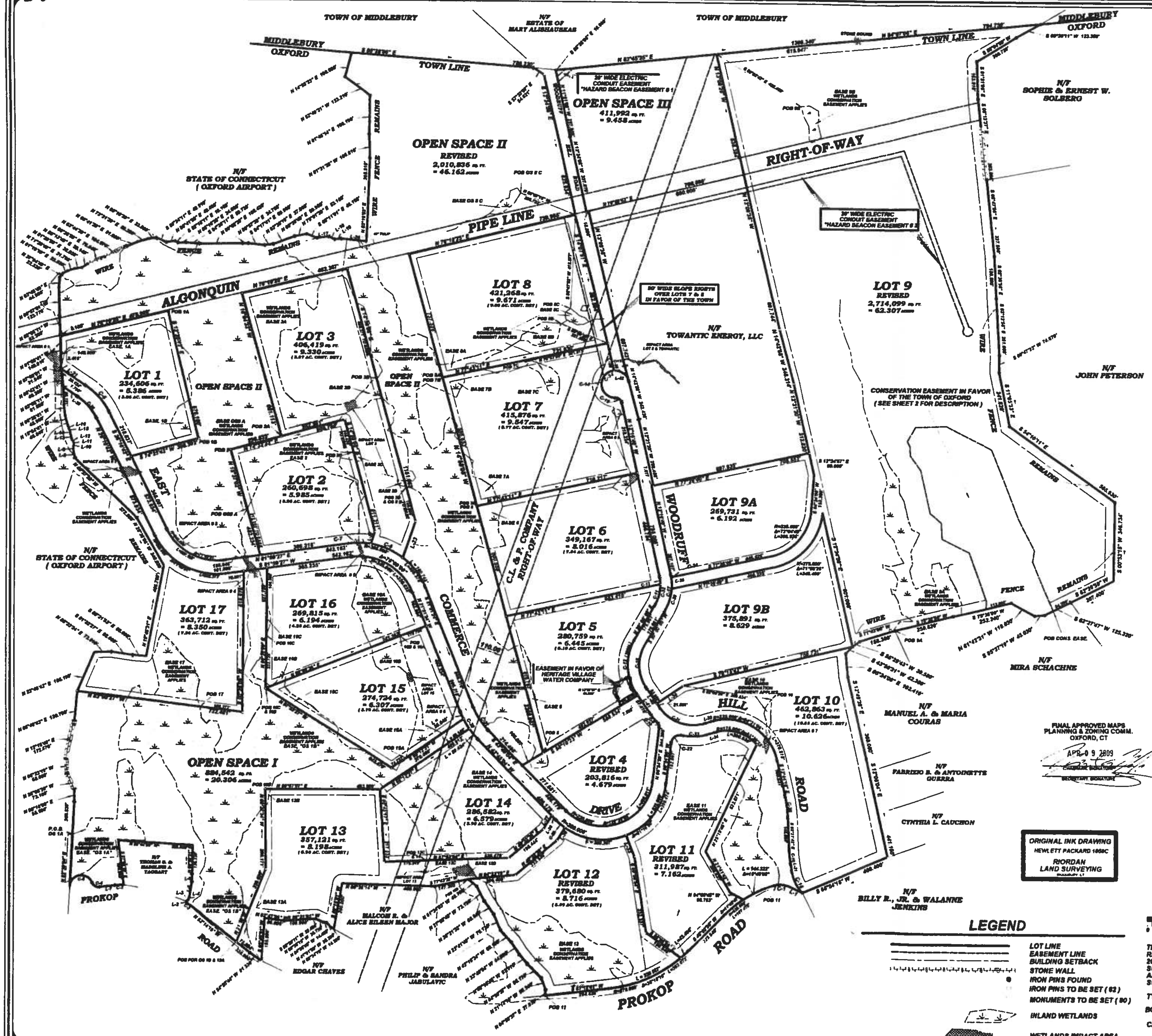
EASEMENT MAP

NAFIS & YOUNG ENGINEERS, INC.
1355 Middletown Avenue
Northford, Connecticut 06472
Phone: (203) 484-2793
Fax: (203) 484-7343
Email: nyengr@nafisandyoung.com

DATE: JULY, 2012

JOB NO. 10-033 | SHEET NO. 1

35-115



N

CURVE TABLE

C 1	R = 100.000', L = 74.462', D = 42 - 39 - 49
C 2	R = 322.240', L = 22.751', D = 04 - 02 - 43
C 3	R = 325.000', L = 37.671', D = 06 - 38 - 28
C 4	R = 30.000', L = 39.420', D = 75 - 17 - 12
C 5	R = 50.000', L = 136.170', D = 156 - 02 - 21
C 6	R = 305.000', L = 156.001', D = 29 - 18 - 20
C 7	R = 305.000', L = 92.495', D = 17 - 22 - 32
C 8	R = 305.000', L = 152.139', D = 28 - 34 - 48
C 9	R = 225.000', L = 48.645', D = 12 - 23 - 14
C 10	R = 25.000', L = 23.475', D = 53 - 48 - 04
C 11	R = 175.000', L = 95.719', D = 31 - 20 - 20
C 12	R = 225.000', L = 253.291', D = 64 - 30 - 00
C 13	R = 175.000', L = 33.419', D = 10 - 56 - 29
C 14	R = 60.000', L = 185.857', D = 177 - 28 - 49
C 15	R = 25.000', L = 35.142', D = 80 - 32 - 20
C 16	R = 175.000', L = 197.004', D = 64 - 30 - 00
C 17	R = 225.000', L = 166.034', D = 42 - 16 - 49
C 18	R = 175.000', L = 105.235', D = 34 - 27 - 15
C 19	R = 475.000', L = 58.792', D = 07 - 05 - 30
C 20	R = 525.000', L = 94.163', D = 10 - 16 - 35
C 21	R = 175.000', L = 221.713', D = 72 - 35 - 23
C 22	R = 40.000', L = 66.255', D = 94 - 54 - 09
C 23	R = 225.000', L = 113.514', D = 28 - 54 - 22
C 24	R = 225.000', L = 12.850', D = 03 - 16 - 20
C 25	R = 225.000', L = 50.878', D = 12 - 57 - 22
C 26	R = 225.000', L = 102.306', D = 26 - 03 - 07
C 28	R = 280.000', L = 52.369', D = 10 - 42 - 58
C 29	R = 245.000', L = 125.312', D = 29 - 18 - 20
C 30	R = 390.000', L = 148.209', D = 21 - 53 - 40
C 31	R = 320.000', L = 122.822', D = 21 - 53 - 40
C 32	R = 175.000', L = 95.719', D = 31 - 20 - 20
C 33	R = 60.000', L = 84.428', D = 80 - 37 - 22
C 34	R = 60.000', L = 270.285', D = 258 - 06 - 11
C 35	R = 225.000', L = 74.988', D = 19 - 05 - 42

LINE TABLE

L 1	N 64 - 48 - 58 W 59.018'
L 2	N 16 - 27 - 49 W 8.200'
L 3	N 53 - 06 - 01 E 13.320'
L 4	N 19 - 39 - 01 E 10.910'
L 5	N 06 - 14 - 31 E 67.740'
L 6	N 02 - 13 - 31 E 32.950'
L 7	S 83 - 26 - 11 W 66.880'
L 8	N 12 - 08 - 11 W 30.290'
L 9	N 03 - 58 - 41 W 22.470'
L 10	N 22 - 42 - 19 E 7.960'
L 11	N 06 - 57 - 41 W 12.710'
L 12	N 41 - 09 - 11 W 10.300'
L 13	N 13 - 06 - 01 W 28.820'
L 14	N 06 - 49 - 41 W 11.160'
L 15	N 24 - 05 - 41 W 10.620'
L 16	N 18 - 04 - 41 W 16.210'
L 17	N 82 - 41 - 49 E 81.530'
L 18	S 62 - 25 - 21 E 27.150'
L 19	N 84 - 01 - 49 E 28.060'
L 20	S 84 - 09 - 48 E 108.390'
L 21	N 55 - 29 - 02 W 126.316'
L 22	S 18 - 41 - 11 W 86.429'
L 23	S 18 - 41 - 11 W 168.973'
L 29	S 13 - 16 - 50 E 123.391'
L 30	S 55 - 30 - 00 W 137.875'
L 31	N 09 - 33 - 12 W 34.635'
L 32	S 72 - 54 - 37 W 35.508'
L 33	N 21 - 48 - 20 W 101.379'
L 35	S 09 - 33 - 12 E 57.189'
L 36	N 31 - 19 - 11 E 65.567'
L 37	N 31 - 19 - 11 E 68.481'
L 38	S 43 - 45 - 04 E 24.254'
L 39	S 55 - 29 - 02 E 74.753'
L 40	S 34 - 30 - 00 E 105.011'
L 41	N 34 - 30 - 00 W 105.011'
L 42	N 14 - 42 - 58 W 67.513'
L 43	N 74 - 35 - 42 E 64.488' (RAD.)
L 44	N 31 - 49 - 37 W 68.708'

NOTES:

1) THIS MAP AND SUBDIVISION ARE SUBJECT TO THE PARTIAL ABANDONMENT OF WOODRUFF HILL ROAD.
2) A 10.00' WIDE EASEMENT FOR UTILITIES IS TO BE RETAINED ALONG ALL PROPOSED RIGHT-OF-WAY LINES, EXCEPT WHERE THE RIGHT-OF-WAY IS ADJACENT TO PRIVATE PROPERTY.

APPROVED BY THE OXFORD PLANNING & ZONING COMMISSION

SIGNATURE DATE

EARTHWORK QUANTITY ESTIMATE IN WETLAND AREAS FOR A.C.O.E. PERMIT

IMPACT AREA	DESCRIPTION	SQ. FT. OF DISURBANCE	CU. YDS. OF FILL
1	STA 3+30 EAST COMMERCE DRIVE	6015	1505
2	STA 8+80 EAST COMMERCE DRIVE	3065	725
3	STA 12+50 EAST COMMERCE DRIVE	385	15
4	STA 16+00 EAST COMMERCE DRIVE	2935	585
5	STA 21+00 EAST COMMERCE DRIVE	1720	385
6	STA 30+00 EAST COMMERCE DRIVE	175	35
7	STA 8+27 WOODRUFF HILL ROAD	1350	145
8	STA 24+0 TO 29+0 WOODRUFF HILL ROAD	1525	295
LOT 3		2310	170
LOT 8 & TOWANTIC		2896	773
LOT 13		4445	365
LOT 15		1120	85
	TOTAL	27,971	5,083

NOTES:

1) SEE SHEET 2 OF 2 (PREVIOUSLY FILED) FOR PERIMETER DESCRIPTIONS OF CONSERVATION EASEMENTS.

2) PHASE I TO INCLUDE LOT 9 REVISED, LOT 9A, LOT 9B, LOT 10 LOT 11 REVISED, LOT 12 REVISED AND THE WOODRUFF HILL RIGHT OF WAY FROM PROKOP ROAD TO THE CUL-DE-SAC. PHASE II TO INCLUDE THE REMAINING PORTION OF THE PROJECT.

09 APR 23 PM 2:53

RECORD SUBDIVISION MAP

SHOWING

"WOODRUFF HILL INDUSTRIAL PARK"

WOODRUFF HILL ROAD & PROKOP ROAD
OXFORD, CONNECTICUT
TOTAL AREA = 12,486,930 square feet
= 286.661 acres
SHEET 1 OF 2

SCALE - 1" = 200'
0 100 200 400 600

JUNE 1, 2006
REVISED JULY 20,2006
REVISED OCT. 17, 2006
REVISED JAN. 4, 2007
REVISED MARCH 15, 2007
REVISED AUG. 16, 2007
REVISED MARCH 31, 2009

THIS SURVEY WAS PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTION 20-300b-1 THROUGH 20-300b-20 OF THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

TYPE OF SURVEY ~ "PERIMETER SURVEY"

BOUNDARY DETERMINATION CATEGORY ~ "DEPENDANT RE SURVEY"

CLASS OF ACCURACY ~ "A-2"

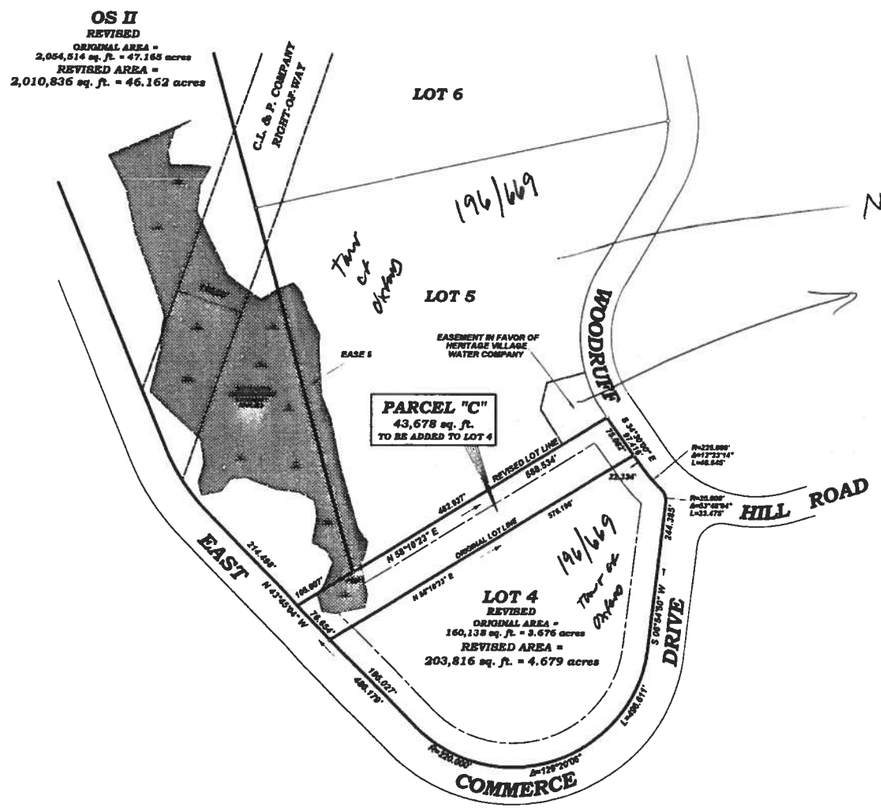
TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP AND SURVEY ARE SUBSTANTIALLY CORRECT AS NOTED HEREON.

MICHAEL J. RIORDAN
LICENSED LAND SURVEYOR, REG. # 14066
RIORDAN LAND SURVEYING
701 MIDDLEROAD TURNPIKE
WOODBURY, CT. 06798
203-263-2727, FAX 263-4139

06-059

35-115

DRAWING NUMBER 35-115
DRAWING NUMBER 35-115
DRAWING NUMBER 35-116
DRAWING NUMBER 35-115



35-84

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DRAWING NUMBER 35-84

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DRAWING NUMBER 35-84

DRAWING NUMBER 35-84

N

FINAL APPROVED MAPS
PLANNING & ZONING COMM
OXFORD, CT
AUG 28 2007
CHAIRMAN SIGNATURE
SECRETARY SIGNATURE

08 SEP -3 PM 1:40

LOT LINE REVISION MAP
REVISING
LOTS 4 & OS II
"WOODRUFF HILL INDUSTRIAL PARK"
TOWN CLERKS MAP # 35-32 & # 35-33
WOODRUFF HILL ROAD & EAST COMMERCE DRIVE
OXFORD, CONNECTICUT

SCALE ~ 1" = 100'
0 50 100 200 300

JULY 15, 2008

ORIGINAL INK DRAWING
HEWLETT PACKARD 1050C
RIORDAN
LAND SURVEYING

THIS SURVEY WAS PREPARED PURSUANT TO THE REGULATIONS OF CONNECTICUT STATE AGENCIES SECTION 20-300b-1 THROUGH 20-300b-20 OF THE "STANDARDS FOR SURVEYS AND MAPS IN THE STATE OF CONNECTICUT" AS ADOPTED BY THE CONNECTICUT ASSOCIATION OF LAND SURVEYORS, INC. ON SEPTEMBER 26, 1996.

TYPE OF SURVEY ~ "LIMITED PROPERTY SURVEY"

BOUNDARY DETERMINATION CATEGORY ~ "DEPENDANT RE SURVEY"

CLASS OF ACCURACY ~ "A-2"

TO THE BEST OF MY KNOWLEDGE AND BELIEF THIS MAP AND SURVEY ARE SUBSTANTIALLY CORRECT AS NOTED HEREON.

MICHAEL J. RIORDAN
LICENSED LAND SURVEYOR, REG. # 14888
RIORDAN LAND SURVEYING
701 MIDDLEROAD TURNPIKE
WOODBURY, CT. 06798
203-263-2727, FAX 263-4139

06-059

2(d)

DETAILED PROJECT SCHEDULES FOR ALL WORK ACTIVITIES AND PROPOSED CONSTRUCTION HOURS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.d – PROJECT SCHEDULE AND PROPOSED CONSTRUCTION HOURS

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.d), CPV Towantic, LLC hereby provides the following information with regard to a detailed project construction schedule and proposed construction hours.

Project schedule

A preliminary bar chart showing the principal construction tasks and overall schedule for this project is attached hereto as 'CPV Towantic Level 1 Schedule 062415.PDF'. It is noted that the overall schedule for the plant construction is about 30 months. While the actual start date will depend on the date when all final construction permits have been obtained and the project has completed financing, the current plan calls for the first on-site tasks of clearing, grubbing, and grading to begin around January, 2016. This will result in the construction and startup testing being completed by June 1, 2018 and the plant then going into full commercial operation.

It is logical to break the Project down into five broad work activities which are, in chronological order:

1. Site civil work;
2. Placement of major structural concrete foundations;
3. Erection of building structural steel;
4. Installation of mechanical and electrical equipment; and
5. Commissioning and testing of equipment.

Table 1 shows a summary of the approximate duration of each of these phases of the construction and the approximate number of workers who will be on the site at these times. These numbers are estimates and the duration of these work phases will overlap as tasks associated with later activities can be started before all of the tasks from the previous phase are finished.

TABLE 1
CONSTRUCTION PHASES AND APPROXIMATE WORKFORCE SIZE

	Phase 1 Site Civil work	Phase 2 Concrete Foundations	Phase 3 Erect Buildings	Phase 4 Install Equipment	Phase 5 Commissioning and Testing
Duration (months)	5	8	10	15	10
Avg. # of Workers	75	150	350	500	150

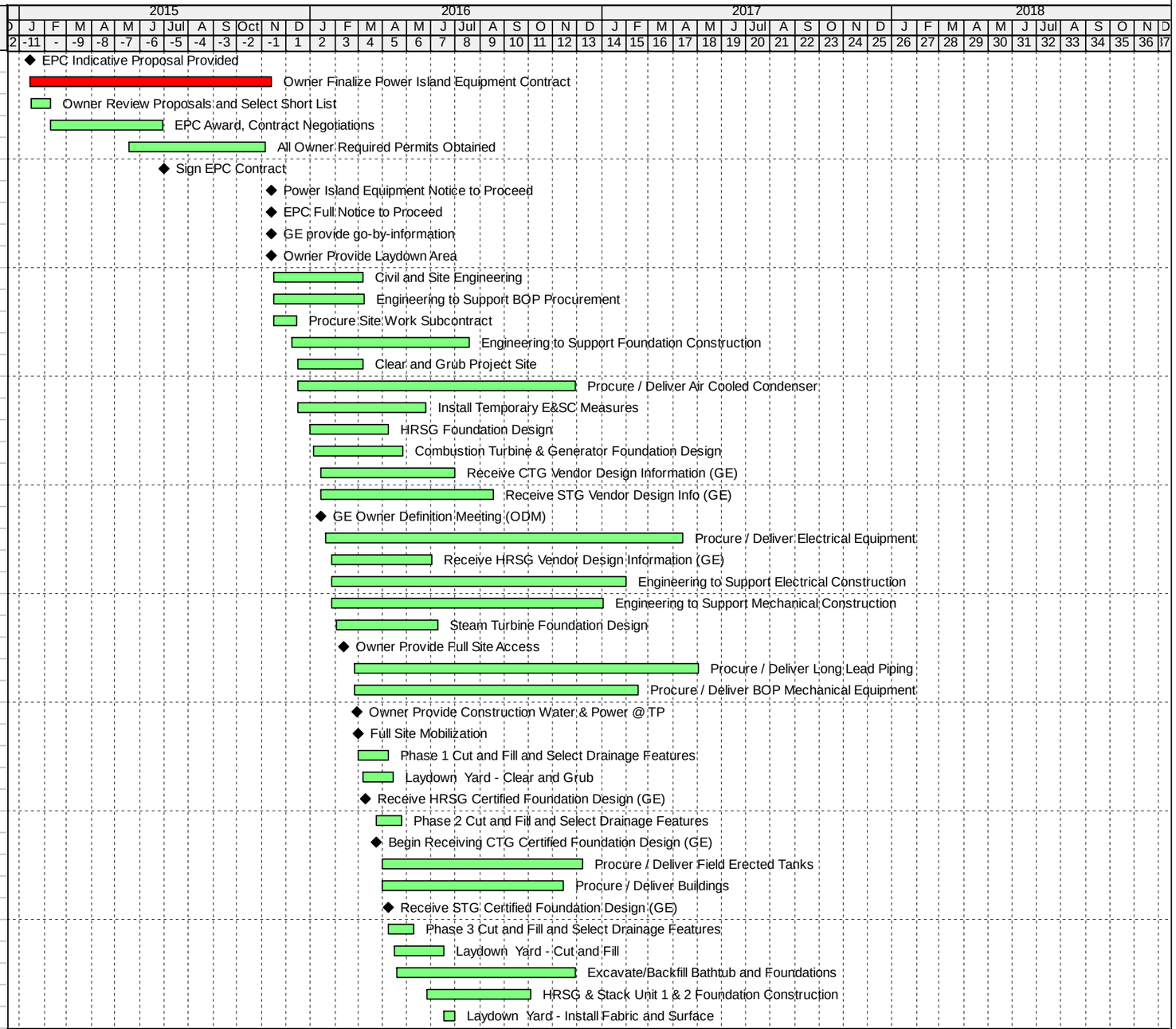
The total workforce will peak at approximately 500 workers during the equipment erection and installation phase and will average approximately 250 for the project duration.

