

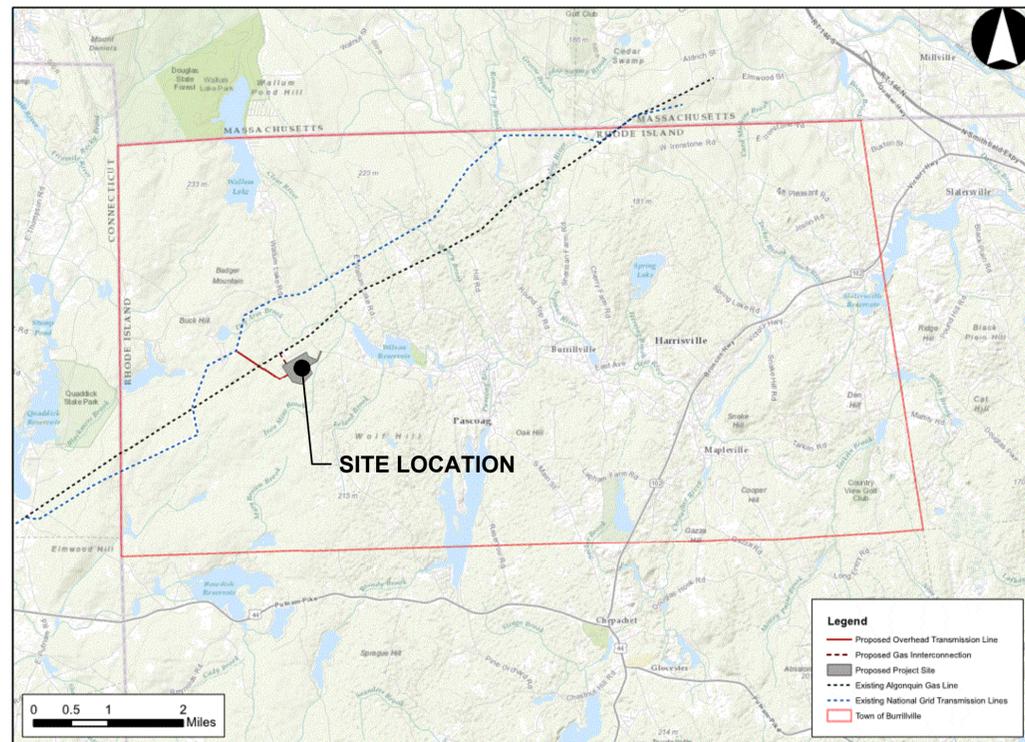
Drawing Package For

INVENERGY

Clear River Energy Center

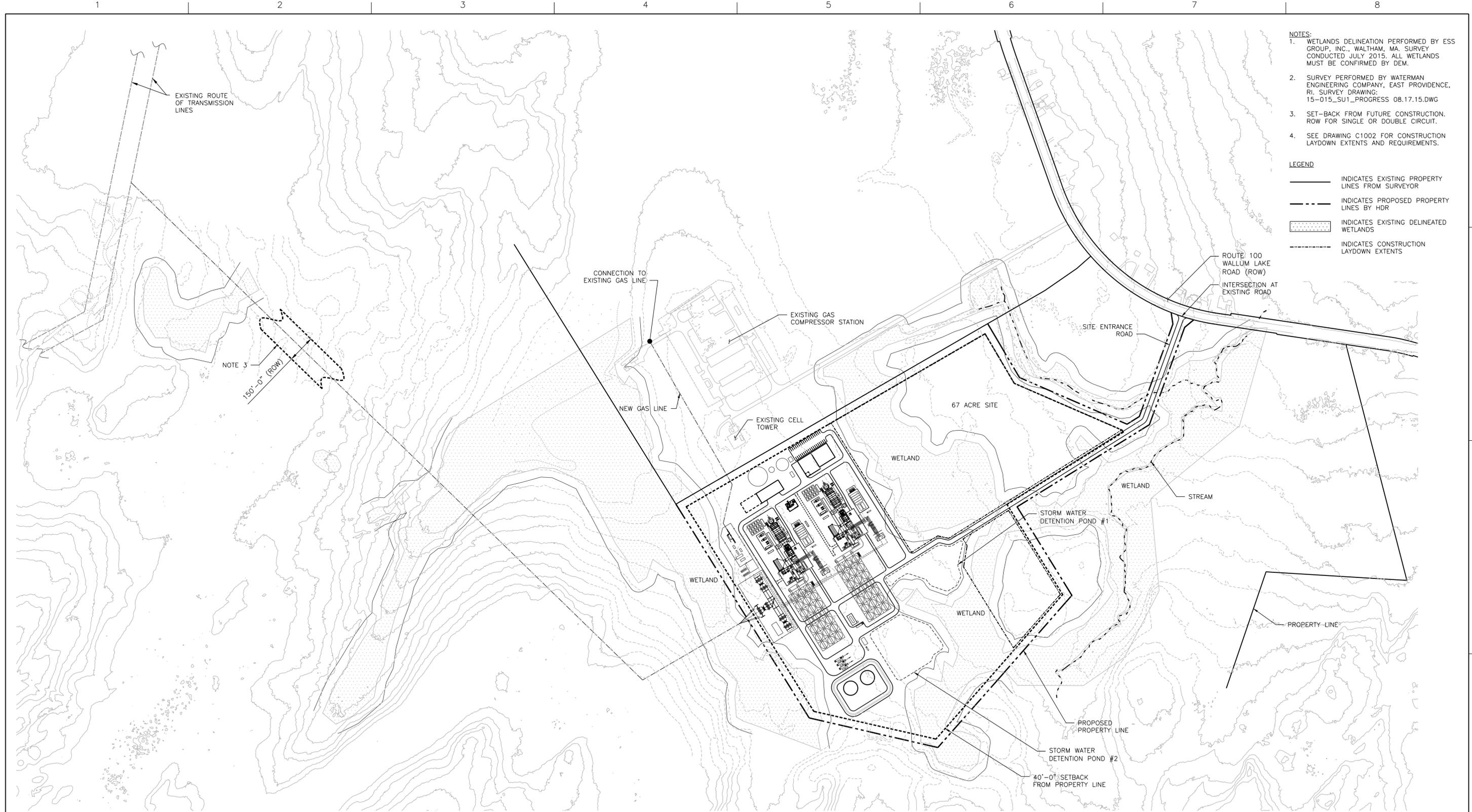
INDEX OF DRAWINGS

238926-0AA-CS	COVER SHEET AND INDEX	
238926-0GA-C1000	SINGLE SHAFT SITE ARRANGEMENT	REV. 0
238926-0GA-C1001	SINGLE SHAFT GENERAL ARRANGEMENT	REV. 0
238926-0GA-C1002	SINGLE SHAFT CONSTRUCTION FACILITIES AND TERMINAL POINT LOCATION PLAN	REV. 0
238926-0GA-C1004	SITE TOPOGRAPHY	REV. A
238926-0GA-C1005	WETLAND DELINEATION	REV. A
238926-0GA-C1006	SITE BOUNDARY	REV. A
238926-0GA-C1007	SITE GRADING PLAN	REV. A
238926-0GA-A1000	ADMINISTRATION BUILDING FLOOR PLAN	REV. 0
238926-0MP-E1000	OVERALL ONE-LINE DIAGRAM	REV. 0
238926-0CX-K6000	CONTROL SYSTEM ARCHITECTURE	REV. 0
238926-WMB-01	NATURAL GAS FIRED WATER MASS BALANCE - AVERAGE AMBIENT CONDITIONS	REV. C
238926-WMB-03	NATURAL GAS FIRED WATER MASS BALANCE - SUMMER AMBIENT CONDITIONS	REV. C
238926-WMB-04	WATER MASS BALANCE - 1 CT ON GAS, 1 CT ON FUEL OIL - WINTER AMBIENT CONDITIONS	REV. C



Project No.
00000000238926

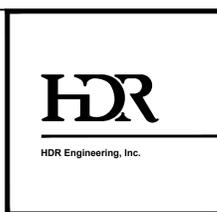
Burrillville, Rhode Island
November, 2015



- NOTES:**
1. WETLANDS DELINEATION PERFORMED BY ESS GROUP, INC., WALTHAM, MA. SURVEY CONDUCTED JULY 2015. ALL WETLANDS MUST BE CONFIRMED BY DEM.
 2. SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG
 3. SET-BACK FROM FUTURE CONSTRUCTION. ROW FOR SINGLE OR DOUBLE CIRCUIT.
 4. SEE DRAWING C1002 FOR CONSTRUCTION LAYDOWN EXTENTS AND REQUIREMENTS.