Work Hours

The work hours for the Project will vary depending on construction phase, weather and season, but the normal work hours for the Project will be from 6:30am to 5:30pm, Monday to Friday. However, there may be times when specific construction activities, including, but no limited to, concrete placement, receiving/unloading the major equipment and commissioning and testing could require a longer working day. Additionally, weekend work may become necessary at times in order to maintain the critical path schedule.

24-Jun-15

Activity ID	Activity Name	Original Duration	Start	Finish
1000	EPC Indicative Proposal Provided	0	14-Jan-15	
1010	Owner Finalize Power Island Equipment Contract	213	14-Jan-15	12-Nov-15
1001	Owner Review Proposals and Select Short List	25	15-Jan-15	08-Feb-15
1020	EPC Award, Contract Negotiations	100	09-Feb-15	30-Jun-15
1030	All Owner Required Permits Obtained	120	19-May-15	05-Nov-15
1040	Sign EPC Contract	0	01-Jul-15	
1015	Power Island Equipment Notice to Proceed	0	13-Nov-15	
1050	EPC Full Notice to Proceed	0		13-Nov-15
1091	GE provide go-by-information	0		13-Nov-15
1132	Owner Provide Laydown Area	0		13-Nov-15
301009	Civil and Site Engineering	75	16-Nov-15	07-Mar-16
301010	Engineering to Support BOP Procurement	77	16-Nov-15	09-Mar-16
341019	Procure Site Work Subcontract	20	16-Nov-15	15-Dec-15
301020	Engineering to Support Foundation Construction	154	09-Dec-15	19-Jul-16
341021	Clear and Grub Project Site	50	16-Dec-15	07-Mar-16
501500	Procure / Deliver Air Cooled Condenser	240	17-Dec-15	29-Nov-16
341022	Install Temporary E&SC Measures	100	17-Dec-15	25-May-16
301022	HRSG Foundation Design	70	31-Dec-15	08-Apr-16
301023	Combustion Turbine & Generator Foundation Design	80	05-Jan-16	26-Apr-16
1070	Receive CTG Vendor Design Information (GE)	119	14-Jan-16	30-Jun-16
1080	Receive STG Vendor Design Info (GE)	152	14-Jan-16	17-Aug-16
1090	GE Owner Definition Meeting (ODM)	0	14-Jan-16	
500200	Procure / Deliver Electrical Equipment	311	21-Jan-16	13-Apr-17
1060	Receive HRSG Vendor Design Information (GE)	88	28-Jan-16	01-Jun-16
301030	Engineering to Support Electrical Construction	256	28-Jan-16	01-Feb-17
301040	Engineering to Support Mechanical Construction	235	28-Jan-16	03-Jan-17
301021	Steam Turbine Foundation Design	90	03-Feb-16	09-Jun-16
1051	Owner Provide Full Site Access	0		12-Feb-16
411000	Procure / Deliver Long Lead Piping	299	26-Feb-16	02-May-17
509010	Procure / Deliver BOP Mechanical Equipment	245	26-Feb-16	15-Feb-17
1131	Owner Provide Construction Water & Power @ TP	0		29-Feb-16
2010	Full Site Mobilization	0	01-Mar-16	
341023	Phase 1 Cut and Fill and Select Drainage Features	25	01-Mar-16	07-Apr-16
341036	Laydown Yard - Clear and Grub	25	08-Mar-16	14-Apr-16
1120	Receive HRSG Certified Foundation Design (GE)	0		10-Mar-16
341024	Phase 2 Cut and Fill and Select Drainage Features	20	24-Mar-16	25-Apr-16
1110	Begin Receiving CTG Certified Foundation Design (GE)	0		24-Mar-16
325500	Procure / Deliver Field Erected Tanks	176	31-Mar-16	08-Dec-16
343500	Procure / Deliver Buildings	160	31-Mar-16	14-Nov-16
1130	Receive STG Certified Foundation Design (GE)	0		07-Apr-16
341025	Phase 3 Cut and Fill and Select Drainage Features	20	08-Apr-16	09-May-16
341037	Laydown Yard - Cut and Fill	40	15-Apr-16	16-Jun-16
341020	Excavate/Backfill Bathtub and Foundations	150	18-Apr-16	29-Nov-16
341910	HRSG & Stack Unit 1 & 2 Foundation Construction	88	26-May-16	04-Oct-16
341038	Laydown Yard - Install Fabric and Surface	10	17-Jun-16	30-Jun-16

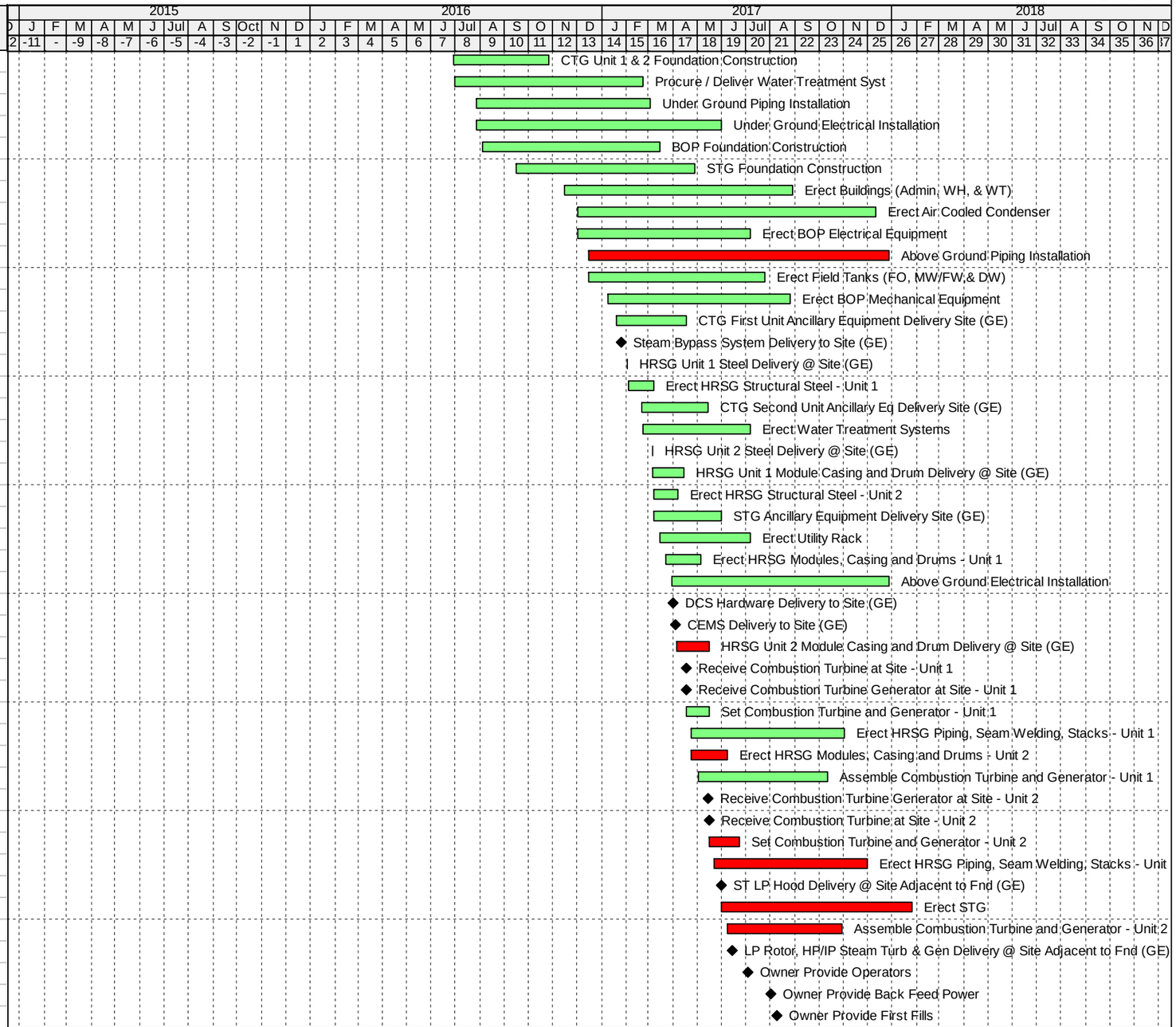


Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

CPV Towantic Energy Center
Level 1 Schedule
Preliminary for Review

GEMMA POWER SYSTEMS

Activity ID	Activity Name	Original Duration	Start	Finish
341920	CTG Unit 1 & 2 Foundation Construction	82	29-Jun-16	27-Oct-16
509000	Procure / Deliver Water Treatment Syst	160	01-Jul-16	21-Feb-17
310100	Under Ground Piping Installation	144	28-Jul-16	03-Mar-17
330100	Under Ground Electrical Installation	200	28-Jul-16	31-May-17
342000	BOP Foundation Construction	144	05-Aug-16	14-Mar-17
341930	STG Foundation Construction	145	16-Sep-16	27-Apr-17
343510	Erect Buildings (Admin, WH, & WT)	185	15-Nov-16	28-Aug-17
323050	Erect Air Cooled Condenser	263	02-Dec-16	11-Dec-17
330200	Erect BOP Electrical Equipment	139	02-Dec-16	07-Jul-17
310200	Above Ground Piping Installation	245	16-Dec-16	28-Dec-17
325510	Erect Field Tanks (FO, MW/FW,& DW)	140	16-Dec-16	24-Jul-17
323060	Erect BOP Mechanical Equipment	150	09-Jan-17	25-Aug-17
1171	CTG First Unit Ancillary Equipment Delivery Site (GE)	60	20-Jan-17	17-Apr-17
1140	Steam Bypass System Delivery to Site (GE)	0		25-Jan-17
1150	HRSG Unit 1 Steel Delivery @ Site (GE)	1	02-Feb-17	02-Feb-17
323010	Erect HRSG Structural Steel - Unit 1	20	03-Feb-17	07-Mar-17
1181	CTG Second Unit Ancillary Eq Delivery Site (GE)	60	20-Feb-17	15-May-17
323040	Erect Water Treatment Systems	88	22-Feb-17	07-Jul-17
1160	HRSG Unit 2 Steel Delivery @ Site (GE)	1	06-Mar-17	06-Mar-17
1152	HRSG Unit 1 Module Casing and Drum Delivery @ Site (GE	30	06-Mar-17	14-Apr-17
323011	Erect HRSG Structural Steel - Unit 2	20	07-Mar-17	06-Apr-17
1191	STG Ancillary Equipment Delivery Site (GE)	60	08-Mar-17	31-May-17
344010	Erect Utility Rack	75	15-Mar-17	07-Jul-17
323012	Erect HRSG Modules, Casing and Drums - Unit 1	30	23-Mar-17	05-May-17
330300	Above Ground Electrical Installation	180	31-Mar-17	28-Dec-17
1144	DCS Hardware Delivery to Site (GE)	0		31-Mar-17
1142	CEMS Delivery to Site (GE)	0		04-Apr-17
1162	HRSG Unit 2 Module Casing and Drum Delivery @ Site (GE	30	05-Apr-17	16-May-17
323020	Receive Combustion Turbine at Site - Unit 1	0	17-Apr-17	
323021	Receive Combustion Turbine Generator at Site - Unit 1	0	17-Apr-17	
323022	Set Combustion Turbine and Generator - Unit 1	20	17-Apr-17	16-May-17
323013	Erect HRSG Piping, Seam Welding, Stacks - Unit 1	130	24-Apr-17	01-Nov-17
323014	Erect HRSG Modules, Casing and Drums - Unit 2	30	24-Apr-17	07-Jun-17
323023	Assemble Combustion Turbine and Generator - Unit 1	110	02-May-17	11-Oct-17
323024	Receive Combustion Turbine Generator at Site - Unit 2	0	15-May-17	
323025	Receive Combustion Turbine at Site - Unit 2	0	16-May-17	
323026	Set Combustion Turbine and Generator - Unit 2	25	16-May-17	22-Jun-17
323019	Erect HRSG Piping, Seam Welding, Stacks - Unit 2	130	23-May-17	01-Dec-17
1190	ST LP Hood Delivery @ Site Adjacent to Fnd (GE)	0		31-May-17
323030	Erect STG	160	01-Jun-17	25-Jan-18
323029	Assemble Combustion Turbine and Generator - Unit 2	98	08-Jun-17	30-Oct-17
1192	LP Rotor, HP/IP Steam Turb & Gen Delivery @ Site Adjacer	0		13-Jun-17
1201	Owner Provide Operators	0		03-Jul-17
1210	Owner Provide Back Feed Power	0		01-Aug-17
1202	Owner Provide First Fills	0		08-Aug-17



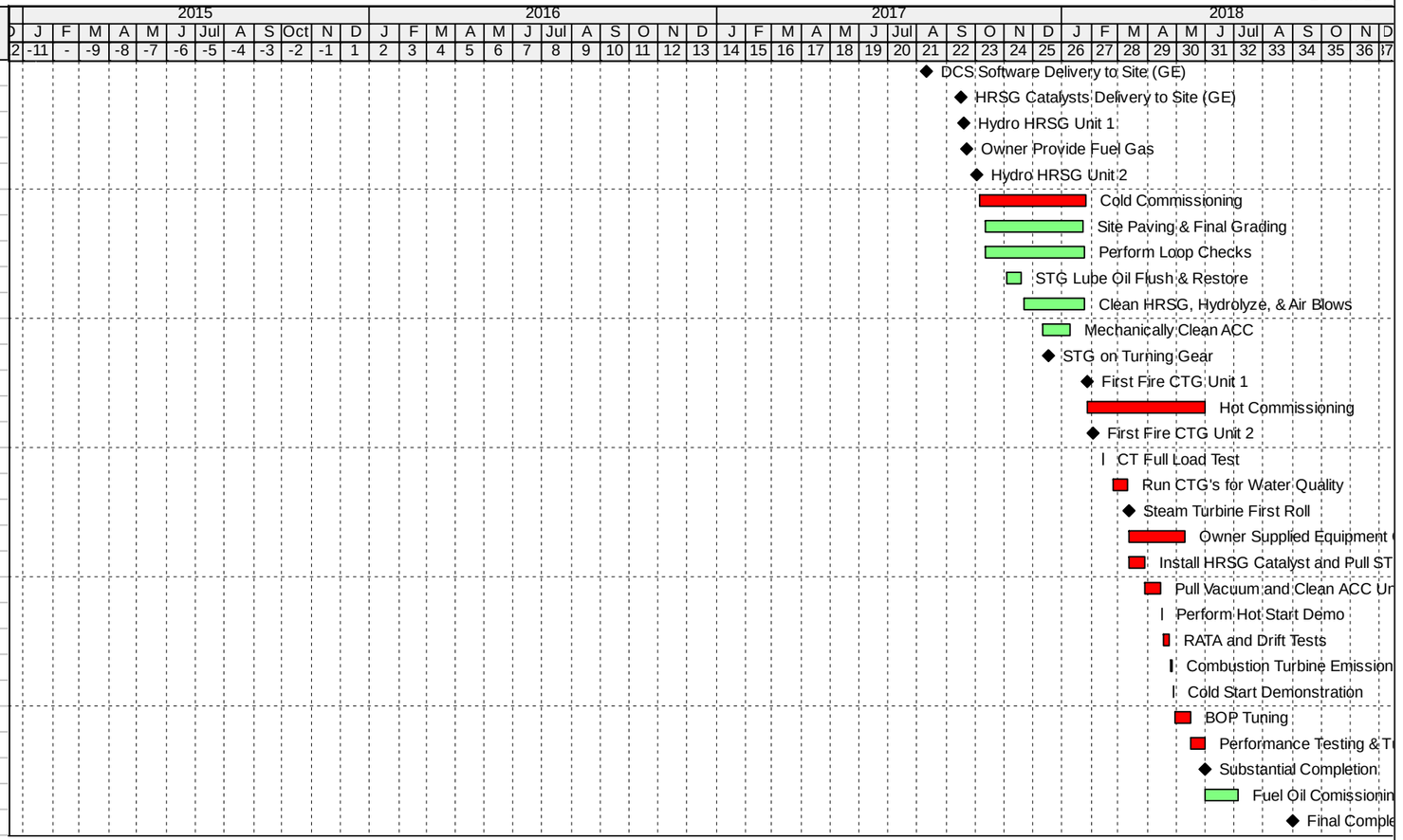
Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

CPV Towantic Energy Center
Level 1 Schedule
Preliminary for Review

GEMMA POWER SYSTEMS

24-Jun-15

Activity ID	Activity Name	Original Duration	Start	Finish
1146	DCS Software Delivery to Site (GE)	0		11-Aug-17
1148	HRSG Catalysts Delivery to Site (GE)	0		15-Sep-17
2020	Hydro HRSG Unit 1	0		19-Sep-17
1200	Owner Provide Fuel Gas	0		21-Sep-17
2030	Hydro HRSG Unit 2	0		03-Oct-17
710010	Cold Commissioning	92	06-Oct-17	26-Jan-18
341110	Site Paving & Final Grading	66	12-Oct-17	22-Jan-18
710015	Perform Loop Checks	85	12-Oct-17	24-Jan-18
710020	STG Lube Oil Flush & Restore	13	04-Nov-17	18-Nov-17
711030	Clean HRSG, Hydrolyze, & Air Blows	50	22-Nov-17	24-Jan-18
710180	Mechanically Clean ACC	22	12-Dec-17	09-Jan-18
710030	STG on Turning Gear	0	18-Dec-17	
2040	First Fire CTG Unit 1	0	27-Jan-18	
711020	Hot Commissioning	107	27-Jan-18	31-May-18
2050	First Fire CTG Unit 2	0	03-Feb-18	
711035	CT Full Load Test	1	13-Feb-18	13-Feb-18
711040	Run CTG's for Water Quality	14	23-Feb-18	10-Mar-18
711050	Steam Turbine First Roll	0	12-Mar-18	
1194	Owner Supplied Equipment Commissioning Period	60	12-Mar-18	10-May-18
711060	Install HRSG Catalyst and Pull ST Screens	15	12-Mar-18	28-Mar-18
710185	Pull Vacuum and Clean ACC Units	15	29-Mar-18	14-Apr-18
711070	Perform Hot Start Demo	1	16-Apr-18	16-Apr-18
711080	RATA and Drift Tests	7	17-Apr-18	24-Apr-18
711082	Combustion Turbine Emissions Testing	3	25-Apr-18	27-Apr-18
711084	Cold Start Demonstration	1	28-Apr-18	28-Apr-18
711086	BOP Tuning	15	30-Apr-18	16-May-18
711090	Performance Testing & Tuning	14	17-May-18	01-Jun-18
2060	Substantial Completion	0		01-Jun-18*
711087	Fuel Oil Comissioning	30	01-Jun-18	05-Jul-18
2070	Final Completion	0		31-Aug-18



Actual Work
Remaining Work
Critical Remaining Work
Milestone
Summary

CPV Towantic Energy Center
Level 1 Schedule
Preliminary for Review

GEMMA POWER SYSTEMS

2(e)

EROSION AND SEDIMENTATION CONTROL PLANS THAT REFLECT THE COMPLEXITY OF DEVELOPING THE SITE.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.e – EROSION AND SEDIMENT CONTROL PLANS

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.e), CPV Towantic, LLC hereby provides the following detailed narrative and set of plans regarding erosion and sediment control in the attached drawings.

Attached

- Drawings C315-C317 & C330-C331 in '98132 D&M Plans 6-30-15.PDF'

2(f)

EMERGENCY RESPONSE/SAFETY PLAN PER CONDITION NO. 1(h) OF THE DECISION.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.f –EMERGENCY RESPONSE/SAFETY PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.f), CPV Towantic, LLC hereby provides the attached Draft Emergency Response Plan and relevant correspondence.

Attached:

- 'Condition 2.f – ERP – Draft for D&M Plan.docx'
- 'DESPP_EmailConfirm.PDF'
- 'OxfordEmgcyOps_EmailConfirm.PDF'

2(f)

***SEE ATTACHED PDF DOCUMENT FOR COPY OF THE DRAFT EMERGENCY RESPONSE PLAN.**

Kyle Kekeisen

From: Bergeron, Brenda <Brenda.Bergeron@ct.gov>
Sent: Friday, June 05, 2015 5:46 PM
To: 'DeRosa, Franca L.'; Small, Philip M.; Andy Bazinet; Paszczuk, Henry
Cc: Vannini, Thomas; Devico, Scott
Subject: RE: CPV Towantic - Proposed Electric Generating Facility - Emergency Response/Safety Plan
Attachments: ESF 12 All Hazards Energy and Utilities Annex Final Version 1.0 August 21 2013.docx

Good afternoon, it was a pleasure meeting with you all today. As we discussed, the best emergency plan is one that is created through a collaborative effort with appropriate partners, and therefore the next step that you are taking, to meet with state and local officials and private sector representatives, is entirely appropriate. I have included the website for our division, www.ct.gov/demhs, so that you can view a number of documents, including the State Response Framework. I have also attached for your review the ESF-12 Energy Annex, which includes the Make Safe Protocol, beginning on page 34. Also as we discussed, the team at the plant should be trained in the National Incident Management System (NIMS), Incident Command System (ICS). The basic courses are on line, 100, 200, 700, and 800. Throughout the year, ICS 300 and 400 are taught at locations across the state. For more information on NIMS, you can go to www.training.FEMA.gov.

We look forward to working with you. Brenda

Brenda M. Bergeron, Esq.
Division of Emergency Management and Homeland Security
Department of Emergency Services and Public Protection

From: Kyle Kekeisen
To: "Scott Pelletier"
Subject: RE: Towantic D&M plan filing to CSC, including Emerg Resp Plan
Date: Monday, July 13, 2015 2:30:35 PM
Attachments: Condition 2.f - ERP - Draft for D&M Plan.doc

Scott—Here is the draft ERP as it will be submitted in the D&M Plan. As a reminder, the D&M Plan only calls for a draft ERP to be submitted. The document will not be finalized in the Operations Plan phase until after incorporating any comments/edits from you (and any other relevant emergency ops groups/personnel) to Draft ERP we plan to submit this week.

For ease of tracking, I've left changes we've incorporated since our meeting in "tracked changes".

Regards,

Kyle

Kyle Kekeisen
Competitive Power Ventures, Inc.
50 Braintree Hill Office Park, Suite 300
Braintree, MA 02184
Office: (781) 952-5972
Cell: (617) 955-7780
Fax: (781) 848-5804

From: Scott Pelletier [mailto:chiefsjp@oxford-ct.gov]
Sent: Wednesday, July 08, 2015 12:21 PM
To: Kyle Kekeisen
Subject: Re: Towantic D&M plan filing to CSC, including Emerg Resp Plan

Kyle

Please make sure you sand a cpy to me for review and to make comments on it.

we are looking to see if the items and concerns that we discussed at our meeting were incorporated or thought about.

Thanks

Scott J. Pelletier
Fire Chief ~ Fire Marshal
Town of Oxford

On Wed, Jul 8, 2015 at 11:59 AM, Kyle Kekeisen <kkekeisen@cpv.com> wrote:
Scott– We're getting ready to submit our D&M plan (which, as we discussed, includes a draft of our ERP) and I was hoping you'd be kind enough to send an email to me confirming that we met on June 16, 2015 at the Oxford fire house. Nothing special, just something we can put in the file to demonstrate we've done as the CSC has asked (i.e. met with you and others from Oxford Emergency Ops to solicit ERP comments/thoughts).

Separately, we've pulled together the draft ERP and are currently circulating it internally for QA/QC. I'll make sure to forward the polished draft of the plan as soon as it's ready to go, likely before the end of this week. We value your input and appreciate your help in making sure that everyone stays safe.

Regards,

Kyle

Kyle Kekeisen
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Braintree, MA 02184
Office: (781) 952-5972
Cell: (617) 955-7780
Fax: (781) 848-5804

2(g)

FINAL NOISE MITIGATION MEASURES AND PLANS TO DEMONSTRATE COMPLIANCE WITH DEEP STANDARDS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.g –NOISE MITIGATON MEASURES AND COMPLIANCE

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.g), CPV Towantic, LLC hereby provides the following information with regard to construction and final noise mitigation measures and plans to demonstrate compliance with the Connecticut Department of Energy and Environmental Protection (DEEP) noise standards.

Construction Noise
Since construction equipment operates intermittently, and the types of activities and equipment in use at the site will change with the phase of the Project, noise emitted during construction will be highly variable. However, the project will endeavor to minimize noise impacts by through the use of the following measures:

- Limiting use of major excavating and earth moving equipment to daytime hours;
- Limiting the occurrence of specific short duration loud noise events to daytime hours;
- Providing notification and warning to local inhabitants and emergency services personnel prior to conducting specific loud noise activities, with such notification to include identification of the nature and duration of the noise event;
- Limiting possible evening shift work to low noise activities;
- Ensuring that all equipment is properly equipped with sound mitigation devices, and that such devices are maintained in good working order; and
- Minimizing the queuing of trucks making equipment deliveries and prohibiting queued trucks from idling their engines overnight or during the day to the extent required by law.

Project Noise Design Target
As outlined in the noise study attached to CPV's petition, noise modeling was completed to demonstrate compliance with DEEP noise standards that limit the Project under normal operating conditions to 51 A-weighted decibels (dBA) at night at the boundaries of residential land use classifications and 70 dBA at all industrial property lines (essentially the Project site boundaries).

Mitigation Design
The Project will employ mitigation of noise emissions from various Project sources in order to meet its noise commitments. Details are provided with regard to key mitigation specifications reflected in the current Project design. As the Project moves through final design and into construction, refinements in the design are anticipated to continue. However, the Engineering, Procurement and Construction (EPC) contract will include guaranteed levels of performance that comply with the above design target and will specify the following measures as the core mitigation package. In this iteration of the design, the mitigation has been adjusted from the noise study to reflect noise compliance with the incorporation of gas compression.

Table 1 provides the required sound power level of each continuous noise source by octave band center frequency (OBCF). The levels specified in that table include specific measures that have been incorporated for certain key mitigation targets, as outlined below:

- Combustion turbines and generators – housed in acoustical enclosures equipped with silencers and attenuators to reduce noise emissions from ventilation openings, fans and make-up air units;

- Combustion turbine air inlets – additional silencing beyond standard manufacturer specifications;
- Air cooled condenser (ACC) – sound louvered baffles, slower fan speeds or other adjustment to reduce sound levels below standard manufacturer specifications, as well as highly efficient control valves and dump elements with low noise design for the main duct and header;
- GSU transformers – low-noise NEMA rated transformers or a 25-foot tall acoustical barrier wall immediately adjacent to the north of the transformers;
- Stacks – incorporation of stack silencing inclusive of the heat recovery steam generator (HRSG) to achieve a total 90-degree directional sound power level of 104 dBA to reduce sound pressure levels leaving the flue in the stack structure;
- Auxiliary fin fan cooler – low-noise specifications to eliminate the need for an L-shaped barrier previously included in the noise modeling;
- Pumps, heaters, and coolers – low-noise equipment, as required, is specified for various pumps, heaters, and coolers that will not be in enclosures or mitigated by use of acoustical barriers;
- Turbine compartment ventilation fans – additional attenuators/silencing for the side of the combustion turbine compartment enclosure facing the direction of the closest property line;
- Fuel gas/steam piping and valves – incorporation of lagging, with safety and release valve equipped with silencing to the extent permitted by the American Society for Mechanical Engineers code;
- Steam system vents – installation of silencers;
- Combustion turbine generator exhaust diffuser – incorporation of acoustical lagging as the diffuser exits the turbine compartment and enters the HRSG; and
- Ductwork between the steam turbine generator and the ACC – incorporation of lagging and high efficiency control valves.

Table 1 – Facility Sound Source Levels for Major Project Components

Sound Source	Type[1]	Sound Power Level (L_P) by Octave Band Frequency dBL									Broadband Level
		31.5	63	125	250	500	1k	2k	4k	8k	dBA
CT Air Inlet Face w/ Silencer	L_W	111	114	114	99	92	93	96	89	77	102
CT Air Inlet Plenum	L_W	102	96	93	90	92	97	97	94	83	102
Boiler Feedwater Pumps[2]	L_W	95	99	100	90	94	92	89	83	78	97
Combustion Turbine[2]	L_W	108	106	103	99	100	101	104	107	95	111
CT Load Compartment[2]	L_W	96	101	99	91	94	99	98	93	83	103
CT Generator[2]	L_W	101	120	113	103	102	97	93	90	79	104
Steam Turbine[2]	L_W	112	112	108	107	106	101	96	94	93	107
ST Generator[2]	L_W	106	106	105	102	104	103	102	97	88	108
Turbine Compartment Vent Fans	L_W	95	95	103	94	91	88	87	91	88	97
Fuel Gas Piping	L_W	104	100	89	81	80	86	88	91	89	96
HRSG Body and Inlet	L_W	115	119	118	108	94	92	85	68	51	105
HRSG Accessories Package	L_W	106	110	109	103	94	90	78	69	62	99
Stack Exit (90 deg. directivity)	L_W	111	118	117	108	93	90	75	66	59	104
Air-Cooled Condenser	L_P	62	64	58	51	49	48	41	33	14	52
Auxiliary Fin Fan Cooler	L_W	100	103	101	100	100	98	97	95	93	103
Condenser	L_W	100	101	100	98	99	93	88	83	79	107
Main Step-up Transformer	L_W	103	102	106	99	103	94	90	85	78	102
Auxiliary Transformer	L_W	90	96	98	93	93	87	82	77	70	93
Fuel Oil Pump[2]	L_W	88	91	90	78	80	77	70	67	65	84
Fuel Gas Metering Station	L_W	96	85	82	75	82	83	93	90	88	97
Fuel Gas Heater	L_W	84	88	93	85	94	97	98	101	91	105
Auxiliary Steam Boiler	L_W	101	101	100	98	95	92	89	86	83	98
ST Bldg (all interior sources)	$L_{i(c)}$	89	87	94	84	81	80	75	65	56	85
Control /Auxiliary Boiler Building (all interior sources)	$L_{i(c)}$	81	82	81	79	80	74	69	64	60	80
CT Lube Oil Module[2]	L_W	102	105	101	100	99	97	97	95	87	103
Gas Compressor Skid	L_W	110	105	106	102	100	92	86	94	96	102
Ammonia Injection Skid	L_W	110	105	106	102	100	92	86	94	96	102
Auxillary Cooling Pump	L_W	101	101	100	102	105	102	105	97	94	101

[1] = "L_W" is the sound power level in dBL, and dBA broadband, (re: 1 pW). "Li(c)" is the calculated average interior sound pressure in dB, and dBA broadband, (re: 20μPa), within a building or structure, based on the sound power levels of noise sources located within that building or structure. L_P is the sound pressure level from the ACC at a reference distance of 400 feet.

[2] = Sound levels presented are for equipment housed in acoustical package enclosures.

Confirmation of Design Compliance

Additional modeling has been completed to confirm that the mitigation measures reflected herein continue to comply with the DEEP noise standards (that have also been adopted by the Town of Oxford) that comprise the Project's design target. Results of the analysis are presented in Figure 2. With the mitigation elements described (or their equivalent) the Project will have the ability to fully comply with the noise design target.

Compliance Assessment

As noted above, refinements in specific pieces of equipment will be phased and will overlap with the construction process. As each final selection is made, the specifications noted above will be adhered to or equivalent reductions will be provided in other contributing equipment to result in the overall Project sound levels continuing to comply with the design target. Throughout the final design process, the EPC contractor may conduct its own sensitivity analyses to ensure its ability to meet noise guarantee levels.

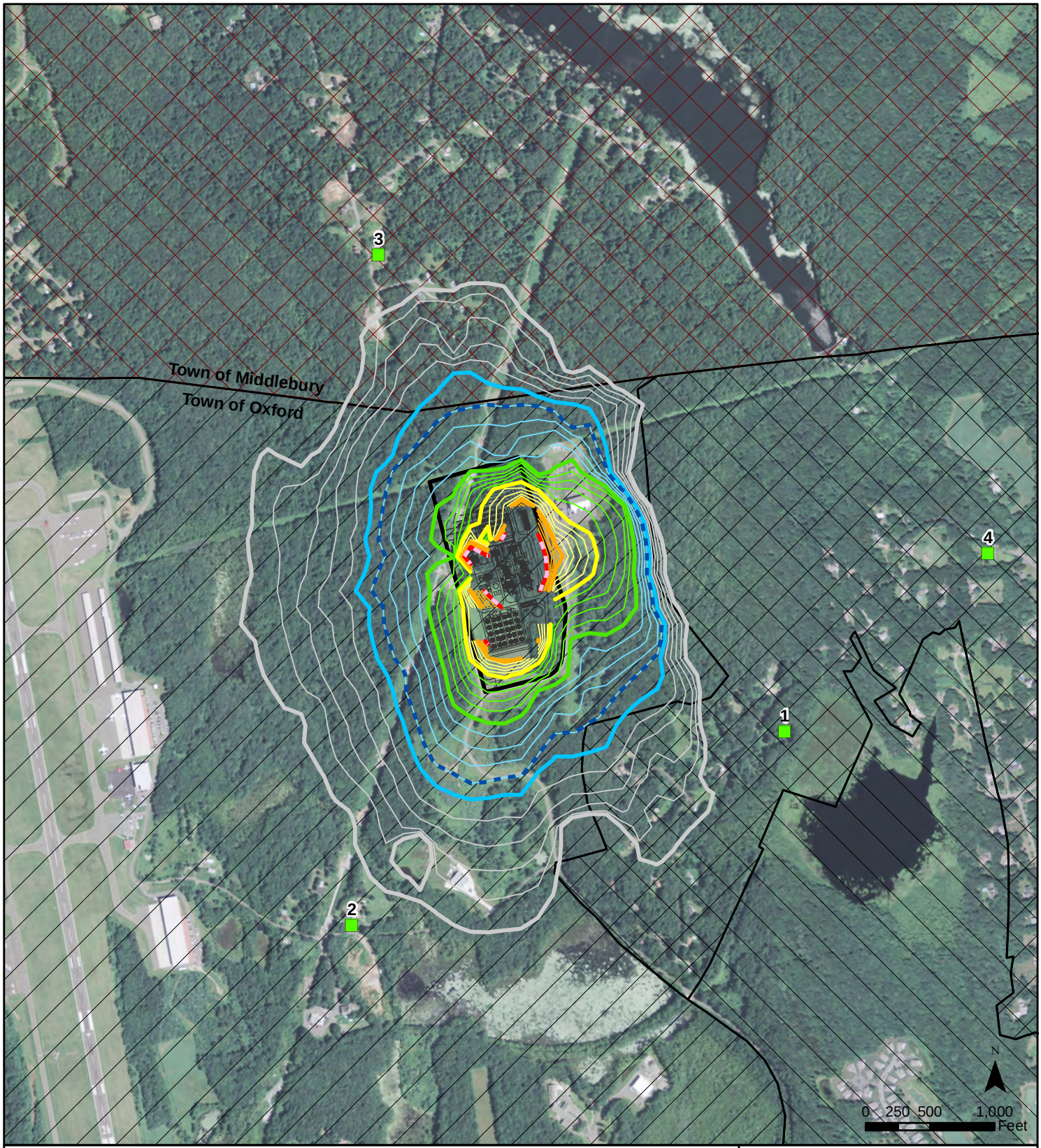
Once construction is completed and prior to release of the EPC contractor from its obligation to conform with noise performance guarantees, a compliance test will be undertaken to verify that the anticipated levels of design have been met and that resulting Project contributions are consistent with DEEP and local standards. The contractor shall conduct noise testing in accordance with the reference test methods for measurement of near field and far field sound pressure levels in accordance with ASME PTC 36, Measurement of Industrial Sound.

Measurements will be completed at several Project property line locations and other locations as deemed necessary to confirm that the acoustic performance of the Project meets the most stringent required DEEP and local standards, summarized in Table 2. As an industrial source (Class C under the regulations), the Project is obligated to meet certain daytime and nighttime limits at receiving land use types categorized as industrial, commercial/retail and residential/sensitive areas. For the purpose of compliance, the DEEP noise limits shall be demonstrated by achieving a no more than 70 dBA Project sound level at the Project property boundary (the closest industrial location) and a no more than 51 dBA Project sound level (the most stringent residential nighttime limit) at the three key residentially zoned areas.

Table 2. DEEP Noise Limits

Emitter	**Receptor (dBA)**			
	Class C	**Class B**	**Class A Daytime (7:00 am – 10:00 pm)**	**Class A Nighttime (10:00 pm – 7:00 am)**
Class C - Industrial	70	66	61	51
Class B - Commercial and Retail Trade	62	62	55	45
Class A – Residential Areas and other sensitive areas	62	55	55	45

The Owner will prepare and submit an Operational Noise Measurement Protocol plan for the Facility 120 days prior to the commencement of the field program. The noise monitoring program test report shall be submitted to the Connecticut Siting Council and include a comparison of specified and measured sound levels together with a statement of compliance.



Legend

- Sound Monitoring Locations
- Project Area

Oxford Zoning

- I: Industrial District
- R-A: Residential A
- R-CGD: Residential Community Golf District

Middlebury Zoning

- R: Residential District

Sound Level Contour (dBA)

- 45 dBA
- 50 dBA
- 55 dBA
- 60 dBA
- 65 dBA
- 70 dBA

- DEEP and Oxford 70 dBA Industrial Noise Limit Isopleth
- DEEP and Oxford 51 dBA Residential Nighttime Noise Limit Isopleth

Figure 2
Received Sound Levels: Normal Operation

Towantic Energy Center
New Haven County, Connecticut

R:\Projects_2014\Towantic\maps\Figure_2_Sound_Levels_Normal_Operation.mxd

2(h)

FINAL DETERMINATION ON BLACK START CAPABILITY AND SUCH DESIGN IF APPLICABLE.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.h – FINAL BLACKSTART DETERMINATION

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.h), CPV Towantic, LLC hereby provides the following information with regard to the potential incorporation of blackstart capability into the CPV Towantic Energy Center.

CPV Towantic has made the final determination to not incorporate black start capability into the Project. As discussed in "2f – Connecticut Siting Council Late-Filed Exhibit" dated January 22, 2015, CPV Towantic's ability to retrofit the Facility with blackstart capability (or to incorporate it at this late stage in the Facility's development cycle) would be contingent upon "(i) technical feasibility, (ii) obtaining ISO-NE and FERC approval of a CPV Towantic-specific compensation mechanism and (iii) successful incorporation of the new emissions source into CPV Towantic's Connecticut DEEP air permit."

Prior to submitting an application to ISO-NE for the Facility's consideration as a blackstart resource, CPV Towantic conducted an evaluation of the above-mentioned contingent factors and found the inclusion of blackstart to be both technically infeasible and likely to have a materially adverse effect on CPV Towantic's ability to secure a Connecticut DEEP air permit.

Technical Infeasibility

The technical infeasibility of adding blackstart to the Facility derives primarily from the spatial constraints inherent to the Facility's 26-acre site. Given that the site is bordered on the west and south by roadways, on the north by the Algonquin Interstate Natural Gas Pipeline, on the northwest by the Eversource Energy transmission right-of-way, and on the west by Spectra's gas compression station, there is no further opportunity to expand the site beyond the 26 acres currently contemplated. Without the room to expand, the current site plan could not to accommodate the 16 MW of diesel generators (likely 4 x 4 MW or 2 x 8 MW) required for blackstart capability. Elements of the Facility such as its air-cooled condenser occupy significant portions of the site, but cannot be replaced with smaller equipment such as wet-cooling towers due to the order-of-magnitude increase in expected water usage.