- LEGEND**
- INDICATES EXISTING PROPERTY LINES FROM SURVEYOR
 - - - INDICATES PROPOSED PROPERTY LINES BY HDR
 - [Stippled Area] INDICATES EXISTING DELINEATED WETLANDS
 - - - - - INDICATES CONSTRUCTION LAYDOWN EXTENTS

SITE ARRANGEMENT
 SCALE: 1" = 250'-0"
 NORTH

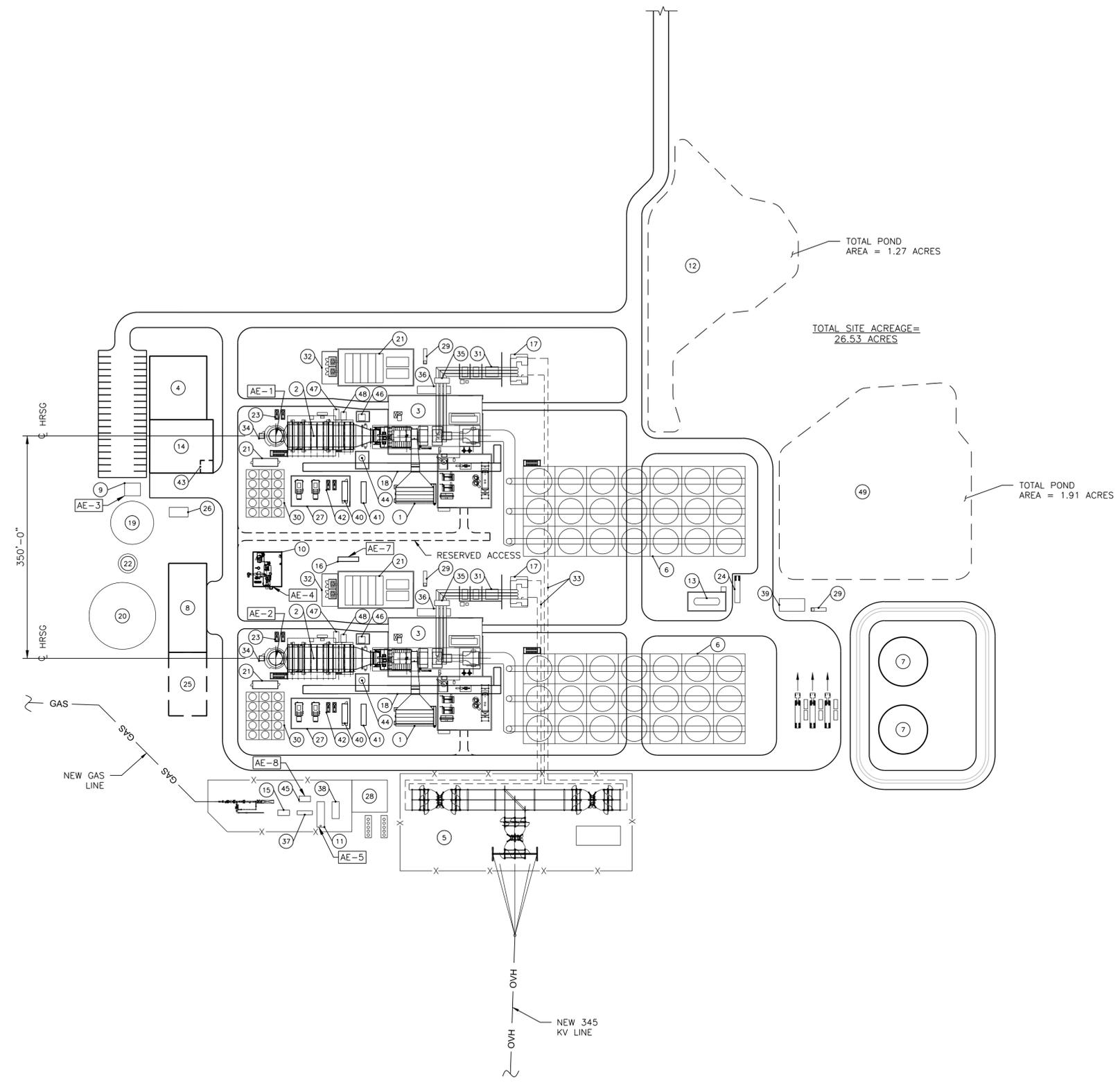


ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
0	02 NOV 15	M0102 BID ISSUE	EDC	-	-	-

**PRELIMINARY
 NOT FOR
 CONSTRUCTION
 OR
 RECORDING**

**INVENERGY, LLC
 CLEAR RIVER ENERGY CENTER**

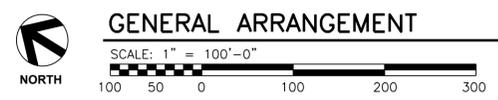
SINGLE SHAFT SITE ARRANGEMENT	
FILENAME	C1000-0GA-238926.dwg
SCALE	AS NOTED
38926-0GA-C1000	



NO	NAME	SIZE (DIMENSIONS IN FEET)		
		LENGTH	WIDTH	HEIGHT
1	COMBUSTION TURBINE INLET FILTER	60	27	80
2	HEAT RECOVERY STEAM GENERATOR	103	44	115
3	TURBINE BUILDING	150	94	80
4	ADMINISTRATION/CONTROL BUILDING	100	90	25
5	SWITCHYARD	367	153	25
6	AIR-COOLED CONDENSER	350	150	120
7	FUEL OIL STORAGE TANK	77ø	-	30
8	WATER TREATMENT BUILDING	140	60	30
9	FIRE PUMP BUILDING	25	20	15
10	AUXILIARY BOILER BUILDING	54	45	35
11	CTG FUEL GAS DEW POINT HEATER	40	12	15
12	STORM WATER DETENTION POND #1	-	-	-
13	AMMONIA STORAGE TANK	60	30.5	15
14	WAREHOUSE	100	84	25
15	FUEL GAS FILTER/SEPARATOR	18	9	15
16	STAND-BY DIESEL GENERATOR	33	8	15
17	GSU TRANSFORMER	48	27	15
18	PIPE RACK	313	15	30
19	FIRE/SERVICE WATER TANK	68ø	-	30
20	DEMINEALIZED WATER STORAGE TANK	105ø	-	30
21	BOP ELECTRICAL	46	12	25
22	WASTE WATER TANK	30ø	-	30
23	HRSG LTE RECIRCULATION PUMPS	16	16	6
24	HYDROGEN TUBE TRAILER	-	-	15
25	ZLD WATER TREATMENT	100	60	30
26	OIL STORAGE SHELTER	30	15	12
27	FEEDWATER PUMP BUILDING	94	48.5	25
28	GAS COMPRESSOR BUILDING	56	51	30
29	OIL WATER SEPARATOR	24	5	-
30	CCCW HEAT EXCHANGER	75	60	32
31	AUX. TRANSFORMERS	20	16	15
32	SUS TRANSFORMERS	51	25	12
33	345 KV UNDERGROUND DUCT BANK	-	5	-
34	CEMS SHELTER	9	8	12
35	GENERATOR CIRCUIT BREAKER	23.5	8	20
36	LCI EXCITATION CONTAINER	52	12	12
37	FUEL GAS FLOW METER	24	6	6
38	FUEL GAS PRESSURE REGULATION	27	11	6
39	FUEL OIL EQUIPMENT BUILDING	40	20	20
40	SAMPLE PANEL ENCLOSURE	31	9	12
41	FUEL GAS PERFORMANCE HEATER	34	8.5	10
42	CCCW PUMPS	16	16	6
43	WORKSHOP	20	20	25
44	BLOWDOWN TANK	10ø	-	10
45	LP FUEL GAS DEW POINT HEATER	18	9	8
46	WATER WASH DRAIN TANK	11	11	-
47	DUCT BURNER FUEL SKID	16	8.5	8
48	DUCT BURNER COOLING AIR BLOWER	12	8.5	6
49	STORM WATER DETENTION POND #2	-	-	-