Inability to Incorporate into Air Permit

The incompatibility of blackstart with CPV Towantic's air permitting effort is two-fold. The first issue arises from the schedule associated with a material modification of the Facility's air permit application at this late stage of CT DEEP's review. A modification, such as the inclusion of 16 MW of diesel-fueled blackstart generators, would require a new application for the new emissions sources, thus delaying final approval of the Facility's air permit by at least 6 months. Such a delay would greatly reduce the Facility's probability of achieving commercial operations prior to the June 1, 2018 deadline imposed by ISO-NE. The second issue derives from the increase in Facility-wide potential-to-emit associated with adding the blackstart generators to the project scope. Currently, the Facility's position with respect to certain criteria pollutant potential-to-emit thresholds could not accommodate additional emissions without crossing those thresholds. In doing so, the Facility would reduce the likelihood of securing a viable CT DEEP Air Permit and would substantially increase the permit timeframe.

As a result of the above-mentioned factors, CPV Towantic has determined that it is not reasonable to further pursue the inclusion of blackstart capability in the Facility at this point in time.

2(i)

STORMWATER POLLUTION PROTECTION PLAN OUTLINING BEST MANAGEMENT PRACTICES.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.i – STORMWATER POLLUTION PROTECTION PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.i), CPV Towantic, LLC hereby provides the following Stormwater Pollution Protection Plan (SWPPP).

Attached

- SWPPP as '98132 SPCP & DEEP CGP-Civil1-6-30-2015(1).PDF'

2(i)

SEE ATTACHED PDF DOCUMENT FOR COPY OF THE STORMWATER POLLUTION PROTECTION PLAN.

2(j)

FINAL STORMWATER DESIGN INCLUDING EVALUATING THE FEASIBILITY OF NOT INTRODUCING STORMWATER INTO THE WASTEWATER.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.j – FINAL STORMWATER DESIGN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.j), CPV Towantic, LLC hereby provides the following narrative and set of plans regarding final stormwater design.

Introduction of Stormwater into Wastewater Management System

After incorporating feedback from the Naugatuck Water Pollution Control Authority, the current stormwater design does not call for the disposal of any stormwater via sanitary sewer. Any water collected in the transformer pit and/or oil tank containment areas will pass through an oil/water separator where it will be visually inspected per CT DEEP guidelines prior to discharge via the Project's normal stormwater management system.

Attached

- Drawings C310, C320-322 & C325 in '98132 D&M Plans 6-30-15.PDF'

2(k)

UPDATED WATER SUPPLY/MANAGEMENT PLAN.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.k – WATER SUPPLY / MANAGEMENT PLAN

In accordance with the Connecticut Siting Council's May 20, 2015 Decision and Order (Docket No. 192B, Item 2.k), CPV Towantic, LLC hereby provides the following information with regard to the Facility's water supply and management plan.

Water Supply

The Facility's expected peak water needs are unchanged from the figures described by CPV Towantic during the Application Phase. Specifically, the summer (mid-April to mid-October) peak daily water requirement of approximately 150,000 gpd is primarily driven by demineralized makeup water used in the evaporative coolers to improve Facility performance on hot days, while the winter (mid-October to mid-April) peak daily water of requirement is driven by the need to inject demineralized water into the combustion turbines along with fuel oil in order to meet NO_x emissions standards. Water balances under various operating conditions at a number of ambient conditions are attached hereto as Exhibit K-1.

To meet these requirements, the Project Water Supply Plan consists of the following provisions:

1. On-site storage of Demineralized Water

   The Project's on-site demineralized water treatment system consists of two 196 gpm capacity demineralized water trains in the form of portable treatment trailers. When operated continuously, each trailer will be capable of producing in excess of 280,000 gpd. Practically, the production of demineralized water will be only limited by the quantity of water made available by Heritage Village Water Company, which has currently committed to providing up to 218,000 gpd to CPV Towantic. The 218,000 gpd will be supplemented by 2 on-site demineralized water storage tanks totaling 1,750,000 gallons in the event of oil-fired operation. This water storage buffer will allow the Facility to conduct approximately 52 consecutive hours of oil-fired operation.

2. Redundant Demineralized Water Production Equipment

   Portable demineralized equipment will be obtained from Evoqua or another similar vendor. Evoqua provides self-contained demineralization and filtration equipment mounted in an 8-foot by 48-foot trailer that includes all ancillary supplies, piping and utility connections. The MT 5000 model marketed by Evoqua will be sufficient to individually meet the Facility's demineralized water production requirement. The trailer is trucked to the site, connected to the water system and remains in place until the demineralizer agent requires regeneration. A new trailer is brought to the site to replace the depleted unit, which is returned to Evoqua's site for regeneration. Based on the anticipated water quality characteristics of the water delivered by HVWC, the trailer units will be replaced, on average, approximately every 8 days.

3. Water Supply from Heritage Village Water Company

All of the Facility's potable and process water requirements during normal operation will be provided by Heritage Village Water Company. HVWC has committed to sell CPV Towantic up to 150,000 gpd in the summer and 218,000 gpd in the winter. During emergency conditions that would call for CPV Towantic to operate for longer than 52 consecutive hours, the total plant water requirement would need to be met by incoming supply flow. At such times, and to the extent that the HVWC system has some uncommitted water supply capacity available, HVWC would supply the additional water needed. In the event that HVWC is unable to supply the Facility with water above its stated commitment, the Facility will be forced to shut down after 52 consecutive hours of oil-fired operation.

Water Management

In an effort to reduce facility-wide water use, CPV Towantic has incorporated a number of design improvements that result in a drastic reduction of water use intensity, as compared to a typical combined cycle facility, such as:

- Replacing wet cooling towers with an air-cooled condenser;
- Replacing wet-surface air coolers with glycol fin-fan coolers;
- Eliminating blowdown waste streams by making up to evaporative coolers and boilers with demineralized water; and
- Low flow toilets and domestic fixtures.

In aggregate, these 4 improvements result in a greater than 90% reduction in average water usage. In an effort to ensure that CPV Towantic remains among the most water-efficient facilities of its kind, CPV Towantic will periodically review its water usage profile in an effort to capture the benefit of any advances in technology, best practices, etc.

Stakeholder outreach

In addition to the above-mentioned efforts, CPV Towantic commits to proactively engaging with key local water-related stakeholders, with such outreach to include:

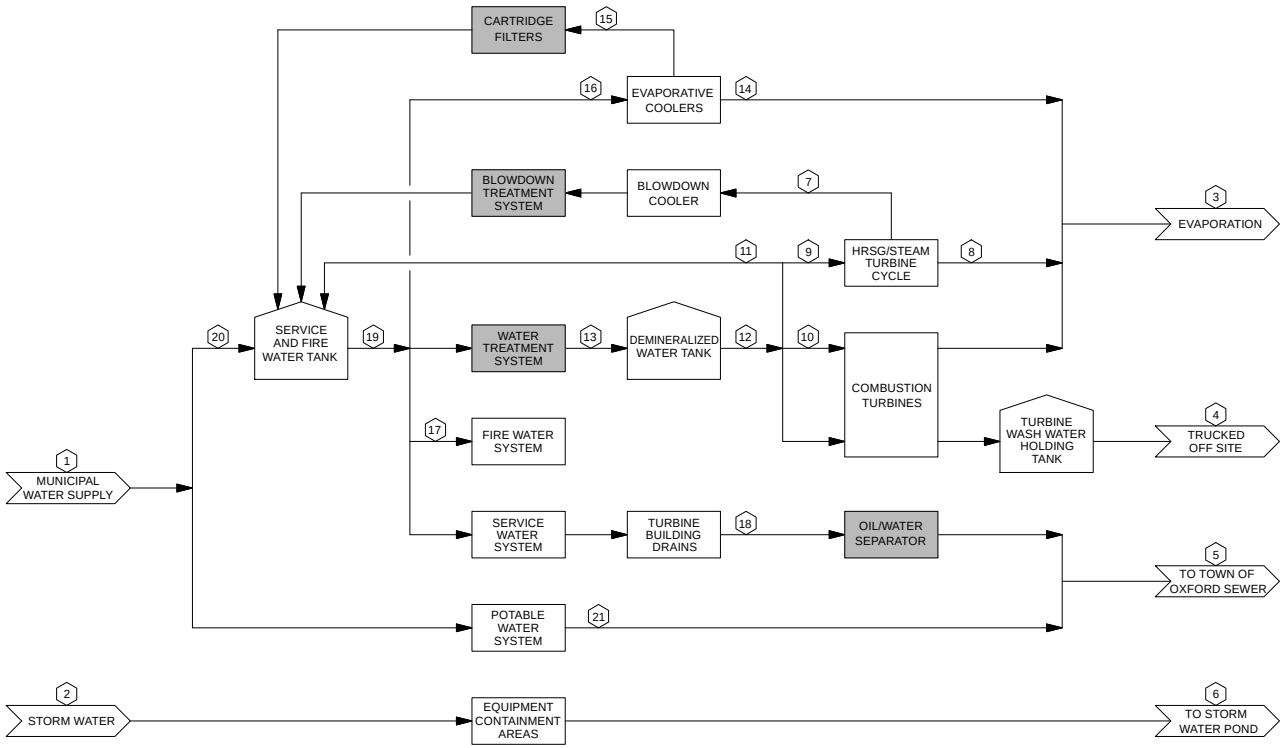
1. Communication and coordination with HVWC during water restriction and/or drought periods to align the Project's water use profile with the ability of HVWC's supply sources to meet the Project's needs;
2. Continued coordination efforts to facilitate the introduction of new water supply sources to HVWC's system, with a particular focus on "out-of-basin" sources; and
3. Communication and coordination with the Pomperaug River Watershed Coalition to facilitate understanding of the dynamic natures of the Project's water demands.

Gemma Power Systems, LLC

WATER BALANCE AND SERVICE WATER ION BALANCE
TOWANTIC ENERGY CENTER - OXFORD, CT

POWER ENGINEERS

PREPARED BY: C. CROSMAN
JUNE 19, 2015



Gemma Power Systems, LLC

WATER BALANCE AND SERVICE WATER ION BALANCE
TOWANTIC ENERGY CENTER - OXFORD, CT

POWER ENGINEERS

PREPARED BY: C. CROSMAN
JUNE 19, 2015

CORRESPONDING HEAT BALANCE CASE		3	9	1	10	6	11	2	8
FUEL		NG	DO	NG	DO	NG	DO	NG	NG
NET EQUIPMENT POWER, MW		820.84	764.19	798.74	726.28	786.23	714.24	763.72	721.83
AMBIENT TEMPERATURE, °F		20.0	20.0	50.0	50.0	59.0	59.0	90.0	90.0
RELATIVE HUMIDITY, %		60	60	60	60	60	60	60	60
NUMBER OF OPERATING GAS TURBINES/ HRSGs		2	2	2	2	2	2	2	2
EVAPORATIVE COOLERS		OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
DUCT FIRING		OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
NUMBER	DESCRIPTION	AVERAGE FLOW RATE - GALLONS PER MINUTE							
1	MUNICIPAL WATER SUPPLY	16.1	151.4	16.1	151.4	15.9	151.4	56.6	54.4
2	STORMWATER COLLECTED IN CONTAINED AREAS	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
3	TOTAL EVAPORATION LOSSES	13.1	697	13.0	702	12.9	686	53.6	51.3
4	COMBUSTION TURBINE WASH WASTEWATER - TRUCKED OFF SITE	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
5	DISCHARGE TO TOWN OF OXFORD SEWER	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0
6	DISCHARGE TO STORM WATER POND	1.5	1.5	1.5	1.5	1.5	1.5	1.5	1.5
7	BLOWDOWN FROM TWO (2) HRSGs RECYCLED TO THE SERVICE WATER TANK	13.1	12.1	13.0	11.9	12.9	11.8	14.8	12.5
8	EVAPORATIVE LOSSES FROM HRSG/ STEAM TURBINE CYCLE	13.1	12.1	13.0	11.9	12.9	11.8	14.8	12.5
9	DEMINERALIZED WATER MAKEUP TO HRSG/ STEAM TURBINE CYCLE	26.2	24.3	26.1	23.7	25.8	23.6	29.6	25.1
10	WATER INJECTED INTO COMBUSTION TURBINES DURING OIL FIRING	0	685	0	690	0	674	0	0
11	DEMINERALIZED WATER SENT TO SERVICE AND FIRE WATER TANK	0	0	0	0	0	0	77.6	77.6
12	TOTAL DEMINERALIZED WATER USED	26.2	709	26.1	714	25.9	698	107	103
13	TOTAL DEMINERALIZED WATER PRODUCED	26.2	161	26.1	160	25.9	160	107	103
14	EVAPORATION FROM TWO (2) EVAPORATIVE COOLERS	0	0	0	0	0	0	38.8	38.8
15	BLOWDOWN FROM TWO (2) EVAPORATIVE COOLERS	0	0	0	0	0	0	38.8	38.8
16	MAKEUP TO TWO (2) EVAPORATIVE COOLERS	0	0	0	0	0	0	77.6	77.6
17	FIRE PROTECTION WATER	0	0	0	0	0	0	0	0
18	TURBINE BUILDING FLOOR DRAINS	2.0	2.0	2.0	2.0	2.0	2.0	2.0	2.0
19	TOTAL FIRE AND SERVICE WATER USES	28.2	163	28.1	162	27.9	162	187	182
20	MUNICIPAL WATER SUPPLIED TO SERVICE AND FIRE WATER TANK	15.1	150	15.1	150	14.9	150	55.6	53.4
21	DRAINS FROM POTABLE WATER SYSTEM	1.0	1.0	1.0	1.0	1.0	1.0	1.0	1.0
	DECLINE IN DEMINERALIZED WATER TANK VOLUME	0	549	0	553	0	537	0	0

NOTES:
1. STORMWATER FLOW RATES SHOWN ABOVE ARE BASED ON YEARLY AVERAGE RAINFALL OF 51.1 INCHES.
2. HRSG BLOWDOWN FLOW RATES ARE BASED ON 1% OF THE HP AND IP STEAM RATES FOR EACH HEAT BALANCE CASE. 50% OF THE BLOWDOWN WILL BE FLASHED TO ATMOSPHERE AND 50% WILL BE RECYCLED TO THE SERVICE AND FIRE WATER TANK.
3. FLOW RATES OF DEMINERALIZED WATER INJECTED INTO THE COMBUSTION TURBINES DURING OIL FIRING ARE FROM GE HEAT BALANCES DATED 7/ 8/ 2014 AND 12/ 22/ 2014.
4. THE MUNICIPAL WATER SUPPLY OF 151.4 GPM FOR THE OIL FIRED CASES IS BASED ON A MAXIMUM ALLOWABLE DAILY USE OF 218,000 GALLONS FROM OCTOBER 16 TO APRIL 15. FROM APRIL 16 TO OCTOBER 15, THE MAXIMUM DAILY USE IS 150,000 GALLONS. MAXIMUM USE RATES WERE DEFINED BY HERITAGE VILLAGE WATER COMPANY.
5. EVAPORATIVE COOLER BLOWDOWN IS BASED ON TWO (2) CYCLES OF CONCENTRATION.
6. DEPENDING ON PLANT OPERATING CONDITIONS, SULFURIC ACID OR CAUSTIC MAY NEED TO BE ADDED IN THE HRSG BLOWDOWN TREATMENT SYSTEM TO CONTROL WATER CHEMISTRY IN THE SERVICE AND FIRE WATER TANK.

2(l)

DECOMMISSIONING PLAN.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.l – DECOMMISSIONING PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.l), CPV Towantic, LLC hereby provides the following information with regard to the Facility's decommissioning plan.

USEFUL LIFE OF POWERPLANT AND NEED FOR DECOMMISSIONING

State-of-the-art combined-cycle powerplants like the CPV Towantic Energy Center (the Project or the Facility) are designed for an expected operational life of at least 35 years. As the Facility approaches the end of its operational life, it is expected that technological advances will make available more efficient and cost-effective power generation equipment that will economically drive the replacement of the existing equipment. This Decommissioning Plan establishes the approach to conduct decommissioning activities for the permanent closure of the combined-cycle power plant and appurtenant equipment at the permanent cessation of the Facility's operation in the event that the existing equipment is not replaced at the time of such a permanent closure. This Plan also describes the approach for removal and/or abandonment of facilities and equipment associated with the Facility's operation.

As background, CPV Towantic, LLC (the Company) has entered into a development agreement with the Town of Oxford that generally requires the Company to decommission, dismantle and dispose of the Facility in good and workmanlike fashion at the end of the Facility's useful life as determined by the Company. The Development Agreement also calls for the Company to maintain financial assurance in the amount of Six Million Dollars ($6,000,000.00) to ensure that adequate funds are available to allow for the proper restoration of the site.

DECOMMISSIONING ACTIVITIES

The Company's decommissioning activities will be performed in accordance with then-current legal and regulatory requirements. The activities contained herein are based on current, best practices and may be modified based on best practices at the time of decommissioning.

Decommissioning will involve removal and proper disposal or recycling of all Project components. Any non-recyclable materials will be properly disposed of at a nearby landfill or otherwise appropriate facility.

Decommissioning Preparation

The first step in the decommissioning process will be to prepare the site for decommissioning. Access roads, fencing, and electrical power will remain in place for use by the decommissioning and site restoration workers until no longer needed. Demolition debris will be placed in temporary on-site storage areas pending final transportation and disposal/recycling according to the procedures listed below.

Power Generation Equipment Removal and Recycling

During decommissioning, all Facility components that will not be used will be removed from the site. Facility components will be sold, recycled or transported off-site for disposal as appropriate. Concrete foundations and pads will be broken up and/or removed to an appropriate depth below ground surface.

Internal Power Collection System

The underground conduits and cables contain no materials known to be harmful to the environment. These items will be cut back to an appropriate depth below ground surface, unless required for future development.

Access Roads

The onsite access driveway and roads will remain in place to accomplish decommissioning at the end of the Facility's life. If the access driveway and roads will be beneficial for the future use of the site, they will remain after decommissioning. The future use of the site is undetermined at this time. Roads that will not be used will be restored to pre-construction conditions by removal of the aggregate base material, fill of the compacted base section with locally imported soil to match existing onsite soils, and hydroseeding with a seed mix to match existing onsite groundcover.

Security Fence

The chain link perimeter security fence and appropriate signage will remain in place during decommissioning activities for site safety and security purposes. The fence may remain after decommissioning if beneficial for a future use. The future use of the site is undetermined at this time. If the fence will not be used, it will be removed and holes left behind by the fence support posts will be backfilled.

Natural Gas Interconnection Line & Metering Station

The natural gas interconnection line and metering station will remain in place during decommissioning activities. At the time of decommissioning, if it is determined that this natural gas line and metering station will be beneficial for the future use of the site, the line and metering station may remain after decommissioning. If the line and metering station are not to be used, they will be removed in accordance with Spectra Energy's guidelines.

2(m)

UPDATED FUEL STORAGE AND HANDLING PLAN INCLUDING CONTAINMENT AND OTHER MEASURES TO PROTECT AGAINST SPILLAGE WHEN THE ULSD TANK IS BEING REFILLED.

DOCKET NO. 192B
CPV TOWANTIC ENERGY LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.m – FUEL STORAGE AND HANDLING PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.m), CPV Towantic, LLC provides the following information with regard to an updated fuel storage and handling plan including containment and other measures to protect against spillage when the ULSD tank is being refilled.

On-Site Fuel Use

An existing natural gas pipeline will extend onto the Project site and deliver natural gas to the Project. Since the Project will tap into the existing pipeline prior to the adjacent Spectra compressor station, gas compression will occur on-site in the northeastern portion of the site. There will be no on-site storage of natural gas at the facility.

The Project proposes to use ultra-low sulfur distillate (ULSD) for up to 720 hours per year to ensure availability of the Project's output during periods of critical need. ULSD will be stored in a 1.5 million gallon, 48-foot tall, double walled tank with secondary containment designed to hold 110% of the tanks capacity. Fuel oil storage shall be in accordance with state and federal requirements, including separation from flammable materials. The Department of Transportation Segregation and Incompatibility Chart will be used to ensure proper storage and segregation. The ULSD tank will be inspected to confirm the tank is in good condition. The adjacent fuel oil unloading station will be designed to allow the unloading of four trucks simultaneously, located within a curbed unloading area to contain any spills. Other ULSD storage areas will be adjacent to the skids associated with the emergency diesel generator and fire pump. The ULSD storage and unloading area are highlighted in Figure 1 attached.