AIR EMISSION SOURCES (COMBUSTION SOURCES)			
NO	NAME	UTM COORDINATES	
		N	E
AE-1	HRSG EXHAUST STACK 1	N4,649,656	E271,822
AE-2	HRSG EXHAUST STACK 2	N4,649,602	E271,730
AE-3	FIRE PUMP BUILDING	N4,649,702	E271,765
AE-4	AUX. BOILER BUILDING	N4,649,627	E271,764
AE-5	CTG FUEL GAS DEW POINT HEATER	N4,649,545	E271,676
AE-6	NOT USED	-	-
AE-7	STAND-BY DIESEL GENERATOR 2	N4,649,596	E271,788
AE-8	LP FUEL GAS DEW POINT HEATER	N4,649,556	E271,678

* UTM COORDINATES ARE FOR ZONE 19 T



GENERAL ARRANGEMENT

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**INVENERGY, LLC
CLEAR RIVER ENERGY CENTER**

**SINGLE SHAFT
GENERAL ARRANGEMENT**



ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
0	02 NOV 15	M0102 BID ISSUE	EDC	-	-	-

FILENAME	C1001-OGA-238926.dwg	SHEET
SCALE	AS NOTED	238926-OGA-C1001



- NOTES:**
1. WETLANDS DELINEATION PERFORMED BY ESS GROUP, INC., WALTHAM, MA. SURVEY CONDUCTED JULY 2015. ALL WETLANDS MUST BE CONFIRMED BY DEM.
 2. SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG
 3. TOTAL ON SITE CONSTRUCTION LAYDOWN AREA = 25.28 ACRES.
 4. ALL WETLANDS DISTURBED FOR CONSTRUCTION LAYDOWN SHALL BE RESTORED OR OTHERWISE MITIGATED AS DEFINED BY DEM UPON CONCLUSION OF WORK.

- LEGEND**
- INDICATES EXISTING PROPERTY LINES FROM SURVEYOR
 - - - INDICATES PROPOSED PROPERTY LINES BY HDR
 - ▨ INDICATES EXISTING DELINEATED WETLANDS
 - · - · - INDICATES CONSTRUCTION LAYDOWN EXTENTS
 - TP-___ INDICATES TERMINAL POINT IDENTIFICATION AND LOCATION

TERMINAL POINTS	
MARK	DESCRIPTION
TP-01	RAW WATER SUPPLY
TP-02	WASTEWATER DISCHARGE
TP-03	NOT USED
TP-04	STORM WATER BASIN DISCHARGE (ON SITE)
TP-05	FUEL GAS SUPPLY
TP-06	PUBLIC ROAD ACCESS
TP-07	345 kV TRANSMISSION
TP-08	TRANSMISSION SCADA RTU INTERFACE
TP-09	TRANSMISSION PROTECTIVE RELAY
TP-10	TELEPHONE/DATA RACEWAY INTERFACE
TP-C1	CONSTRUCTION WATER (OFF SITE)
TP-C2	TEMPORARY PUBLIC ROAD ACCESS TO LAYDOWN
TP-C3	TEMPORARY POWER DURING CONSTRUCTION

CONSTRUCTION FACILITIES PLAN
 SCALE: 1" = 150'-0"
 NORTH



ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
0	02 NOV 15	M0102 BID ISSUE	EDC	-	-	-

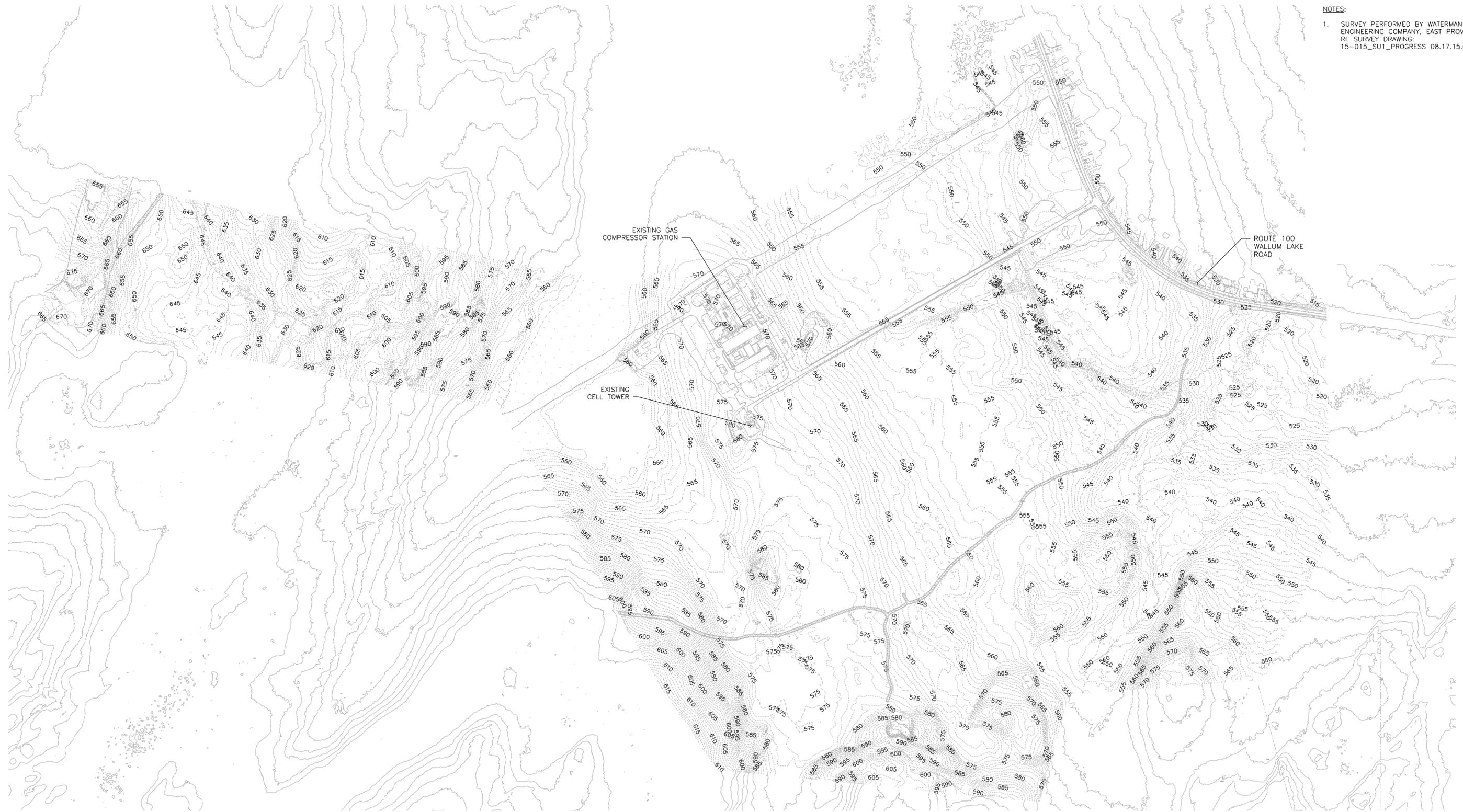
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OR
RECORDING**

**INVENERGY, LLC
CLEAR RIVER ENERGY CENTER**

**SINGLE SHAFT
CONSTRUCTION FACILITIES AND
TERMINAL POINT LOCATION PLAN**

FILENAME	C1002-0GA-238926.dwg	SHEET
SCALE	AS NOTED	238926-0GA-C1002

NOTES:
 1. SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG



SITE TOPOGRAPHY
 SCALE: 1" = 250'-0"
 NORTH



ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
A	05 NOV 15	ISSUED FOR PERMITTING	EDC	-	-	-

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**INVENERGY, LLC
 CLEAR RIVER ENERGY CENTER**

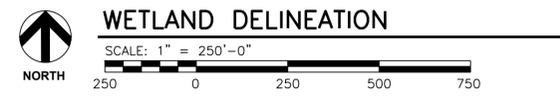
**SINGLE SHAFT
 SITE TOPOGRAPHY**

FILENAME	C1004-0GA-238926.dwg	SHEET
SCALE	AS NOTED	238926-0GA-C1004

NOTES:
 1. WETLANDS DELINEATION PERFORMED BY ESS GROUP, INC., WALTHAM, MA. SURVEY CONDUCTED JULY 2015. ALL WETLANDS MUST BE CONFIRMED BY DEM.
 2. SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG

LEGEND

-  INDICATES EXISTING DELINEATED WETLANDS
-  INDICATES EXTENTS OF EXISTING WETLAND
-  INDICATES WETLAND BUFFER SET-BACK
-  INDICATES EXISTING STREAM
-  INDICATES STREAM BUFFER SET-BACK
-  INDICATES EXISTING WOOD ROAD



ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
A	05 NOV 15	ISSUED FOR PERMITTING	EDC	-	-	-

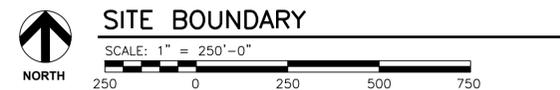
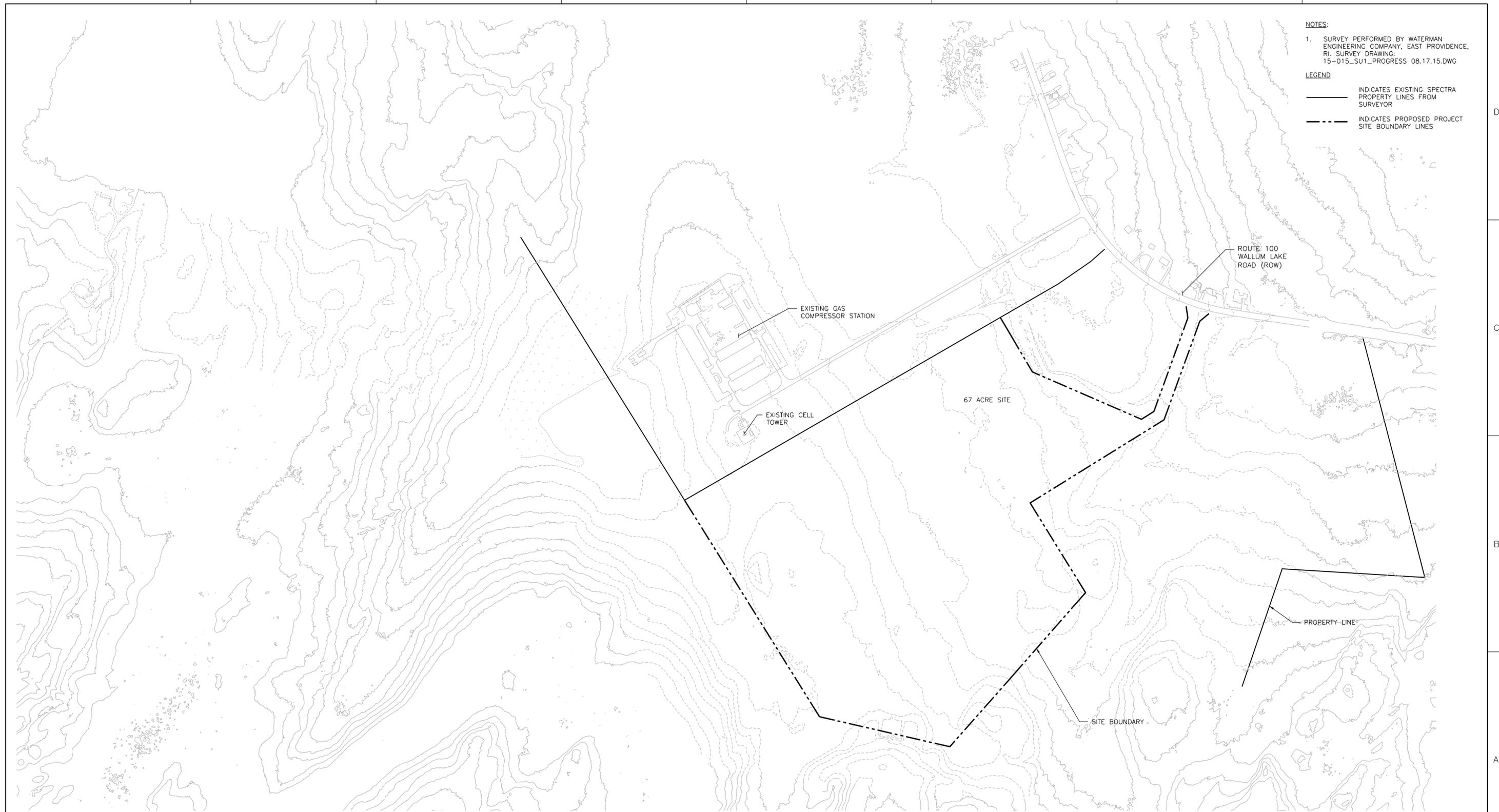
**PRELIMINARY
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 OR
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**INVENERGY, LLC
 CLEAR RIVER ENERGY CENTER**

SINGLE SHAFT WETLAND DELINEATION	
FILENAME	C1005-0GA-238926.dwg
SCALE	AS NOTED
38926-0GA-C1005	

NOTES:
 1. SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG

LEGEND
 ——— INDICATES EXISTING SPECTRA PROPERTY LINES FROM SURVEYOR
 - - - - - INDICATES PROPOSED PROJECT SITE BOUNDARY LINES

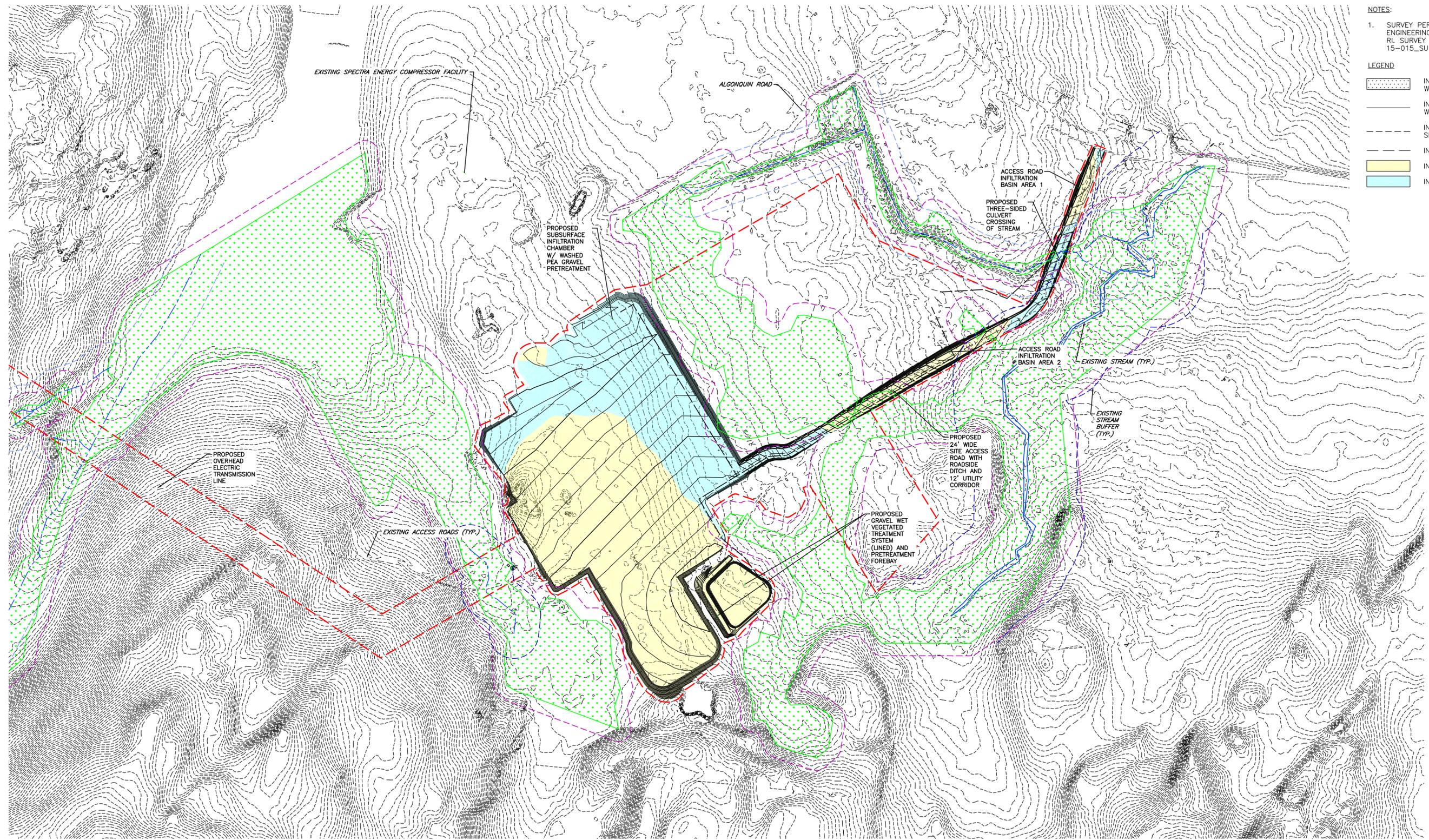


ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
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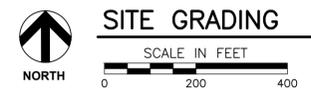
**PRELIMINARY
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 OR
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**INVENERGY, LLC
 CLEAR RIVER ENERGY CENTER**

SINGLE SHAFT SITE BOUNDARY	
FILENAME	C1006-0GA-238926.dwg
SCALE	AS NOTED
238926-0GA-C1006	



- NOTES:**
- SURVEY PERFORMED BY WATERMAN ENGINEERING COMPANY, EAST PROVIDENCE, RI. SURVEY DRAWING: 15-015_SU1_PROGRESS 08.17.15.DWG
- LEGEND**
- INDICATES EXISTING DELINEATED WETLANDS
 - INDICATES EXTENTS OF EXISTING WETLAND
 - INDICATES WETLAND BUFFER SET-BACK
 - INDICATES LIMIT OF DISTURBANCE
 - INDICATES CUT AREA OF SITE
 - INDICATES FILL AREA OF SITE



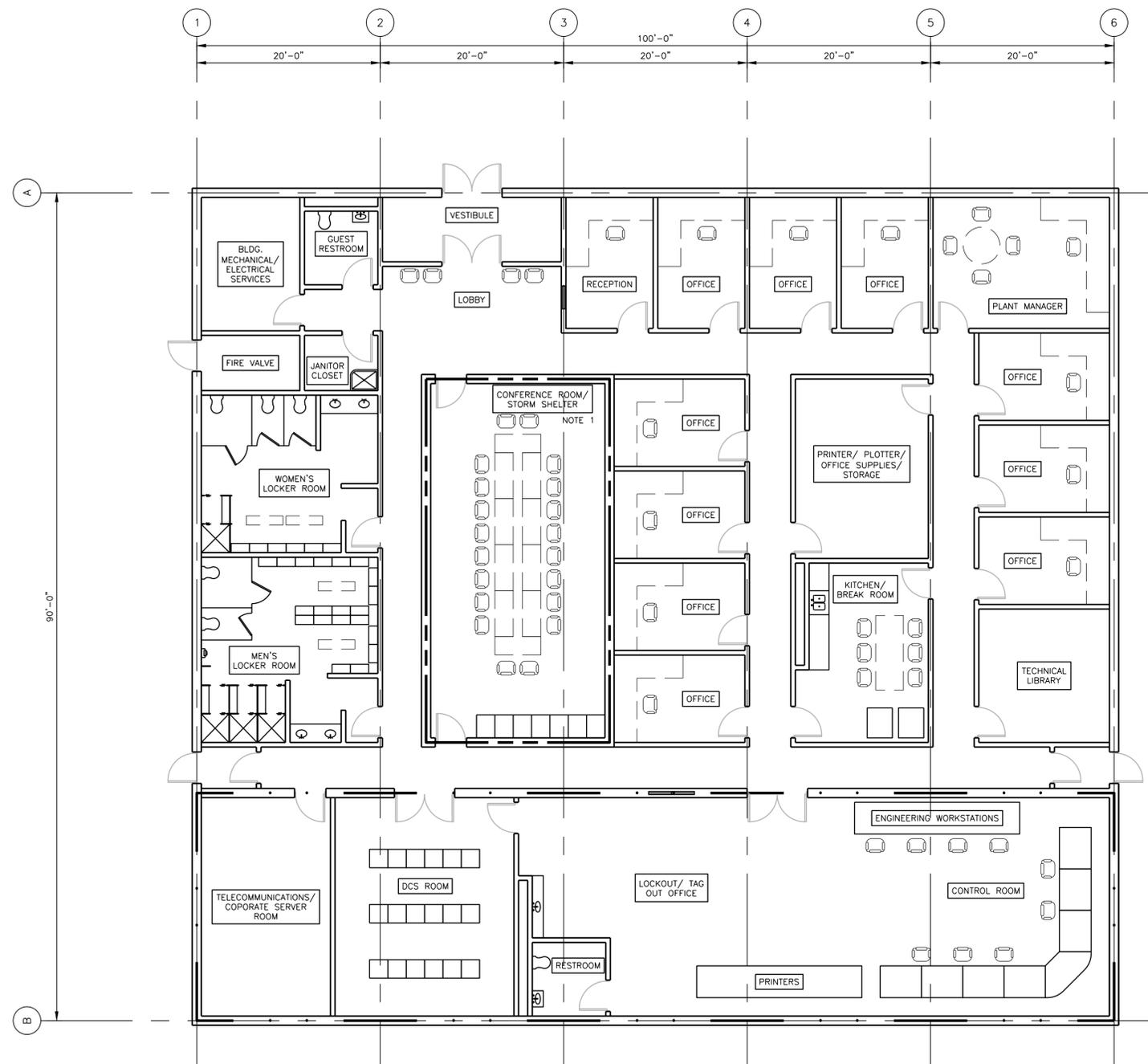
A	05 NOV 15	ISSUED FOR PERMITTING	EDC	-	-	-	
ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV	

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OR
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**INVENERGY, LLC
CLEAR RIVER ENERGY CENTER**

**SINGLE SHAFT
SITE GRADING**

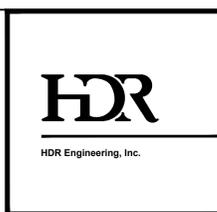
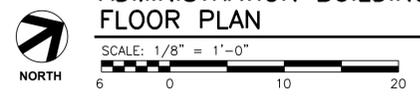
FILENAME	C1007-0GA-238926.dwg	SHEET	
SCALE	AS NOTED		238927-0GA-C1007



NOTES:
 1. ROOM DESIGN TO MEET ICC-500 CRITERIA FOR STORM SHELTER.

LEGEND:
 - - - - - INDICATES NERC CIP SIX WALL BOUNDARY
 - - - - - INDICATES AREA OF REFUGE (STORM SHELTER)

ADMINISTRATION BUILDING FLOOR PLAN



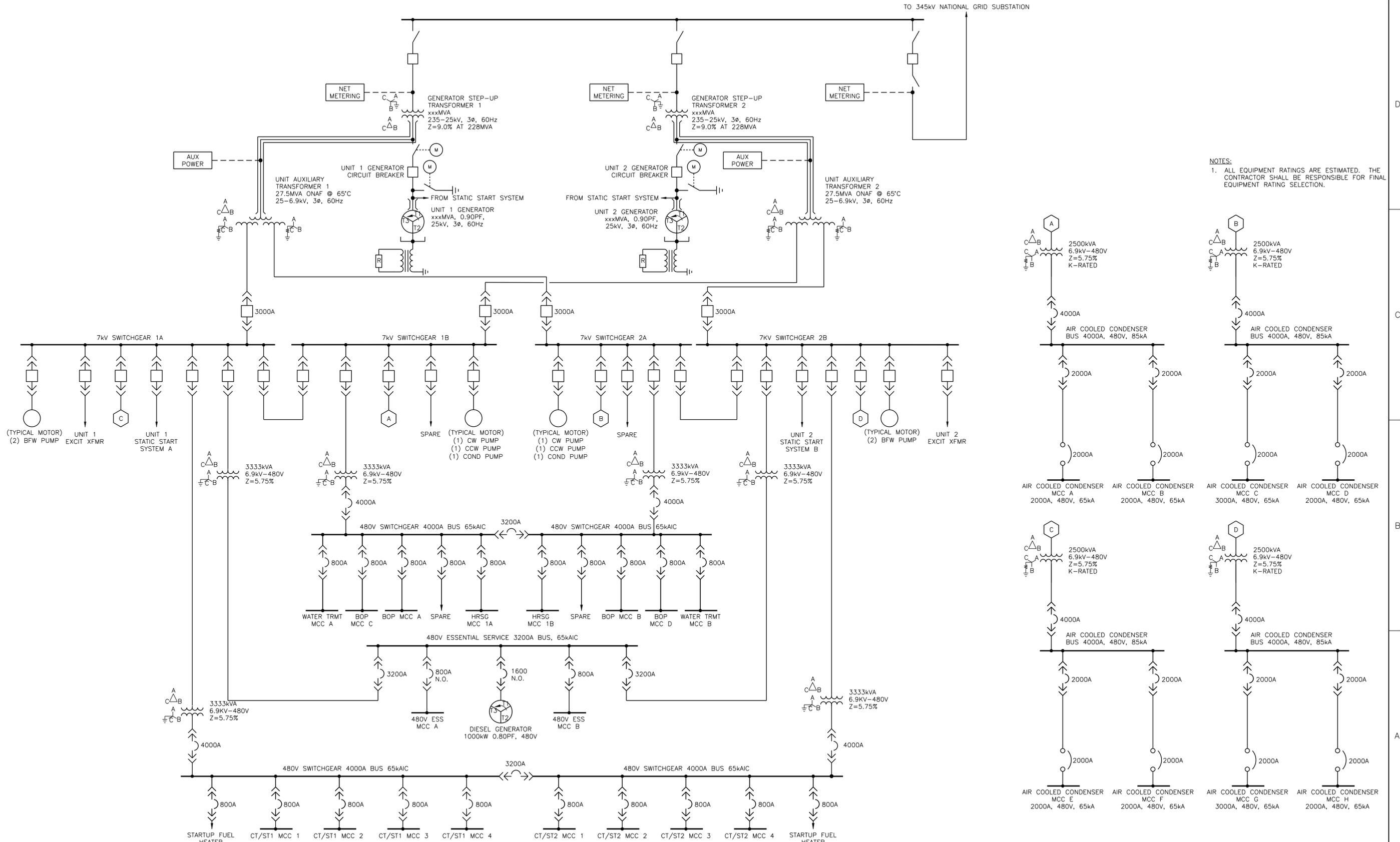
ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV
0	02 NOV 15	M0102 BID ISSUE	EDC	-	-	-