Handling

As specified in Condition 2.b, natural gas will be supplied by a lateral off of the Algonquin Gas Transmission line. The lateral enters the metering and regulation (M&R) station where gas is first filtered, metered, heated then regulated. Gas compression facilities are also provided inside the power plant fence line to boost gas pressure in the event that inlet pressure is lower than required for the power plant gas turbines.

Other than the refilling process, handling of ULSD on-site should also be minimal. The refilling process should only be completed by a trained personnel with the appropriate equipment and personal protective equipment. Spills or leaks will be immediately contained and reported in accordance with CT DEEP regulations and the Facility's SPCC plan.

Inventory and Inspections

An inventory of controlled materials, such as fuels, shall be maintained.

Periodic inspection of the following will occur by appropriate personnel to ensure proper maintenance in accordance with the Spill Prevention Control and Countermeasure Plan (SPCC) Plan as specified in Attachment A: the fuel oil storage tank; oil, fuel, and chemical containers; and oil-containing equipment. Records of inspections, as well as any spill incidents that are found, will be maintained. In addition to inspecting the equipment, the appropriate personnel will periodically review sub-contractors for proper procedures in the event of a spill, spill prevention techniques, and safety procedures.

Spill Prevention/Control/Containment

The Project site is located approximately 0.4 mile from the headwater drainage of Jacks Brook. A stormwater detention pond has been incorporated into the design of the facility, located on the southeast corner, to contain and control rainwater runoff. The pond will also provide protection for emergency spills that could occur on-site.

All spills shall be reported immediately to the appropriate personnel. Following a spill, the source of the spill shall be located and corrective action shall be taken immediately to contain it. Temporary containment and clean-up of all spills will follow a strict set of protocols depending on the type and volume of material spilled.

In the event of a spill during refueling or refilling, oil dry and absorbent pads will likely be placed on any spills to contain and collect any fluid. Shovels and other hands tools will also be used to collect the materials in drums for proper disposal.

In the event of fuel spilled due to storage tank, piping, and/or valve failure, actions will be quickly taken to contain any fluid not immediately gathered into the diked/bermed areas surrounding the aboveground storage tank. Once contained, a clean-up contractor would be contracted to collect the released material and any contaminated soil.

Routine storage of small quantities of liquids shall be accomplished in such a manner as to prevent a spill by providing a flat surface for storage and, where necessary, a berm or dike shall be constructed around the storage area to contain any possible spill. Liquid waste shall be collected into tanks and stored for salvage or disposal off-site. Concrete curbing will be used to contain any liquid leaks or spills, and all traveling equipment shall be maintained to minimize oil, grease, and hydraulic fuel leakage.

A draft SPCC plan anticipated for use during Project construction is provided as Attachment A. Prior to commencement of construction this version will be finalized, including appropriate certifications by a Professional Engineer, and the SPCC plan will be used and updated as appropriate throughout the construction effort. As construction is completed, the SPCC plan will be refined and adjusted to reflect operational conditions, and to include appropriate contacts and procedures reflecting operational conditions at the site.

Attached:

- ‘Draft Construction SPCC Plan.docx’

TOWANTIC ENERGY CENTER
DRAFT CONSTRUCTION SPILL PREVENTION CONTROL AND COUNTERMEASURE PLAN

---

1. Facility Information

Name Facility: CPV Towantic Energy Center
Location: Oxford, Connecticut

Owner: CPV Towantic, LLC
Subsidiary of CPV Power Development, Inc.
50 Braintree Hill Office Park, Suite 300
Braintree, MA 02184

Contractor: Contractors (to be determined)
Address 1
Address 2
City, State, Zip

2. Facility Contacts

Construction Project Manager (to be determined) Phone: TBD

Oil Spill Control Officer Contractor (to be determined) Phone: TBD

3. Construction Description

A. OPERATIONS

During construction of the CPV Towantic Energy Center, heavy equipment such as bulldozers, and front-end loaders will be the primary means of excavation. Excavation and site grading is expected to take two to three months. After site excavation and grading is complete, the primary equipment required for the facility construction will be heavy mobile equipment and cranes. It is anticipated that the majority of equipment refueling will be provided by an independent fuel delivery contractor that will refuel equipment directly from their mobile fuel trucks.

B. STORAGE

Oil, diesel fuel, gasoline, and chemical storage devices on-site during construction may include the following:

1. Fuel trucks that will deliver fuel to the site to fill heavy equipment (loaders, dozers, etc.) and storage tanks.
2. Heavy equipment with large fuel capacity such as front-end loaders, bulldozers, and cranes.
3. Small aboveground storage tanks of 300 gallons or less, containing diesel fuel or gasoline, with lined, bermed containment.
4. Storage bins containing items such as cleaning and disinfectant agents.

C. DRAINAGE PATHWAY AND DISTANCE TO NAVIGABLE WATERS

The CPV Towantic Energy Center construction site is located approximately 0.4 miles from the headwater drainage of Jacks Brook. The construction site will include a stormwater runoff detention pond located on the southeast corner of the site that will

contain and control rainwater runoff. The pond will also provide protection for emergency spills that could occur on site. Furthermore, this pond will be built at a very early stage of construction.

4. Spill History

No spills have occurred nor have been reported at the construction site.

5. Potential Spill Predications and Volumes Spilled

Possible means of spillage and volume spilled are as follows:

1. Fuel release during refueling operations of heavy and light equipment and/or aboveground storage tanks. Possible amount spilled is dependent upon the capacity of the refueling tank and the time required to stop the spill.
2. Fuel release due to storage tank, piping, and/or valve failure. Possible amount spilled is dependent upon the capacity of the tank and the time required to stop the spill.
3. Chemicals release during handling and use. Possible amount spilled is dependent upon size of container and the time required to stop the spill.

6. Prevention Measures

A. DRAINAGE CONTROL

Oil dry and absorbent pads will be placed on any spills to contain and collect any fluid in the event of spillage. Shovels and other hand tools will also be used to collect the materials in drums for property disposal.

In the event of fuel spilled due to storage tank, piping, and/or valve failure, ditches would be quickly dug to contain any fluid not immediately gathered in the diked/bermed areas surrounding the aboveground storage tanks. Once contained, a clean-up contractor would be contracted to collect the release material and any contaminated soil.

B. BULK STORAGE TANK/SECONDARY CONTAINMENT

All aboveground storage tanks will be no larger than 660 gallons and will be constructed of welded steel in accordance with API Standards and will be compatible with the contents they may hold. All aboveground storage tanks will be securely grounded and placed within a lined, diked/bermed area that is 1) large enough to store the entire contents of the tanks plus 10 percent; 2) located so as to prevent spilled oil from leaving the site; and 3) located where it will not be subject to periodic flooding or washout.

In addition, all aboveground storage tanks will be periodically inspected for leaks, corrosion, and basic wear and tear. If a leak is detected, measures will be taken to minimize and mitigate the leak while waiting for repair.

C. CONTRACTOR EQUIPMENT MAINTENANCE

Lubrication oils from contractor's equipment will be drained into appropriate containers with spill protection measures in place. In no event will lubrication oils be allowed to drain onto the ground surface.

D. FACILITY TANK TRUCK LOADING/UNLOADING OPERATIONS

The CPV Towantic Energy Center will require all supply companies who deliver oil, fuel, and other chemicals to the construction site to comply with DOT regulations in 49 CFR part 177 (where applicable), and facility operating procedures. Equipment refueling

operations will be done at the equipment location. Refueling personnel will be present to observe fueling operations at all times.

E. INSPECTIONS/RECORD KEEPING

The safety manager , designated by either the Head Contractor or the Construction Project Manager, will ensure that periodic inspections of fuel storage tanks, oil, fuel, and chemical containers, and oil-containing equipment are properly conducted in accordance with provisions set forth in this Plan. The Oil Spill Control Officer will also be responsible for assuring that written standard procedures are followed regarding clean-up of oil, fuel, and chemical spills, fuel transfers, inspection of oil-containing equipment, and releases of rainwater accumulated in containment structures. In addition, he/she will be responsible for maintaining records of inspection and spill incidents that have been filled out on the appropriate forms attached to this plan. All procedures and inspection records may be found in Appendix A, B, C, D, E, and F.

In the event of a spill, the Oil Spill Control Officer or other construction management on-site, will supervise clean-up activities. An Oil Spill Incident Report (Appendix B) will be completed in the event that any spill reaches regulated water. Contained discharges or leaks will be reported in Appendix E.

In addition, according to federal regulations (40 CFR 112), the owner or operator of any facility which experiences a single spill of 1,000 U.S. gallons of oil or more, or spills in lesser amounts on two occasions within any twelve-month period, which reach regulated waters must, within 60 days of the occurrence, submit a report to the Regional Administrator of the US EPA containing:

1. The name, location, and date of initial operation of the facility.
2. Name of the owner or operator.
3. Oil storage capacity at facility.
4. Description of the facility, including maps of the site, oil flow path, and topographical maps.
5. A complete copy of the SPCC Plan with any amendment thereto.
6. The cause of the spill, including a failure analysis of the system.
7. The corrective actions or countermeasures taken.
8. Additional preventative measures taken or contemplated to minimize the possibility of recurrence.
9. Other information required by the EPA Regional Administration.
10. Such report should be sent to:

    Regional Administrator
    United State Environmental Protection Agency Region 1
    5 Post Office Square, Suite 100
    Boston, MA 02109-3912

    and

    Connecticut Department of Energy and Environmental Protection
    79 Elm Street
    Hartford, CT 06106-5127

F. SITE SECURITY

The construction site will have a perimeter fence and a main access gate for security. The site will be staffed during normal work hours. The main entrance gate will be locked at all times for non-working hours.

G. PERSONNEL TRAINING AND SPILL PREVENTION PROCEDURES

CPV Towantic requires all supply companies who delivery oil, fuel, and other chemicals to the construction site to be trained in spill prevention techniques and safety procedures. The Oil Spill Control Officer will periodically review with contractor's supervisors proper operation and maintenance of equipment to prevent spills; proper procedures in the event of a spill; potential spill situations and how to properly complete and follow the inspection records; and procedures found in Appendix A, B, C, D, E, and F.

H. SPILL CONTROL EQUIPMENT

The general contractor on-site will have a variety of equipment and materials on-site to control and clean-up any spills that could occur on-site. This will include the following:

Equipment	Quantity
Oil Dry Absorbent	Quantity to be determined. Based on a maximum spill of 300 gallons.
Large Packs of Absorbent Pads	Quantity to be determined. Based on a maximum spill of 300 gallons.
55-Gallon Drums	Quantity to be determined. Based on a maximum spill of 300 gallons.

I. EMERGENCY CONTACTS

(i) Initial Notification

For uncontained spills to regulated waters, the plant personnel shall first notify the Project Oil Spill Control Officer (or alternate) listed in Table 1-1. Construction personnel shall then refer to Appendix A for containment and clean-up guidelines.

It shall be the responsibility of the Oil Spill Control Officer to notify the following agencies as quickly as possible in their listed order in the event of spill to navigable waters.

Connecticut Department of Energy and Environmental Protection
Oil and Chemical Spill Section
(800) 424-3339
24 hours

National Response Center
(800) 424-8802

(ii) Other Emergency Telephone Numbers

The telephone numbers for emergency services such as the police, the fire department, and the hospital, are listed here for the employee's convenience. While these emergency services are not necessarily needed in the event of a spill, they may be called at the discretion of the employee, or at the discretion of the Oil Spill Control Officer.

Oxford Fire Department	**Police Department**	**St. Mary's Hospital**
(203) 888-9090	Resident Trooper (203) 888-4353	Waterbury (203) 753-2574

(iii) Other Discharges

In the event of an oil discharge or leak, plant personnel on duty should quickly assess the source, volume, and location of the spill, and initiate the following response procedure. If the plant person is alone on duty, he should stop the source of the leak only if this can be accomplished quickly and safely, and then he should contact the appropriate personnel using the Notification Procedure. Otherwise, he should immediately start the Notification Procedure. If more than one person is on duty, one can immediately attempt to control the leak, while the other executes the Notification Procedure.

Notification Procedure: The plant personnel shall notify the Oil Spill Control Officer (or alternate) listed in Table 1-1. For contained discharges, Appendix E shall be used to record disposal of oil and oily materials from clean-up operations.

TABLE 1-1
OIL SPILL NOTIFICATION PERSONNEL

In case of an Oil Spill, Call:
Oil Spill Control Officer (and Alternates)

Designation	**Name**	**Office Telephone**	**Home Telephone**
Oil Spill Control Officer	[To be assigned]		
1st Alternate	[To be assigned]		
2nd Alternate	[To be assigned]		
NOTE: If the Oil Spill Control Officer and his alternates cannot be reached, notify other plant management personnel.			
Others who may be called as needed:			
Construction Project Manager			
1st Alternate	[To be assigned]		
2nd Alternate	[To be assigned]		

Appendix A

GUIDELINES TO CONTAIN AND CLEAN-UP A SPILL

SAFETY FOR ALL PERSONNEL SHALL BE THE FIRST PRIORITY DURING IMPLEMENTATION OF THESE GUIDELINES

CLEAN UP SHOULD BE CARRIED OUT PROMPTLY AFTER A SPILL OR DISCHARGE IS DETECTED. ACTUAL RECOVERY OF MATERIALS AND CLEAN-UP OPERATIONS WILL BE CONDUCTED BY SPILL RESPONSE CONTRACTORS

1. Locate the source of the spill and stop it as quickly as reasonably possible by closing valves, shutting down pumps, plugging leaks or other appropriate methods.
2. Communicate the character of the spill to all personnel, identifying the location, severity and product.
3. Contain a spreading or moving spill before concentrating on other efforts. If very little has reached water, for example, but more is draining towards water, concentrate on blocking spill. On-site conditions dictate proper actions. On-site supervisors should insure proper actions are taken.
4. If spill is in water, encircle it in the water to pull it into a shoreline that has not been contaminated.

   A contained spill is picked up by manually skimming with buckets or preferably with cans or containers having a flat edge; these are then dumped into a drum, tank or tanker for removal. If equipment is available, skimming can be done with pumps, hoses, and tanks. If shoreline has already been contaminated, the light slick remaining after skimming can be herded onto the contaminated shore for pick-up as described below. If the shoreline is still relatively clean, absorbent materials should be used to recover the remaining floating slick or by pumping into a tank or oil/water separator.
5. Oil or hazardous chemicals on soil or on a contaminated shoreline are picked up by soaking with absorbent pads and other approved materials. Saturated pads shall be deposited in drums and disposed of at the DEEP-approved disposal site.
6. Spills on land consisting of puddles or pools are picked up by pumps or buckets and loaded into tanks or tank trucks for delivery as directed by the Oil Spill Control Officer. Remaining contaminated earth is removed by hard shovels or construction equipment and loaded into drum containers for disposal at an approved waste disposal site.
7. Disposal
   a. Liquid oily wastes consisting of oil or oil and water will be transferred to containers or tanks.
   b. Hazardous chemical liquids, spill saturated earth, and absorbent pads, shall be deposited in drums with adequate cover to prevent stormwater contamination and overflow. Disposal shall be made to a DEEP-approved site.

Appendix B

OIL SPILL INCIDENT REPORT FORMS

This form shall be used in the event that a spill of oil reaches a regulated water, which includes small streams and wetlands.

Appendix B

OIL SPILL INCIDENT REPORT FORM	
Spill Date	
Date of Report	
Location of Spill	
Individual Who Discovered Spill	
Type of Oil Spilled	
Estimated Volume of Spill	
Estimated Volume to Reach Waters	
Estimated Area Effected	
Clean-Up Cautions Taken	
Corrective Action & Countermeasures Taken to Stop Spill	
Failure Analysis of Cause of Spill	
Measures Necessary to Prevent Reoccurrence	
This Report Prepared By	Date:

Appendix C

PROCEDURES FOR FUEL AND CHEMICAL TRANSFERS FROM FUEL DELIVERY TRUCKS

The following procedure shall be followed regarding the transfer of fuels from fuel delivery trucks to equipment fuel tanks and to aboveground storage tanks:

The fuel vendor's personnel shall:

1. Coordinate fuel delivery time with facility.
2. Inspect fuel delivery truck hoses, compartments, etc. Prior to entry into the facility grounds to assure the truck is free of potential sources for a spill.
3. Manually check fuel tank to determine the fuel levels.
4. Where applicable, inspect containment area drain valves prior to allowing transfer connections, making sure that such valves are closed.
5. Reset fueling meters prior to all fueling.
6. Make proper connections of fuel delivery truck connections to master valves prior to transfer.
7. Activate pumping system of fuel delivery truck.
8. Monitor the transfers to avoid overflow, positioning themselves to ensure fuel level is visible at all times during refueling.
9. Be prepared to shutoff feed valves and master valves in the event of premature disconnection, rupture of the transfer hoses or leaks at valves or fittings.
10. If the fuel supplier must leave the fueling port, the transfer will be shut off during their absence.
11. At no time, leave during the transfer process.
12. Shutoff pumping system to release pressure from system and purge remaining fuel from hose into tank when tank is full.
13. Assure that after each transfer option, all feed valves and master valves are properly closed prior to disconnection.
14. Assure that transfer hoses are properly disconnected and stored before the fuel delivery truck driver is allowed to move the vehicle.
15. Fuel vehicles are required to carry EPA-approved absorbent pads and tubes to clean-up any inadvertent spills or leaks.

Appendix D

INSPECTION PROCEDURES AND RECORDS FOR

STORAGE TANKS AND OIL CONTAINING EQUIPMENT

The purpose of storage tank and oil equipment inspections is to prevent spillage and to identify and report oil leaks so they may be corrected prior to a significant spill event. The Oil Spill Control Officer or his designee shall use the Inspection Records form in this Appendix to record the results of periodic inspections and any leaks or spills from storage tanks or oil containing equipment. Specific attention to several potential concerns shall be given during inspections by the Oil Spill Control Officer and during routine operations by Facility personnel:

1. Storage tanks, oil equipment, and associated valves and aboveground pipeline should be frequently observed by operating personnel for signs of deterioration, leaks which might cause a spill, or accumulations of oil.
2. Visible oil leaks resulting in a loss of oil from tank seams, gaskets, rivets, and bolts, which are sufficiently large enough to cause the accumulation of oil, should be reported to the Oil Spill Control Officer and the Construction Project Manager for repair.
3. During inspections, paved or lined storage areas shall be observed for the presence of cracks, gaps, or leaks which, if found, shall be reported to the Oil Spill Control Officer for repair.

Appendix D

INSPECTION RECORD FOR STORAGE TANKS AND OIL CONTAINMENT EQUIPMENT				
Date	**Tanks or Equipment**	**Reason for Report**	**Action Taken**	**Inspected By**

Appendix E

INSPECTION RECORDS FOR OIL REMOVAL

FROM SECONDARY CONTAINMENT

In the event of non-reportable oil discharge or leaks, this Appendix shall be used to record disposal of oil and oily materials from such routine or clean-up operations.

Appendix E

INSPECTION RECORD FOR OIL REMOVAL FROM SECONDARY CONTAINMENT				
Date	**Containment System**	**Amount Removed**	**Disposal Details**	**Inspected By**

Appendix F

STORMWATER DRAINAGE PROCEDURES

AND INSPECTION RECORDS

The following procedure shall be followed by the on-site contract personnel to drain stormwater from aboveground fuel tank containment areas:

1. The Contractor's designated inspector shall be responsible for draining stormwater from containment areas.
2. All containment drain valves shall be closed at all times except during draining actions. Prior to opening drain valves, containment areas shall be inspected to determine if there are oil or hazardous chemical accumulations or potential leak sources in the containment area.
3. If inspection of the contained water indicates that release of the water will not cause a harmful discharge or a violation of water quality standards then the stormwater shall be released. Such stormwater releases should be closely monitored to avoid any release of oil or chemical or release of water that has an oil sheen. After stormwater from the containment area is drained, all valves shall be closed. Releases of stormwater in this manner shall be recorded on the form provided in this Appendix F. If it is necessary to remove accumulations of oil or chemicals from the containment area, the oil should be pumped into 55-gallon drums, or other containers provided by Contractor, and disposed at an approved DEEP disposal site.
4. All drain valves shall be returned to the closed position after completion of these procedures. Under no circumstances should a drain valve be in an open position if the area is to be unattended. Sumps and other catch basins should be routinely inspected to ensure their proper operation.

Appendix F

INSPECTION RECORD FOR STORMWATER RELEASES

Date	Containment System	Water’s Appearance	Disposal Method	Inspected By

2(n)

CONTAINMENT AND/OR PROTECTIVE MEASURES FOR THE SAFE DELIVERY AND STORAGE OF HYDROGEN AND AQUEOUS AMMONIA.