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**INVENERGY, LLC
 CLEAR RIVER ENERGY CENTER**

ADMINISTRATION BUILDING FLOOR PLAN

FILENAME	A1000-0GA-238926.dwg	SHEET
SCALE	AS NOTED	238926-0GA-A1000



NOTES:
1. ALL EQUIPMENT RATINGS ARE ESTIMATED. THE CONTRACTOR SHALL BE RESPONSIBLE FOR FINAL EQUIPMENT RATING SELECTION.

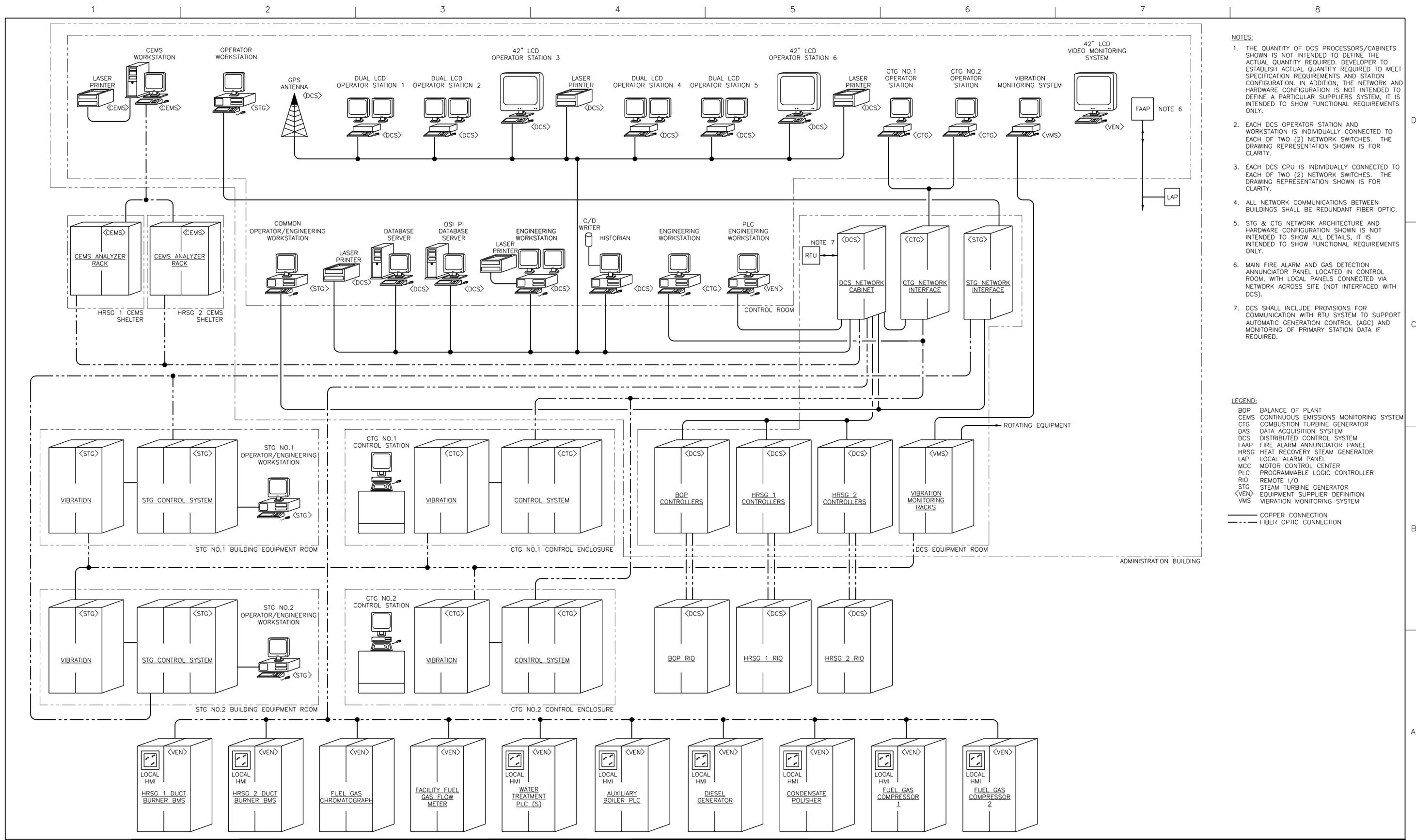


ISSUE	DATE	DESCRIPTION	DCW	AJS	CAR	DWM
0	02 NOV 15	M0102 BID ISSUE				
			DWN	ENGR	CHK	APPV

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**INVENERGY, LLC
CLEAR RIVER ENERGY CENTER**

CLEAR RIVER ENERGY CENTER OVERALL ONE-LINE DIAGRAM	
FILENAME	E1000-OMP-238926.dwg
SCALE	NONE
SHEET	238926-OMP-E1000



- NOTES:**
1. THE QUANTITY OF DCS PROCESSORS/CABINETS SHOWN IS NOT INTENDED TO DEFINE THE ACTUAL QUANTITY REQUIRED. DEVELOPER TO ESTABLISH ACTUAL QUANTITY REQUIRED TO MEET SPECIFICATION REQUIREMENTS AND STATION CONFIGURATION. IN ADDITION, THE NETWORK AND HARDWARE CONFIGURATION IS NOT INTENDED TO DEFINE A PARTICULAR SUPPLIERS SYSTEM, IT IS INTENDED TO SHOW FUNCTIONAL REQUIREMENTS ONLY.
 2. EACH DCS OPERATOR STATION AND WORKSTATION IS INDIVIDUALLY CONNECTED TO EACH OF TWO (2) NETWORK SWITCHES. THE DRAWING REPRESENTATION SHOWN IS FOR CLARITY.
 3. EACH DCS CPU IS INDIVIDUALLY CONNECTED TO EACH OF TWO (2) NETWORK SWITCHES. THE DRAWING REPRESENTATION SHOWN IS FOR CLARITY.
 4. ALL NETWORK COMMUNICATIONS BETWEEN BUILDINGS SHALL BE REDUNDANT FIBER OPTIC.
 5. STG & CTG NETWORK ARCHITECTURE AND HARDWARE CONFIGURATION SHOWN IS NOT INTENDED TO SHOW ALL DETAILS, IT IS INTENDED TO SHOW FUNCTIONAL REQUIREMENTS ONLY.
 6. MAIN FIRE ALARM AND GAS DETECTION ANNUNCIATOR PANEL LOCATED IN CONTROL ROOM, WITH LOCAL PANELS CONNECTED VIA NETWORK ACROSS SITE (NOT INTERFACED WITH DCS).
 7. DCS SHALL INCLUDE PROVISIONS FOR COMMUNICATION WITH RTU SYSTEM TO SUPPORT AUTOMATIC GENERATION CONTROL (AGC) AND MONITORING OF PRIMARY STATION DATA IF REQUIRED.