DOCKET NO. 192B
CPV TOWANTIC ENERGY LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.n – DELIVERY AND STORAGE OF HYDROGREN AND AQUEOUS AMMONIA

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.n), CPV Towantic, LLC provides the following information with regard to containment and/or protective measures for the safe delivery and storage of hydrogen and aqueous ammonia.

Hazardous Material Use and Control

From purchase to consumption and disposal, hazardous waste will be carefully tracked and monitored. This holistic approach to hazardous waste management will help to minimize the waste stream due to misuse or overuse of products. A draft Spill Prevention, Control, and Countermeasure (SPCC) Plan has been prepared to help prevent any discharge of fuel oil as well as handle any unanticipated spill or release; the operational SPCC plan will also incorporate additional details reflecting other chemical storage.

Aqueous Ammonia

Aqueous ammonia will be stored in a single aboveground tank. The ammonia truck unloading area will be paved with concrete, sloped and curbed, and provided with a sump for post indicator valve drainage to contain a potential spill. The on-site ammonia tank storage system is expected to consist of single-walled tank located above a secondary containment area capable of holding 110% of the tank's volume. The ammonia tank will allow for a maximum of 20,000 gallons of 19% aqueous ammonia to be stored on-site. Tank alarms will immediately notify facility personnel in the event of an accidental release. An emergency shower/eyewash designed to meet ANSI Z358.1-2009 standards will be located in proximity to the tank, but outside the containment area. Proper training in emergency procedures and emergency respirators will be available at the facility for use by trained personnel. Curbing and containment will be used in the ammonia delivery area, as well, to prevent accidental release to the environment during ammonia deliveries.

In order to ensure high plant availability, the contents of the tank will not be allowed to drop below 20% capacity. Therefore, a minimum of 4,400 gallons will be stored on-site at all times. Truck(s) will resupply this tank semi- to bi-weekly depending on dispatch. These preliminary figures may be finalized by the EPC contractor during the final stages of development.

Ammonia vapor has a sharp, irritating, pungent odor. The average odor threshold is well below any danger or damaging level. However, ammonia can be toxic by inhalation and is carefully handled and managed to prevent releases. Ammonia is an irritant, and corrosive to the skin, eyes, respiratory tract, and mucous membranes.

The use of 19% solution aqueous ammonia significantly reduces the risk that would otherwise be associated with the use of anhydrous ammonia. Use of the aqueous form eliminates the high internal energy associated with storage of anhydrous ammonia at elevated pressures, which could act as a driving force in the event of an accidental release. Spills associated with the aqueous form, as proposed, are much easier to contain than those associated with anhydrous ammonia and emissions from such spills are limited by the slow evaporation rate from the surface of the spilled material. Facilities that store aqueous ammonia solutions containing less than 20% ammonia by weight are not subject to the Accidental Release requirements contained in §112r of the Federal Clean Air Act. As a comparison, household ammonia ranges in concentration from 5 to 10%.

Hydrogen
Hydrogen gas will be used by the Project as a generator coolant, and will be stored in trailers near the generators, away from electrical lines and other potential ignition sources, as required by applicable building and fire codes. Hydrogen is a flammable gas and has an NFPA hazard rating of 4. The hydrogen trailers will also be protected from vehicular impact by installation of crash posts or other protective measures. Hydrogen deliveries will generally occur on a monthly basis.

Purchasing
Anytime that chemicals and substances are requisitioned, the Material Safety Data Sheet (MSDS) will be requested prior to placing the order. Once the MSDS is received, an analysis will be completed to determine if any of the requested chemicals may trigger any reporting requirements or if use of the material would likely result in the generation of hazardous waste. If so, alternatives to using the chemical or substance, including replacement of the chemical with a non-hazardous or less hazardous chemical, will be explored. The chemical or substance will also be evaluated to determine if the use would violate any facility policies or procedures. A Chemical Control Form, summarizing the manufacturer, the chemical name, quantities, and what it will be used for, will be completed. Absent any specific prohibitions from the use of the chemical or substance, written approval shall be granted without undue delay.

Receiving
Once the material is received on-site, the quantity that is received will be verified and the material will be stored in the designated areas on-site by the appropriate personnel.

Storage
Storage of all hazardous chemicals shall be in accordance with state and federal requirements, including separation of flammable materials from other chemicals and separation of incompatible materials. The Department of Transportation Segregation and Incompatibility Chart will be used to ensure proper storage and segregation. All containers shall be double walled or kept in secondary containment to prevent contamination of the ground.

Dispensing
All miscellaneous chemicals shall be controlled and dispensed from a designated area on-site. Only enough product to successfully complete the job shall be requested and dispensed. Any unused product shall be returned to the designated area on-site when the task is completed. If the product must be used in a two-part task, or transferred between a bulk container and a field-use container, a specific process should be followed. Only appropriate containers for the product should be used, and the container(s) must be clearly labeled. Only the necessary amount of product should be transferred, and the container will never be left unattended. If any product is spilled during the transfer, the appropriate personnel will be notified.

Inventory and Inspections
An inventory of controlled materials, such as fuels, solvents, and welding gases, shall be maintained. Storage tanks; oil, fuel, and chemical containers; and oil-containing equipment will be periodically inspected by the appropriate personnel to ensure proper maintenance in accordance with the SPCC Plan. Records of inspections, as well as spill incidents, must be maintained. In addition to inspecting the equipment, the appropriate personnel will periodically review sub-contractors for proper procedures in the event of a spill, spill prevention techniques, and safety procedures.

Spill Prevention/Control/Containment
All spills shall be reported immediately to the appropriate personnel. Following a spill, the source of the spill shall be located and corrective action shall be taken immediately to contain it. Temporary

containment and clean-up of all spills will follow a strict set of protocols depending on the type and volume of material spilled.

Hazardous materials shall be stored in areas so as not to spread the spill hazard to more than one location. Storage of liquids shall be limited to bulk tanks and/or 55-gallon barrels on level storage areas surrounded by a berm or dike to contain any possible spill.

2(o)

MAINTENANCE OF DETENTION BASINS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.o – MAINTENANCE OF DETENTION BASINS

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.o), CPV Towantic, LLC hereby provides a detailed narrative and set of plans regarding maintenance of detention basins in the referenced attachment.

Attached

- Drawing C331, contained in '98132 D&M Plans 6-30-15.PDF'

2(p)

BACKUP GENERATOR DESIGN AND CONTAINMENT MEASURES FOR FUEL, OIL AND COOLANT.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.p – BACKUP GENERATOR

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.p), CPV Towantic, LLC hereby provides the following information with regard to the backup diesel generator design.

CPV Towantic will operate up to a 1,500 kW diesel fire emergency engine in order to provide emergency back-up power to the facility. The generator will not connect to the electric grid and will only be utilized as an emergency engine. The diesel engine will be equipped with the safety measures described below.

The diesel generator will be furnished with an outdoor enclosure to shield the engine from any equipment degradation due to unforgiving elements. The enclosure will also help to minimize the risk of lube oil and coolant leakage from the engine.

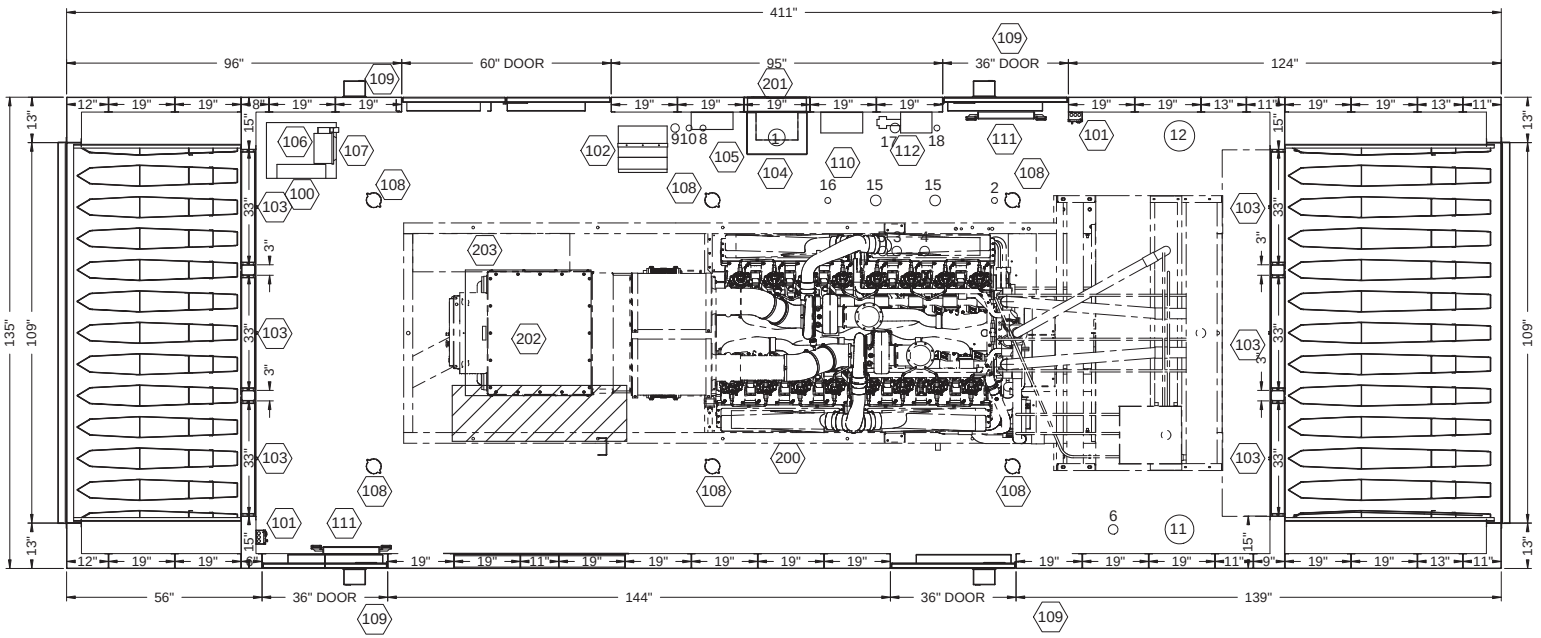
The diesel generator will also have a "belly" tank that makes up the bottom of the skid that contains the diesel fuel. The generator and engine will sit right on top of the belly tank. Care will be taken to ensure that belly tank is isolated as much as possible from the generator. This is done by placing springs between the generator and the base tank and by using flexible hose connections to feed fuel to the engine. The belly tank is built as a structural component to not only withstand vibration but also to support the entire weight of the engine generator.

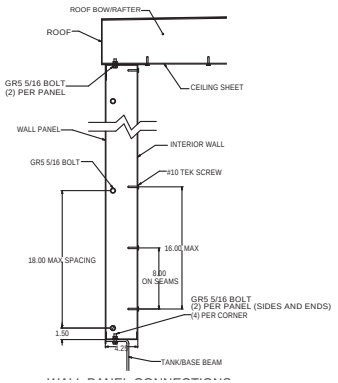
The belly tank is a double walled tank with a rupture basin in between the generator and the tank. The double wall containment system prevents leaks, and allows for optimal fuel levels and peak tank capacity. The fully contained tank allows total containment of system fluid under pressure in the event of a primary vessel failure. The tank is designed in accordance with UL 142 "Steel Aboveground Tanks for Flammable and Combustible Liquids".

Attached is a typical emergency diesel drawing package, similar to what will be provided on the Project.

Attached

- 'Condition 2.p - Diesel Gen Package Typ. R1.PDF'





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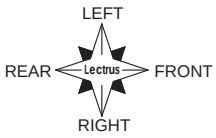


FUEL PLUMBING SCHEDULE

1. FUEL FILL (IN FUEL CONTAINMENT BOX)
   2" HOSE BARB
   2" PETROLEUM HOSE
   2" HOSE CLAMP
   2" PIPE COUPLING (SPECIAL BLOCK)
   2"x 6" PIPE NIPPLE (FILL NECK)
   2" CAP (NON-VENTED, NON-LOCKABLE)
   FILL BOX (INSTALLED IN WALL)
   DRAIN PLUG W/ T-HANDLE (TANK)
   3/4" PHOENIX FLANGE W/ PLUG (DISPOSAL)

2. FUEL LEVEL INDICATOR
   1 1/2"x 18" ROCHESTER GAUGE (MECH)

3. FUEL SUCTION
   1" CLOSE NIPPLE
   1" CHECK VALVE
   (FINAL CONNECTION BY LECTRUS)

4. FUEL RETURN
   1" CLOSE NIPPLE
   (FINAL CONNECTION BY LECTRUS)

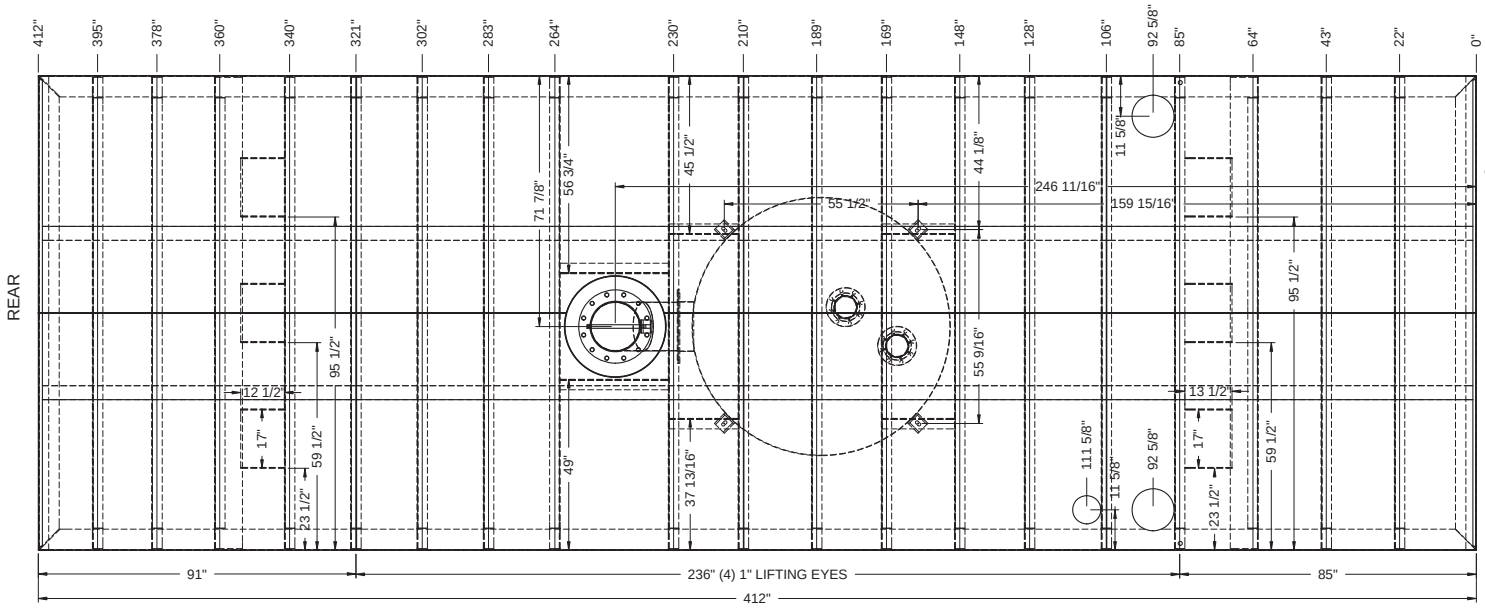
6. FUEL VENT PORT
   2" PIPE THRU ROOF W/ FLANGE
   2" MUSHROOM VENT CAP
   2"x 12" EXT. TUBE W/ FLANGE
   10" RAIN COLLAR

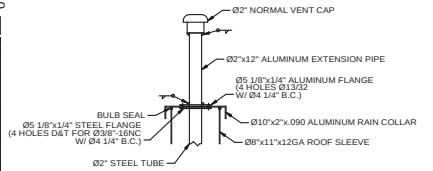
11. EMERGENCY VENT
   8" PIPE THRU ROOF W/ FLANGE
   8" EMERGENCY VENT CAP
   8"x 12" THREADED EXT. TUBE W/ FLANGE
   14" RAIN COLLAR

12. RUPTURE BASIN VENT
   8" PIPE THRU ROOF W/ FLANGE
   8" MUSHROOM VENT CAP
   8"x 12" EXT. TUBE W/ FLANGE
   14" RAIN COLLAR

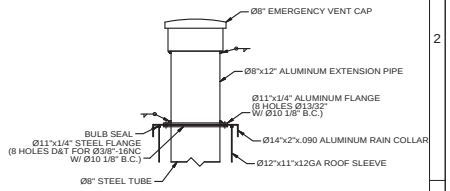
ITEM NO.	DESCRIPTION	QTY.
ITEMS SUPPLIED AND INSTALLED BY LECTRUS		
100	PANELBOARD	1
101	LIGHT SWITCHES & GFI RECEPTACLES	2
102	5 kW HEATER	1
103	DAMPER MOTORS	12
104	FUEL FILL BOX	1
105	LOW VOLTAGE BOX	1
106	TRANSFORMER 30KVA	1
107	DISCONNECT 60A	1
108	INCANDESCENT LIGHT	6
109	EXTERIOR LIGHT	4
110	PUMP CONTROL	1
111	EXIT SIGNS W LIGHTS	2
112	8 GPM PUMP	
ITEMS SUPPLIED BY OTHER AND INSTALLED BY LECTRUS		
200	GENSET	1
201	BATTERY CHARGER	1
202	NGR	1
203	CONNECTION BOX	1

Drawing Title: ENCLOSURE LAYOUT VIEW		Rev No.
Drawing No.: 63751-100		1
P.O.#:	S.O.#:	

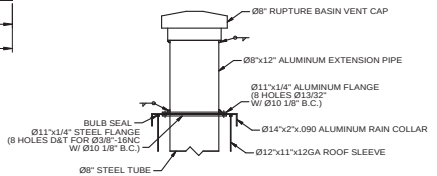




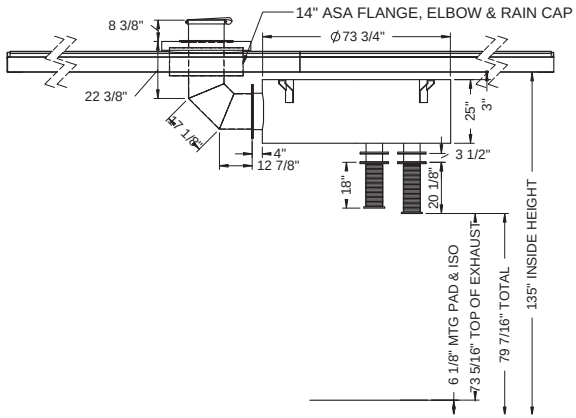
2" NORMAL VENT DETAIL

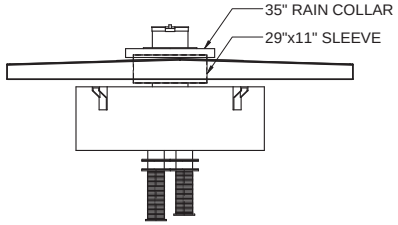


8" EMERGENCY VENT DETAIL



8" RUPTURE BASIN VENT DETAIL





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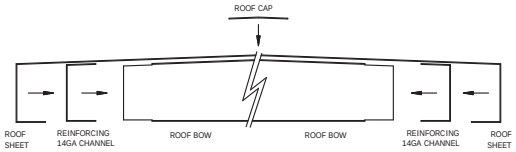


Drawing Title: ROOF TOP/SILENCER VIEW			Rev No.
Drawing No.: 63751-105			1
P.O.#:		S.O.#:	

FUEL FITTING SCHEDULE

1. FUEL FILL
   4" PHOENIX FLANGE
   4"x2" REDUCER

2. FUEL LEVEL INDICATOR
   1 1/2" PLATE FLANGE

3. FUEL SUCTION
   2" PHOENIX FLANGE
   2"x1" HEX DBL TAP BUSHING
   1" PIPE PICK-UP TUBE

4. FUEL RETURN
   2" PHOENIX FLANGE
   2"x1" HEX DBL TAP BUSHING
   1" PIPE PICK-UP TUBE

5. SPARE PORT
   2" PHOENIX FLANGE
   2" PIPE PLUG

6. FUEL VENT PORT
   2" PHOENIX FLANGE

8. FUEL LEVEL ALARM (25%/75%, STACKABLE)
   (25% SET POINT @ 13.5" BELOW TOP)
   (75% SET POINT @ 5" BELOW TOP)
   1 1/2" PLATE FLANGE
   1" FLOAT TYPE SWITCH (QTY - 2)

9. RUPTURE BASIN ALARM (EXTREME BOTTOM)
   1 1/2" PLATE FLANGE
   2" PIPE THRU TANK
   1" FLOAT TYPE SWITCH

10. FUEL LEVEL ALARM (95%)
    (95% SET POINT @ 1.5" BELOW TOP)
    1 1/2" PLATE FLANGE
    1" FLOAT TYPE SWITCH

11. EMERGENCY VENT
    8" PIPE HALF COUPLING

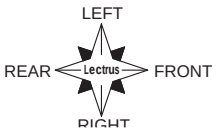
12. RUPTURE BASIN VENT
    8" PIPE HALF COUPLING
    8" PIPE THRU TANK

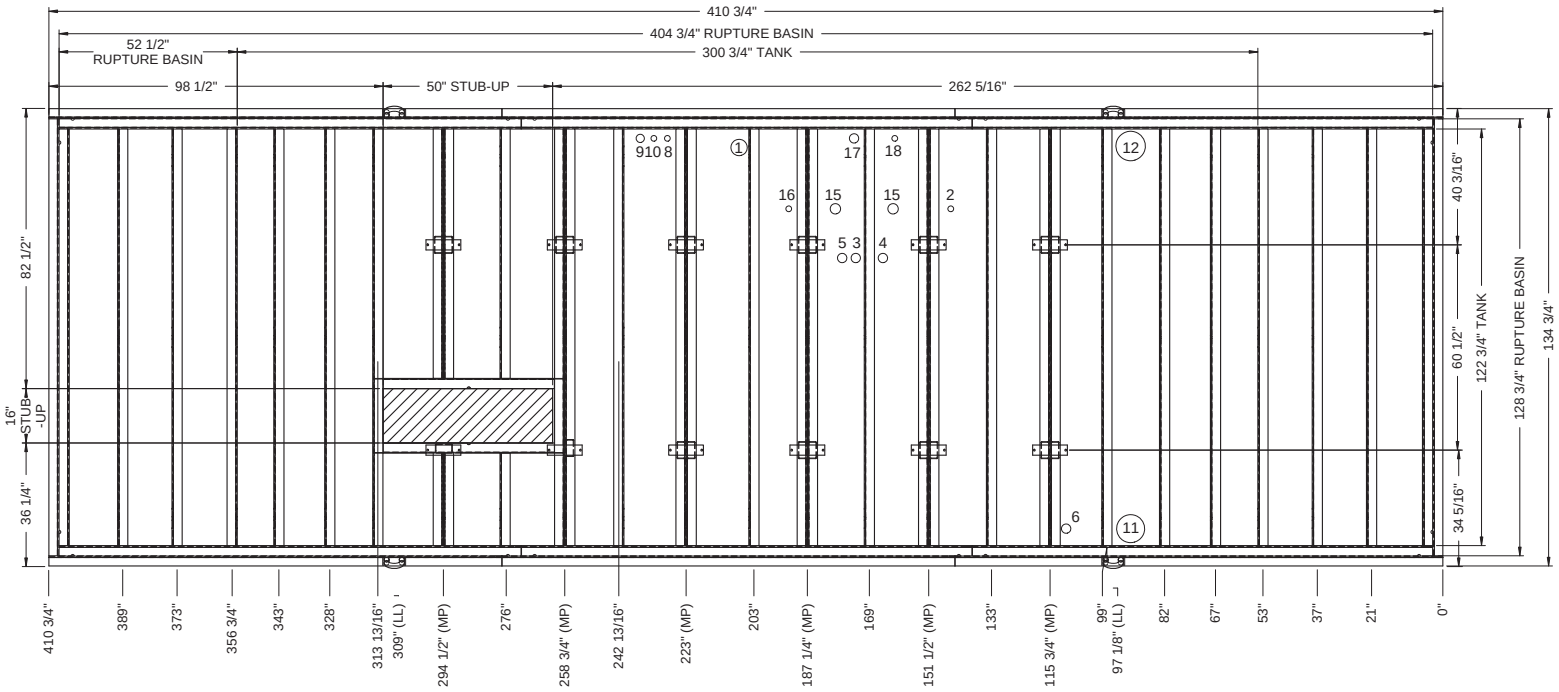
15. FUEL HEATERS (2)
    WATLOW HEATER FLANGE (100372)

16. FUEL HEATER SHUTDOWN SWITCH
    (SET POINT @ 14.5" BELOW TOP)
    1 1/2" PLATE FLANGE
    1" FLOAT TYPE SWITCH

17. FUEL PUMP FILL PORT
    2" PHOENIX FLANGE

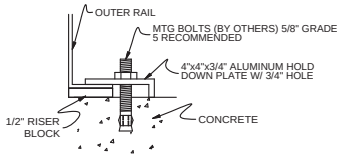
18. FUEL PUMP ALARM
    (40% SET POINT @ 11" BELOW TOP)
    (90% SET POINT @ 2.5" BELOW TOP)
    1 1/2" PLATE FLANGE
    1" FLOAT TYPE SWITCH (QTY-2)





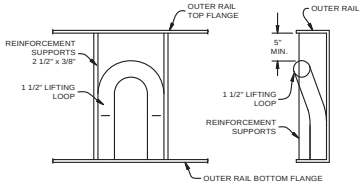
TYPICAL

TANK TOP VIEW
2630 GALLON FUEL CAPACITY

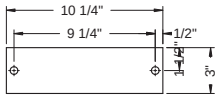


SUBBASE TANK MOUNTING DETAIL
(RECOMMENDED SPACING: APPROX 42" CENTERS)

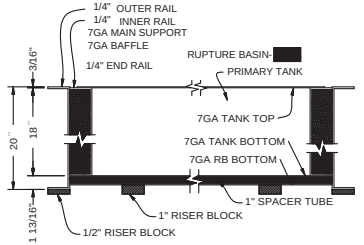
FINAL FOUNDATION ANCHORING REQUIREMENTS TO BE PROVIDED BY OTHERS



1 1/2" LIFTING LOOP DETAIL
(RATED CAPACITY: 30,000 POUNDS)

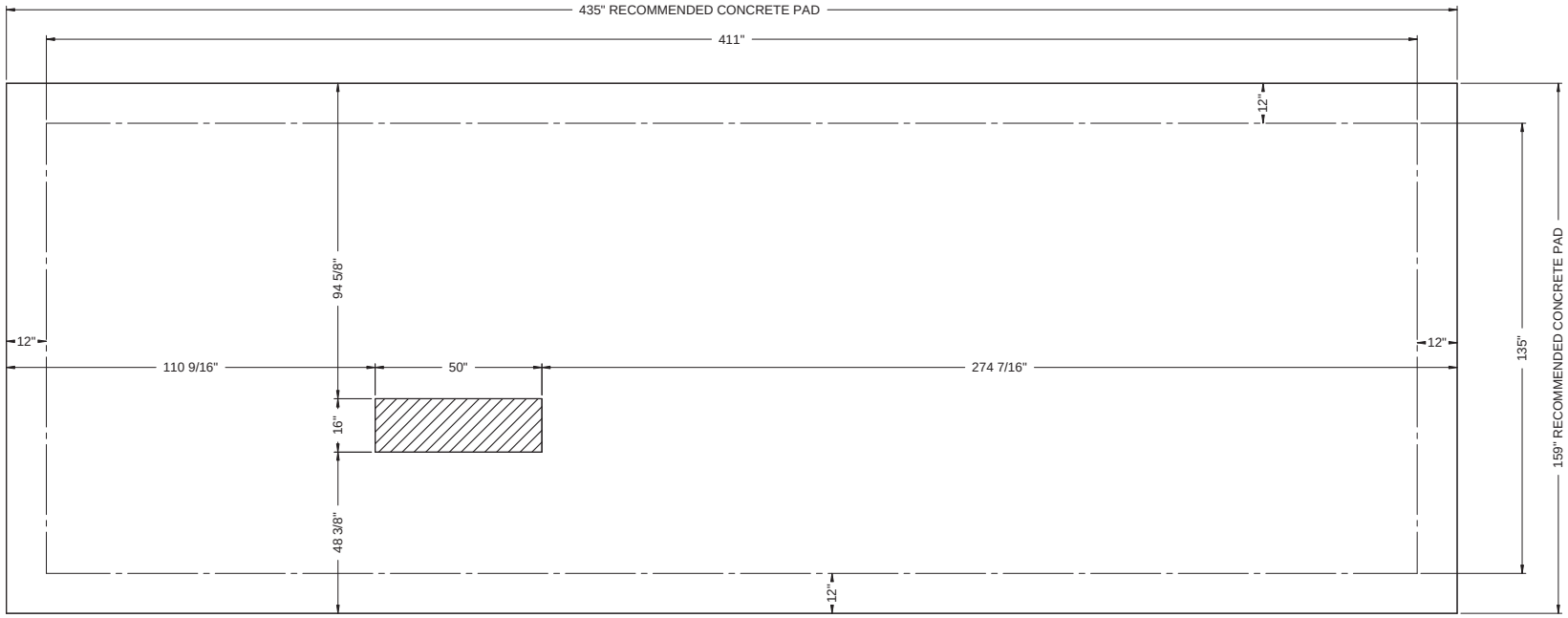


QTY: (12) MTG. PLATES
1/2"x 3" x 10 1/4" STEEL PLATE
1/2"-13 x 1 1/2" WELD STUDS



TANK DETAIL

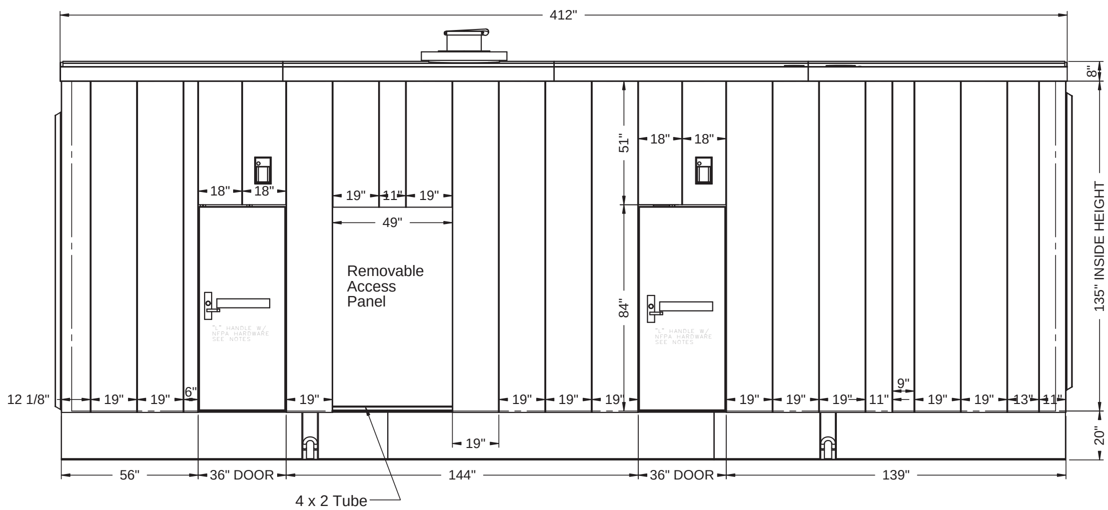
Drawing Title: TANK/BASE TOP VIEW		Rev No. 1
Drawing No.: 63751-200		
P.O.#:	S.O.#:	



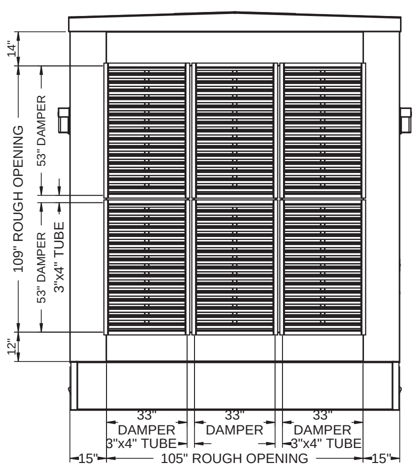
CONCRETE PAD LAYOUT

TYPICAL

Drawing Title:	CONCRETE PAD LAYOUT		Rev No.
Drawing No.:	63751-250		1
P.O.#:		S.O.#:	



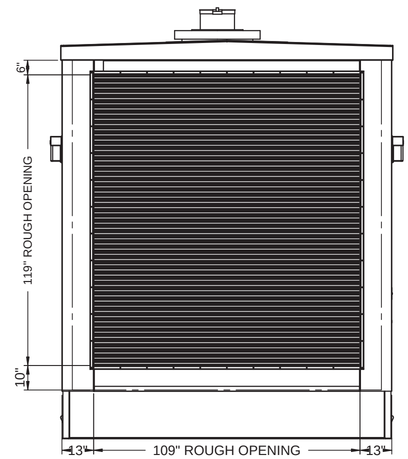
RIGHT SIDE VIEW



FRONT VIEW (INTERIOR)

EXHAUST HARDWARE

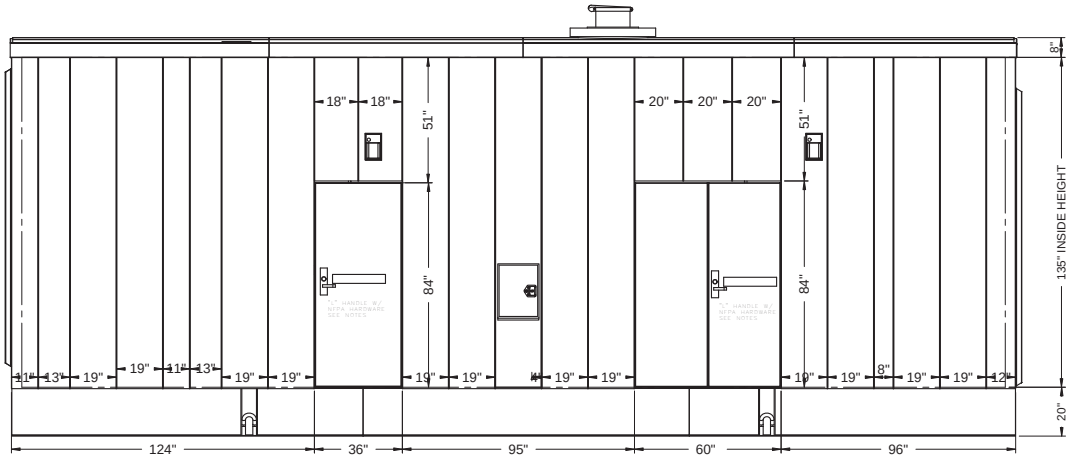
-(6)MOTORIZED DAMPER
33"Wx53"H
-(1) FIXED LOUVER
109"Wx119"H
-(1) SOUND ATTENUATOR
108"Wx112"H
-BIRD SCREEN
.081 ALUMINUM
-DUCT ADAPTER
-1/2" MTG PAD
5 5/8" ISOLATOR



FRONT VIEW (EXTERIOR)

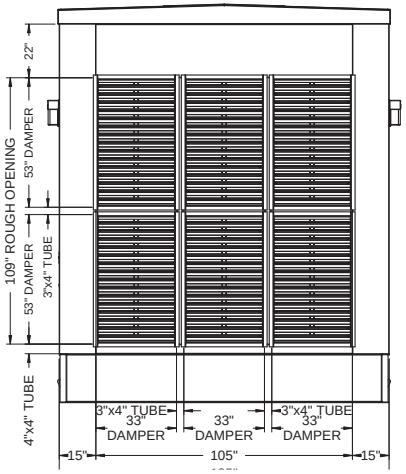
TYPICAL

Drawing Title: RIGHT SIDE AND FRONT VIEWS	Rev No.
Drawing No.: 63751-300	0
P.O.#: S.O.#:	



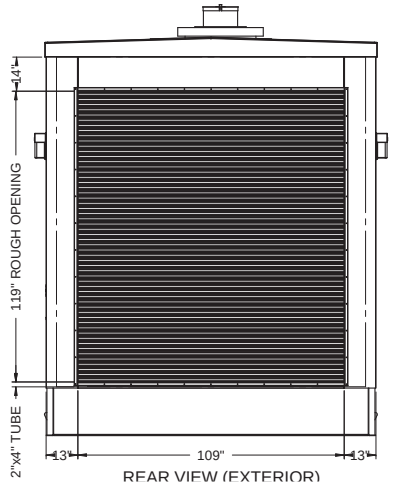
LEFT SIDE VIEW

TYPICAL



INTAKE HARDWARE

-(6)MOTORIZED DAMPER
33"Wx53"H
-(1) FIXED LOUVER
109"Wx 119"H
-(1) SOUND ATTENUATOR
108"Wx112"H
-BIRD SCREEN
.081 ALUMINUM



REAR VIEW (EXTERIOR)

Drawing Title: LEFT SIDE AND REAR VIEWS		Rev No.
Drawing No.: 63751-310		0
P.O.#:	S.O.#:	

2(q)

FINAL REPORT ON WILDLIFE SURVEYS PERFORMED IN 2015 AND ANY RECOMMENDED MEASURES TO MITIGATE WILDLIFE IMPACTS DUE TO CONSTRUCTION AND/OR HABITAT LOSS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.q – FINAL WILDLIFE SURVEY REPORT & MITIGATION RECOMMENDATIONS

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.q), CPV Towantic, LLC hereby provides the following attached final wildlife survey and mitigation recommendation report.

Attached

- Wildlife Survey Results, 'CPV Towantic Oxford_FINAL_WILDLIFE_REPORT_7-14-15.PDF'

2(q)

***SEE ATTACHED PDF DOCUMENT FOR COPY OF THE WILDLIFE SURVEY REPORT.**

2(r)

DEWATERING PLAN TO ADDRESS GROUNDWATER ISSUES DURING CONSTRUCTION.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.r – DEWATERING PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.r), CPV Towantic, LLC hereby provides a dewatering plan and corresponding narrative in the referenced attachment.

Attached

- Drawing C318, contained in '98132 D&M Plans 6-30-15.PDF'

2(s)

FINAL CONSTRUCTION TRAFFIC ROUTE PLANS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.s – FINAL CONSTRUCTION TRAFFIC PLAN

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.s), CPV Towantic, LLC hereby provides the following information with regard to a final construction traffic plan.

CPV Towantic will work closely with the officials of the Town of Oxford to monitor the impact of construction traffic on normal traffic flow through the town, and to develop plans to mitigate any adverse effects.

Parking space for the construction workforce cars will be provided on temporary laydown areas adjacent to or very near the construction site, as provided for in the Development Agreement between the Town and the Project.

During the initial phases of construction, relatively few workforce cars and trucks will be travelling to and from the site. The traffic is expected to use Christian Street, Jacks Hill Road, Riggs Street and Prokop Road to gain access to Woodruff Hill Road until E. Commerce Drive has been made useable.

On behalf of the Town of Oxford, CPV Towantic plans to construct a new Town-owned road, to be known as East Commerce Drive, which will connect the eastern end of Juliano Drive directly to Woodruff Hill Road. This road was designed as an integral part of the Woodruff Hill Industrial Park and will provide greater access to the approved subdivision area currently under development by the Town of Oxford. The detailed construction plans for East Commerce Drive are complete, and the permit application process is almost complete. It is anticipated that construction of this new road will be completed around the middle of 2016, before the construction labor force and heavy haul material deliveries reach their peak. The use of this new section of road will minimize the need for traffic to travel the Christian Street, Jacks Hill Road and Riggs Street route.

By initiating the workday start at 6:30 a.m., the construction workforce will avoid the "normal" morning peak rush hour traffic that occurs between 7:00 a.m. and 8:00 a.m. A similar situation will occur in the afternoon, with the construction traffic leaving the site area after 5:00 p.m., after the "normal" rush hour period that occurs from 4:00 p.m. to 5:00 p.m.

During the construction period there will be times when the frequency of material delivery trucks is greater than average in order to complete a specific construction activity within a specified time; and also, on occasion, there will be some very large component deliveries. At such times, construction management will notify the appropriate Town officials and local State Police of the proposed truck route and, if necessary, engage the service of a local security force to provide traffic control duty at critical intersections.

In summary, CPV Towantic is committed to ensuring that the construction of the Project is conducted as safely and quietly as possible, and with minimum impact on the neighboring community.