- LEGEND:**
- BOP BALANCE OF PLANT
 - CEMS CONTINUOUS EMISSIONS MONITORING SYSTEM
 - CTG COMBUSTION TURBINE GENERATOR
 - DAS DATA ACQUISITION SYSTEM
 - DCS DISTRIBUTED CONTROL SYSTEM
 - FAAP FIRE ALARM ANNUNCIATOR PANEL
 - HRSG HEAT RECOVERY STEAM GENERATOR
 - LAP LOCAL ALARM PANEL
 - MCC MOTOR CONTROL CENTER
 - PLC PROGRAMMABLE LOGIC CONTROLLER
 - RIO REMOTE I/O
 - STG STEAM TURBINE GENERATOR
 - <VEN> EQUIPMENT SUPPLIER DEFINITION
 - VMS VIBRATION MONITORING SYSTEM
- COPPER CONNECTION
 - - - FIBER OPTIC CONNECTION



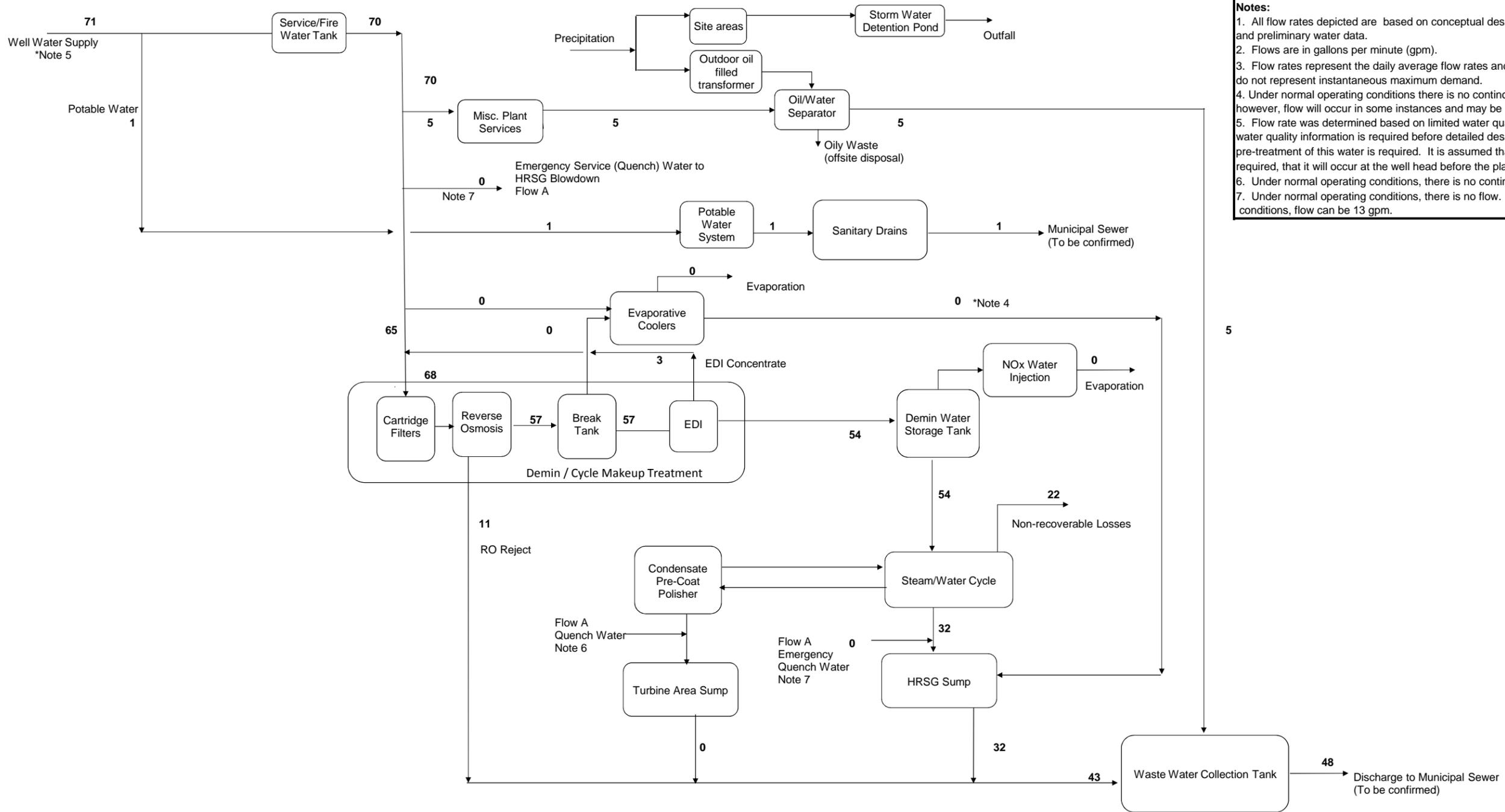
0	02 NOV 15	M0102 BID ISSUE	DCW	AJS	CAR	DWM
ISSUE	DATE	DESCRIPTION	DWN	ENGR	CHK	APPV

**PRELIMINARY
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OR
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**INVENERGY, LLC
CLEAR RIVER ENERGY CENTER**

**CLEAR RIVER ENERGY CENTER
CONTROL SYSTEM ARCHITECTURE**

FILENAME	K6000-0CX-238926.dwg	SHEET
SCALE	NONE	238926-0CX-K6000

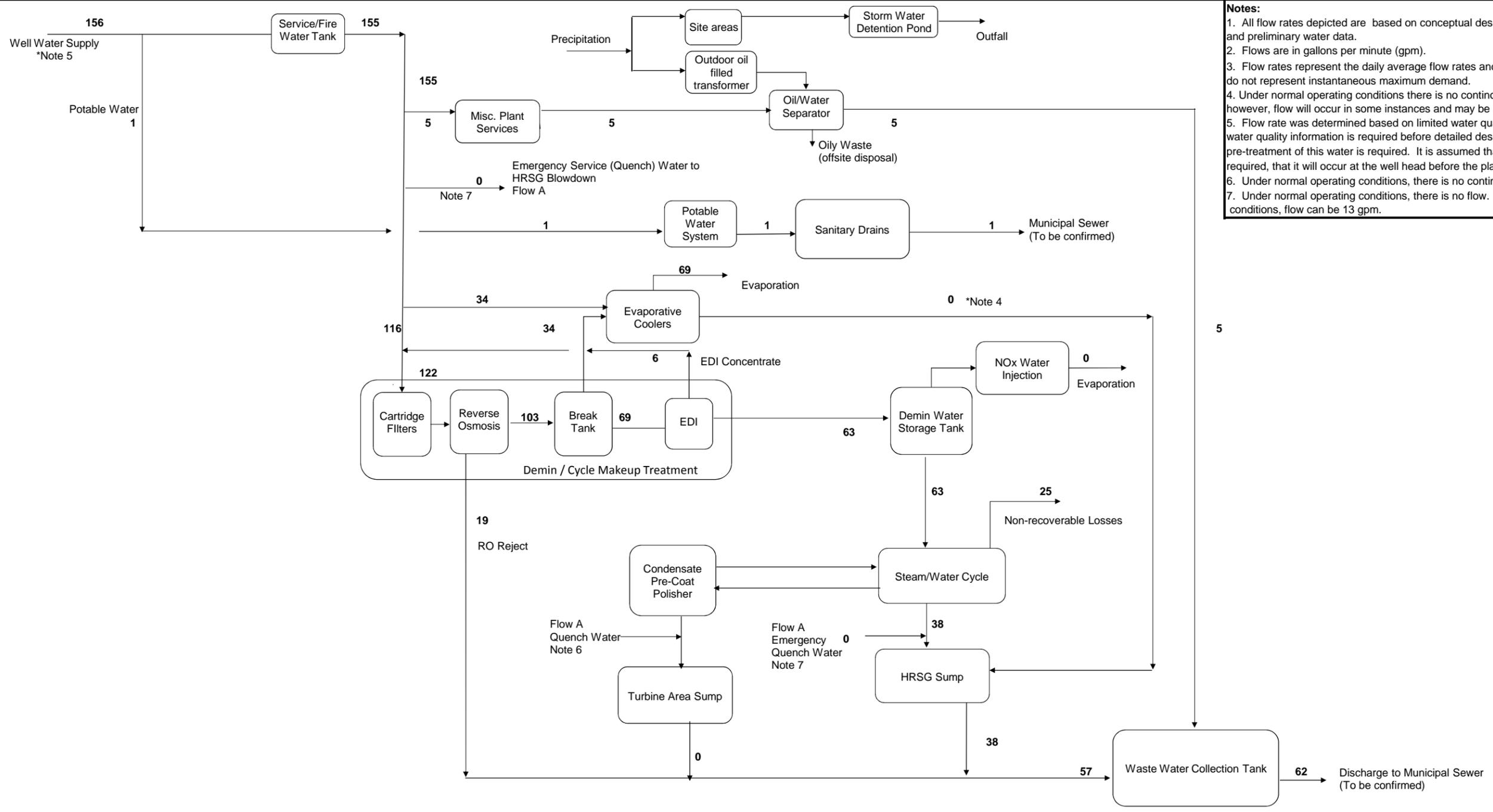


Notes:

1. All flow rates depicted are based on conceptual design and preliminary water data.
2. Flows are in gallons per minute (gpm).
3. Flow rates represent the daily average flow rates and do not represent instantaneous maximum demand.
4. Under normal operating conditions there is no continuous flow, however, flow will occur in some instances and may be approx. 1 gpm.
5. Flow rate was determined based on limited water quality data available. Additional water quality information is required before detailed design in order to determine if pre-treatment of this water is required. It is assumed that if any pretreatment is required, that it will occur at the well head before the plant is supplied.
6. Under normal operating conditions, there is no continuous flow.
7. Under normal operating conditions, there is no flow. However, under emergency conditions, flow can be 13 gpm.

FOR CONCEPTUAL DESIGN ONLY

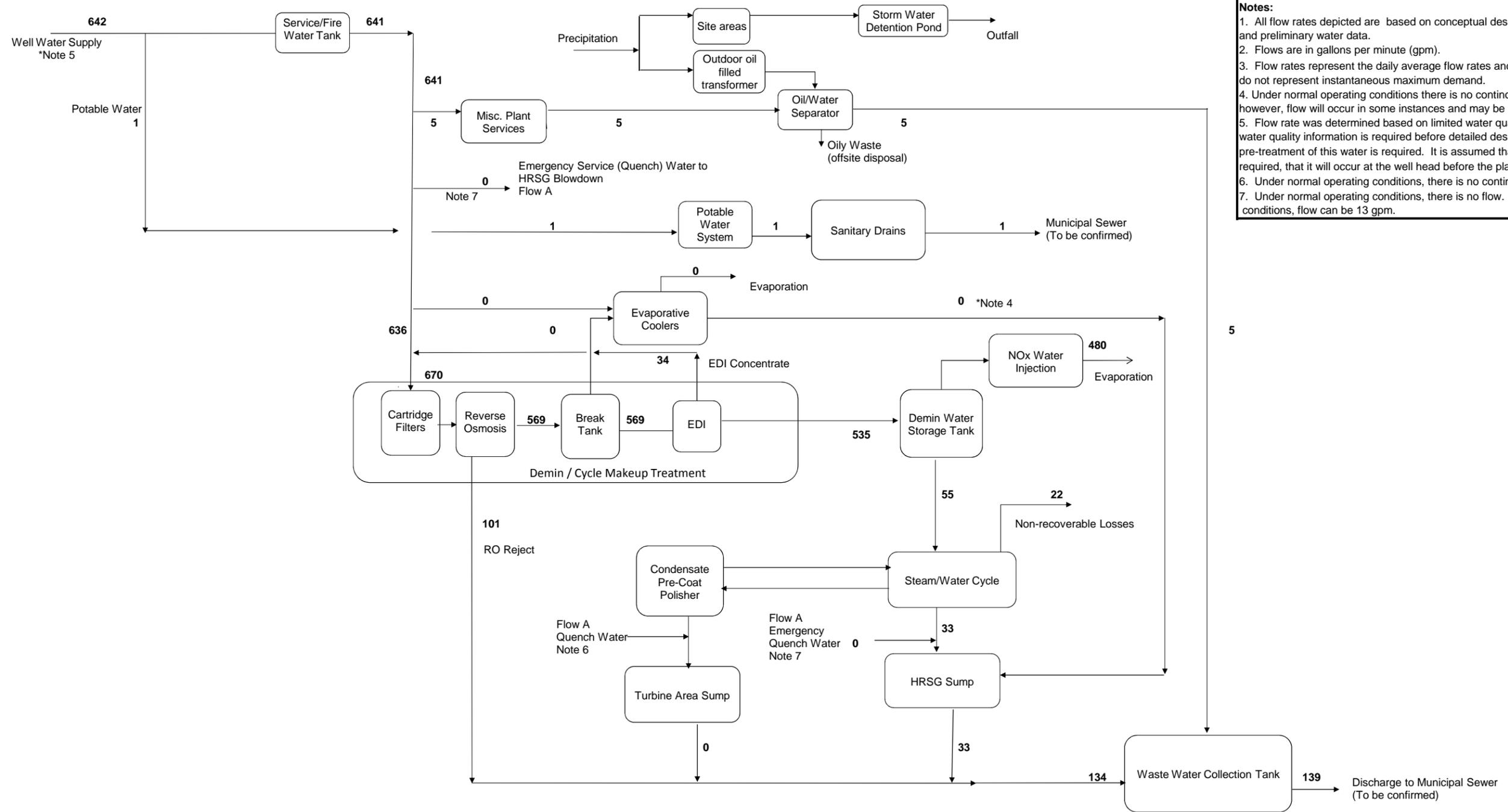
	Conceptual Design Basis	7/22/15		RHODE ISLAND 2 x 1 COMBINED CYCLE	Project	238926	Drawing	WMB-01
	Demin Water Makeup Demand	1.5% of Main Steam Flow			NATURAL GAS FIRED WATER MASS BALANCE 2 X 1 GE HA.02 - 992 MW - Dry Cooling Average Ambient Conditions	Rev	C	
	Potable Water Demand	20 personnel, 50 gal per day, 3 shifts						
	Ambient Conditions	46°F / 67%RH						
Cycles of Concentration	NA							



- Notes:**
1. All flow rates depicted are based on conceptual design and preliminary water data.
 2. Flows are in gallons per minute (gpm).
 3. Flow rates represent the daily average flow rates and do not represent instantaneous maximum demand.
 4. Under normal operating conditions there is no continuous flow, however, flow will occur in some instances and may be approx. 1 gpm.
 5. Flow rate was determined based on limited water quality data available. Additional water quality information is required before detailed design in order to determine if pre-treatment of this water is required. It is assumed that if any pretreatment is required, that it will occur at the well head before the plant is supplied.
 6. Under normal operating conditions, there is no continuous flow.
 7. Under normal operating conditions, there is no flow. However, under emergency conditions, flow can be 13 gpm.

FOR CONCEPTUAL DESIGN ONLY

	Conceptual Design Basis	7/22/15		RHODE ISLAND 2 x 1 COMBINED CYCLE	Project	Drawing
	Demin Water Makeup Demand	1.5% of Main Steam Flow			238926	WMB-03
	Potable Water Demand	20 personnel, 50 gal per day, 3 shifts		NATURAL GAS FIRED WATER MASS BALANCE 2 X 1 GE HA.02 - 1,000 MW - Dry Cooling Summer Ambient Conditions	Rev	
	Ambient Conditions	90°F / 50%RH			C	
Cycles of Concentration	N/A					



Notes:

1. All flow rates depicted are based on conceptual design and preliminary water data.
2. Flows are in gallons per minute (gpm).
3. Flow rates represent the daily average flow rates and do not represent instantaneous maximum demand.
4. Under normal operating conditions there is no continuous flow, however, flow will occur in some instances and may be approx. 1 gpm.
5. Flow rate was determined based on limited water quality data available. Additional water quality information is required before detailed design in order to determine if pre-treatment of this water is required. It is assumed that if any pretreatment is required, that it will occur at the well head before the plant is supplied.
6. Under normal operating conditions, there is no continuous flow.
7. Under normal operating conditions, there is no flow. However, under emergency conditions, flow can be 13 gpm.

FOR CONCEPTUAL DESIGN ONLY



Conceptual Design Basis	7/22/15
Demin Water Makeup Demand	1.5% of Main Steam Flow
Potable Water Demand	20 personnel, 50 gal per day, 3 shifts
Ambient Conditions	20°F / 60%RH
Cycles of Concentration	NA



RHODE ISLAND 2 x 1 COMBINED CYCLE
WATER MASS BALANCE - 1 CT on GAS, 1 CT on FUEL OIL 2 X 1 GE HA.02 - 1,017 MW - Dry Cooling Winter Ambient Conditions - Full Load

Project 238926	Drawing WMB-04
	Rev C