2(t)

FENCE DESIGN AND OTHER SITE SECURITY MEASURES.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.t – SITE SECURITY

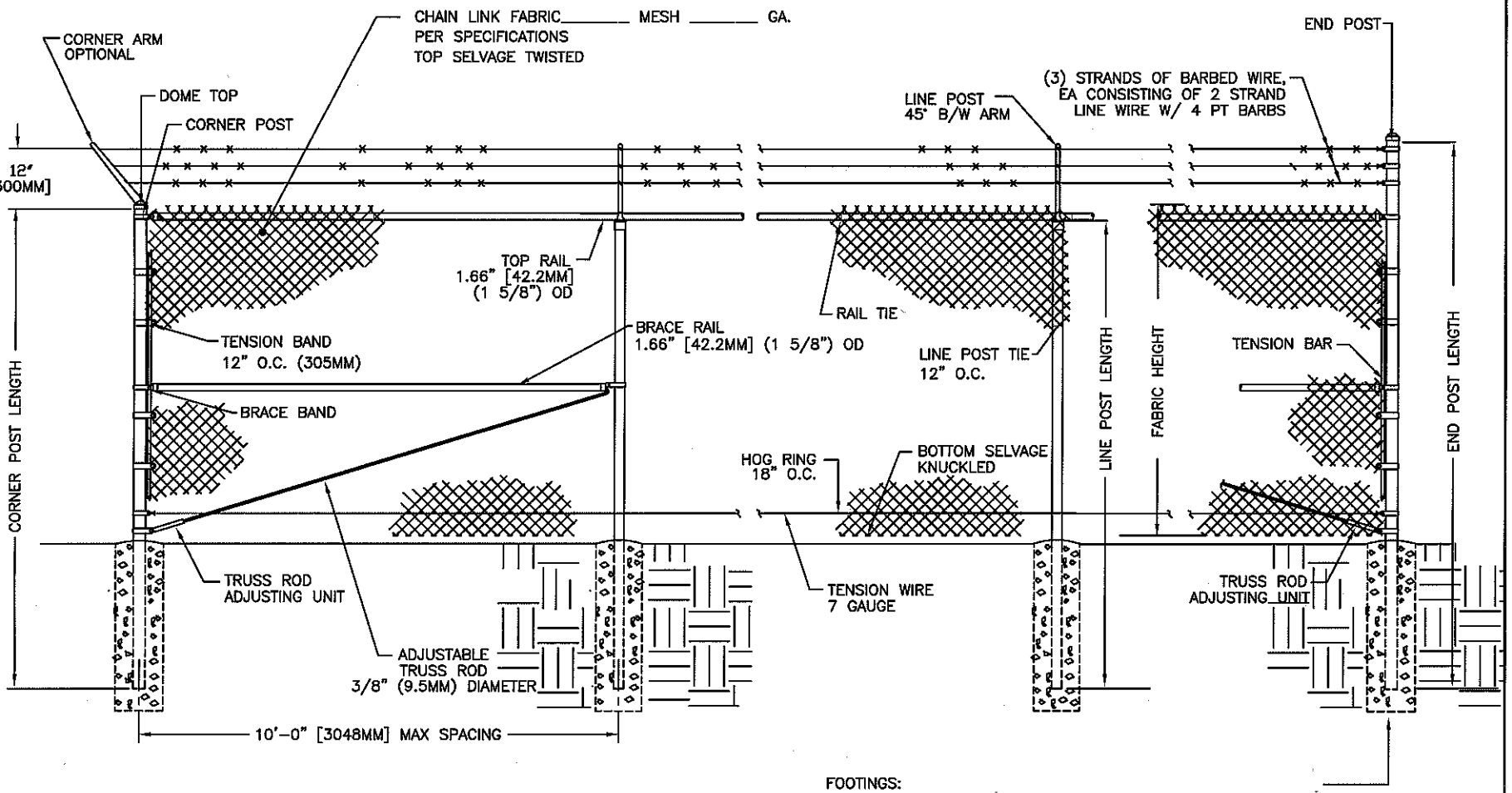
In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.t), CPV Towantic, LLC hereby provides the following information with regard to the site security measures during construction.

During the early phases of construction, temporary barricades and construction safety fences will be incorporated on site in select locations to support initial site work. Also, all construction equipment will be locked and any small hand tools will be kept in connexes.

After completion of initial site civil work and the construction of the site access road, a security gate will be placed at the Project entrance (+/- 24' wide) to block any unauthorized access. The Project will also establish a check in station at the site entrance upon mobilization of the construction trailers. A security guard will be stationed at the entrance gate, with sign-in sheet to control access to the site. As higher-value materials are delivered to the site and or to nearby laydown areas, the Project will coordinate with the Town of Oxford Police as needed to ensure site security. After full site mobilization, the Project will also retain night security guards. During the final phases of construction, the Project will construct a permanent chain link fence, as shown on the attached typical fence detail drawing, to provide full site security for the facility.

Attached

- 'Condition 2.t – Typical Security Fence Detail Drawing.PDF'



7' TYPICAL FENCE SECTION

TYPICAL FENCE ELEVATION
TOP RAIL / TRUSSED BRACE RAIL
3 STRANDS BARBED WIRE
WITH BOTTOM TENSION WIRE

BY:

SCALE:

2(u)

FEDERAL AVIATION ADMINISTRATION LIGHTING DESIGN FOR THE STACKS.

DOCKET NO. 192
CPV TOWANTIC ENERGY, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.u — STACK LIGHTING DESIGN

In accordance with the Connecticut Siting Council's (the Council) May 14, 2015 Decision and Order (Docket No. 192B, Item 2.u) approving CPV Towantic, LLC's (CPV) Application for a Petition of Changed Conditions to their Certificate of Environmental Compatibility and Public Need which was approved by the Council on June 23, 1999, CPV herewith submits documentation concerning the proposed stack lighting design for the CPV Towantic Energy Center (the Project).

The Federal Aviation Administration (FAA) has completed its review of the Project stacks and issued a Determination of No Hazard to Air Navigation to each. The lighting requirements are the same as those imposed on previous Determinations of No Hazard for the Project. As was previously the case, CPV intends to opt for the installation of a medium intensity flashing white light system in lieu of paint on each of the Project stacks, in accordance with Chapter 3, Paragraph 36.b.[1] Therefore, stack lighting for each of the two 150-foot tall stacks is proposed to include a dual lighting system, with red lights (L-864) for nighttime operation and medium intensity flashing white lights (L-865) for daytime and twilight operation. The system will be installed in accordance with FAA Advisory Circular 70/7460-1K, Change 2, dated 2-1-07.

One level of dual lights will be installed within 20 feet of the stack tops in accordance with the above Circular requirements. Lights will be installed on three sides of each stack with the side facing the other stack without a light. Obstruction lighting will be closely monitored by visual and/or automatic means. Visual inspection of obstruction lighting in all operating intensities will occur at least once every 24 hours on systems without automatic monitoring; an automatic monitor will be used on all structures that are not readily accessible for visual observation. For each structure, a log will be maintained of daily operations status of the lighting system.

The specific lighting for the Project, including for other structures, will be in accordance with and reviewed by the FAA to allow for the minimum lighting possible while providing sufficient visibility for air navigation safety.

A copy of Circular AC No. 70/7460-1K, Chapter 8 – Dual Lighting with Red/Medium Intensity Flashing White Systems, is attached. Also attached is a list of lighting equipment vendors which have been certified by the FAA. (AC 150/5345-53D Appendix 1 Addendum. April 20, 2015). An update of the manufacturer's catalog specifications for the lighting control, provided in the 2001 D&M Plan, has also been provided as an example of the equipment which will be purchased and installed.

Attached

- 'Condition 2.u – FAA Updated Chapter 8 Regulations.PDF'
- 'Condition 2.u – Updated Manufacturer Specs – Lighting Control.PDF'

[1] When medium intensity lighting systems are operated during daytime and twilight on structures 500 feet (153m) AGL or less, other methods of marking may be omitted. When operated 24 hours a day on structures 500 feet (153m) AGL or less, other methods of marking and lighting may be omitted.

HUGHEY & PHILLIPS

9LC Control System

Compliant to: FAA AC 150/5345-43F,
ICAO Annex 14, CAR 621.19

Use:
9LC series lighting controls combine the finest in digital circuitry with rugged electromechanical hardware to yield the industry's most comprehensive obstruction lighting controls. Standard models are available for all common FAA and ICAO applications. The 9LCs modular design allows for custom controls for almost any combination of flashing red beacons and sidelights. All models include a NEMA 4 outdoor housing and a calibrated photocell for automatic day/night switching. A photocell override switch is standard on all systems, facilitation troubleshooting or maintenance. All controls provide comprehensive status indicators and alarm contacts for easy connection to remote monitoring systems.

Features:

- Controls for multiple beacons flash all beacons simultaneously per FAA and ICAO specifications
- Lightning protection provided by:
  - Circuit breaker protection to all tower lighting circuits.
  - MOV surge suppressors on all inputs, outputs, and photocell lines
  - Torroidal current sensors isolate tower lines from monitoring circuitry
- Load balance resistor capability is available
- Modular design allows customization for nearly any application
- Dozens of models already developed for control of up to 14 beacons
- Standard with NEMA 4 enclosures (NEMA 4X optional upgrade)

Alarm Contacts / Control Status

- Individual alarm contacts and control status is provided for:
  - Control power failure
  - Day/night mode status
  - Each flashing red beacon
  - Each level of steady burning obstruction lights
  - Flasher by-pass alarm/status for each beacon
- Number of lamps being monitored can easily changed by setting dip-switches
- Bi-color red/green LED status indicators provide instant indication of alarm and control status
- Normally open and normally closed alarm contacts are both available
- Primary and auxiliary alarm contacts provided

HUGHEY & PHILLIPS

Models – Partial listing only – Please contact Hughey & Phillips for more configurations

Model #	System	Lighting Type	Structure Height	Input Voltage (50/60Hz)	Beacons	Strobes	Sidelight Levels	LBR Capability
9LCA001000AA	FAA A-0	Incandescent	0 - 150'	120V	0		1	No
9LCA111L00AA	FAA A-1	Incandescent	151' - 350'	120V	1		1	Yes
9LCA233L00AA	FAA A-2	Incandescent	351' - 700'	120V	3		2	Yes
9LCA354L10AA	FAA A-3	Incandescent	701' - 1050'	120V	5		3	Yes
9LCA474L10AA	FAA A-4	Incandescent	1051' - 1400'	120V	7		4	Yes
9LCD111000AA	FAA D-1	Strobe	200' -350'	120V		1		No
9LCD231000AA	FAA D-2	Strobe	351' - 500'	120V		3		No
9LCE111L0BAA	FAA E-1	Inc/Strobe	200' -350'	120V	1	1		Yes
9LCE233L0BAA	FAA E-2	Inc/Strobe	351' - 500'	120V	3	3		Yes
9LCIA06000AA	ICAO A-0	Incandescent	0 - 150'	230V			1	No
9LCIB16L00AA	ICAO A-1	Incandescent	151' - 350'	230V	1		1	Yes
9LCIB26L00AA	ICAO A-2	Incandescent	350’ – 700’	230V	2		1	Yes
9LCIC16L00AA	ICAO A-1	Incandescent	151' - 350'	230V	1		2	Yes
9LCID16L00AA	ICAO A-1	Incandescent	151' - 350'	230V	1		3	Yes
9LCR001000AA	FAA A-0	LED	0 - 150'	120V			1	No
9LCR111000AA	FAA A-1	LED	151' - 350'	120V	1		1	No
9LCR231000AA	FAA A-2	LED	351' - 700'	120V	3		2	No
9LCR354000AA	FAA A-3	LED	701' - 1050'	120V	5		3	No

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HUGHEY & PHILLIPS, LLC.

FlashGuard™ 3000B Series
Dual Medium Intensity Strobe System

FAA Type: L-864/865 Medium Intensity Lighting
ICAO Type: Type A/B Medium Intensity Obstacle Light

ETL Certified:

FAA Advisory Circular 150/5345-43F

Compliant to:

ICAO Annex 14, MIL-C-7989
DGAC of Mexico, CAR 621.19

The FlashGuardÊ 3000B Medium Intensity Dual Lighting System combines a daytime white strobe light and a nighttime red flashing strobe into a single flashhead, eliminating the need for two separate lighting systems. The flashhead is powered and controlled by a power supply that can be mounted remotely at the base of the structure. The power supply constantly monitors the operation of the system, and provides alarm contact closure upon any failure. The system automatically switches between day and night intensities by the use of a calibrated photocell. FlashGuardÊ 3000B flashheads incorporate a light blocking strip that minimizes ground scatter light, resulting in a ñcommunity friendlyò lighting system.

Use:

Medium intensity obstruction lighting systems are typically used on structures between 150ô (45M) and 500ô(150M) above ground level to provide aviation safety. The use of a medium intensity white strobe during the daytime typically eliminates the need to paint the structure with aviation orange and white stripes. The use of a red flashing beacon at night provides a ñcommunity friendlyò light. Hughey & Phillips medium intensity obstruction lights are designed for lighting tall structures such as communication, television and radio towers, chimneys, cooling towers, tall buildings, catenary river crossings and bridges.

Part Numbers

FG3000B-004	FlashGuard L864/865 Medium Intensity 120/230 VAC 60 Hz
FG3001B-004	FlashGuard L864/865 Medium Intensity 230 VAC 50 Hz

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HUGHEY H&P PHILLIPS

HUGHEY & PHILLIPS, LLC.

System Features:

- Single flashhead provides dual red/white medium intensity operation with no moving parts.
- Dual flashtubes and dual trigger transformers provide night time redundancy - no single point of failure in the flashhead
- Precise optics minimize ground scatter light
- Alarm contacts provided for connection to any monitoring system
- Rugged design of flashhead and power supply is suitable for outdoor installation in any climate

Flashhead Features:

- Upper optics provides red flashing beacon lighting
- Lower optics provides medium intensity white strobe lighting
- Identical strobe tube for red and white eliminates extra spare parts
- Internally triggered Xenon strobe tubes utilized for long-life and maximum efficiency, without creating corrosive ozone
- Parabolic reflector/linear strobe tubes optics combination provides very precise optics and blocks ground scatter light in both red and white operation
- Lens raises and locks in place, providing easy access to strobe tubes
- Only five components used in flashhead - minimal maintenance required at top of structure
- Dual flashtubes and trigger transformers provide night time redundancy
- Safety interlock switch included
- No moving parts
- High temperature, UV resistant acrylic flashhead lens

Power Supply Features:

- Provides power electronics, timing circuitry, and monitoring for lighting system
- Automatic day/night intensity control
- Manual intensity override
- Easily accessible components
- Plug-in-play circuit cards
- Control and monitoring for up two sidelight levels with four steady burning obstruction lights
- Fail-safe monitoring system with up to five remote alarm contacts
- Stainless steel NEMA 4X enclosure
- Low power consumption

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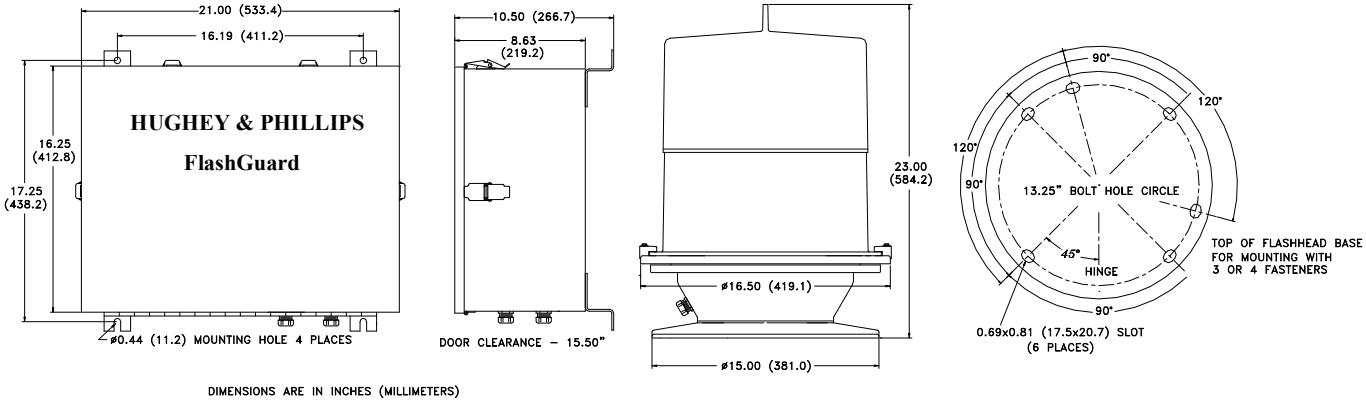
HUGHEY & PHILLIPS, LLC.

Dimensions:



Specifications:

Photometric	Day Mode (White)	20,000 candela ± 25%
	Night Mode (Red)	2,000 candela ± 25%
	Backup Night Mode (White)	2,000 candela ± 25%
	Beam Spread	3° minimum
	Horizontal Coverage	360°, omni-directional
	Ground Scatter	<3% Light Output at -10° Vertical
	Flash Rate	40 FPM Day & Backup White Night 24FPM Red Night
Environmental	Temperature	-55° to +55° C (-67° F to +130° F)
	Will withstand exposure to	95% relative humidity Wind-blown rain direction Salt-laden atmosphere Wind Speed - 240kph (150mph)
Mechanical	Weight, Flashhead	16 kg (34 lbs)
	Weight, Power Supply	32 kg (70 lbs)
	Power Supply Enclosure	304 Stainless Steel - standard 316L Stainless Steel - optional
	Flashhead Lens Material	High Temp/UV Resistant Acrylic
Electrical	Input Voltages	120, 230/240, 480 VAC
	Input Frequencies	50 or 60 Hz
	Power Consumption, Day	208 Watts
	Power Consumption, Night	133 Watts
	Power Consumption, Backup	77 Watts
	Peak Inrush Current	7A @ 120VAC
	Available Alarm Contacts (form C dry-contact)	Power Failure, Mode Status, Strobe Failure, Sidelight #1 Fail, Sidelight #2 Fail

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CHAPTER 8. DUAL LIGHTING WITH RED/MEDIUM INTENSITY FLASHING WHITE SYSTEMS

80. PURPOSE

This dual lighting system includes red lights (L-864) for nighttime and medium intensity flashing white lights (L-865) for daytime and twilight use. This lighting system may be used in lieu of operating a medium intensity flashing white lighting system at night. There may be some populated areas where the use of medium intensity at night may cause significant environmental concerns. The use of the dual lighting system should reduce/mitigate those concerns. Recommendations on lighting structures can vary depending on terrain features, weather patterns, geographic location, and in the case of wind turbines, number of structutes and overall layout of design.

81. INSTALLATION

The light units should be installed as specified in the appropriate portions of Chapters 4, 5, and 6. The number of light levels needed may be obtained from Appendix 1.

82. OPERATION

Lighting systems should be operated as specified in Chapter 3. Both systems should not be operated at the same time; however, there should be no more than a 2-second delay when changing from one system to the other. Outage of one of two lamps in the uppermost red beacon (L-864 incandescent unit) or outage of any uppermost red light shall cause the white obstruction light system to operate in its specified ”night” step intensity.

83. CONTROL DEVICE

The light system is controlled by a device that changes the system when the ambient light changes. The system should automatically change steps when

the northern sky illumination in the Northern Hemisphere on a vertical surface is as follows:

a. ***Twilight-to-Night.*** This should not occur before the illumination drops below 5 foot-candles (53.8 lux) but should occur before it drops below 2 foot-candles (21.5 lux).

b. ***Night-to-Day***. The intensity changes listed in subparagraph 83 a above should be reversed when changing from the night to day mode.

84. ANTENNA OR SIMILAR APPURTENANCE LIGHT

When a structure utilizing this dual lighting system is topped with an antenna or similar appurtenance exceeding 40 feet (12m) in height, a medium intensity flashing white (L-865) and a red flashing beacon (L-864) should be placed within 40 feet (12m) from the tip of the appurtenance. The white light should operate during daytime and twilight and the red light during nighttime. These lights should flash simultaneously with the rest of the lighting system.

85. OMISSION OF MARKING

When medium intensity white lights are operated on structures 500 feet (153m) AGL or less during daytime and twilight, other methods of marking may be omitted.

2(v)

FULL GEOTECHNICAL STUDY PERFORMED ON LOT 9A PRIOR TO FINALIZING CONSTRUCTION PLANS.

DOCKET NO. 192B
CPV TOWANTIC, LLC
CERTIFICATE OF ENVIRONMENTAL COMPATIBILITY AND PUBLIC NEED
DEVELOPMENT AND MANAGEMENT PLAN
CONDITION 2.v – FULL GEOTECHNICAL SURVEY

In accordance with the Connecticut Siting Council's May 14, 2015 Decision and Order (Docket No. 192B, Item 2.v), CPV Towantic, LLC hereby provides the attached geotechnical survey of the 20 acre parcel owned by CPV Towantic, LLC and Lot 9A.

Attached

- '3773-001 FINAL Geotechnical Data Report.PDF'

2(v)

SEE ATTACHED PDF DOCUMENT FOR COPY OF THE GEOTECHNICAL SURVEY.