

Village Mall

152-18 Union Tpke

Flushing, NY 11367



Site Contact

Sean Pringle

Senior Engineer

Aegis Energy Services Inc.

55 Jackson St, Holyoke MA, 01040

413-536-1156

SPringle@aegisenergyservices.com

- CDH was on site January 12, 2017 to install a datalogger, terminate meter wiring, setup communications, and verify sensor readings. Data collection begins.
- Aegis replaced gas meter on February 2, 2017. Gas data is now being collected.

Summary

CDH provided the data logger and enclosure. Aegis provided and installed the gas, power, and BTU meters. Aegis installed the CDH enclosure and performed all necessary wire pulls while CDH terminated wiring to the data logger and sensors.

Monitored Data Points

Logger Channel	Data Point	Description	Eng Units	Instrument / Transducer	Output
MB-010	WB1	Total Facility Power Meter #1	kWh	Veris E51	Modbus RS-485
MB-011	WB2	Total Facility Power Meter #2	kWh	Veris E51	Modbus RS-485
MB-001	WT	Gross Generator Power Output	kWh	Veris H-8035-300	Modbus RS-485
MB-003	WP	Parasitic Loads	kWh	Veris H-8035-100	Modbus RS-485
-	WG	Net Power Output	kWh	-	Calculated
IN-1	FG	Cogen Gas Consumption	cf	Romet RM2000	Pulse
MB-005	FHW	Recovered Heat loop Flow	gpm	Badger Series 380	Modbus RS-485
MB-005	THW1	Recovered Heat Loop - Supply Temp.	°F	Badger Series 380	Modbus RS-485
MB-005	THW2	Recovered Heat Loop - Temp. After HX1 (DHW)	°F	Badger Series 380	Modbus RS-485
IN-2	THW3	Recovered Heat Loop - Temp. After Dump Radiator	°F	Veris 10k Type II Thermistor	Resistance
-	QR	Rejected Heat Recovery	Mbtu/h	-	Calculated
-	QU	Total Useful Heat Recovery	Mbtu/h	-	Calculated

IT Information

External IP:	108.29.44.242:4081
Internal IP:	10.0.23.141
Gateway:	10.0.23.1
DNS #1:	8.8.8.8
DNS #2:	8.8.4.4

Procedure

- Power data was verified by comparing the generator engine controller displayed power to the Veris H8035 power measurement displayed on the Obvius data logger.
- Hot water loop flow was verified by comparing the Badger 380 flow reading on the Obvius to measurements taken using a portable Portaflow ultrasonic flowmeter.
- Temperatures were verified by comparing Obvius readings (Badger 380 and supplied insertion temperature sensor) to the readings on temperature gauges built into the system.

Verification Data

Generator Power

	Obvius (kW)	Cogen Display (kW)
WT	74.9	77
	74.8	77

Recovered Heat Loop Flow

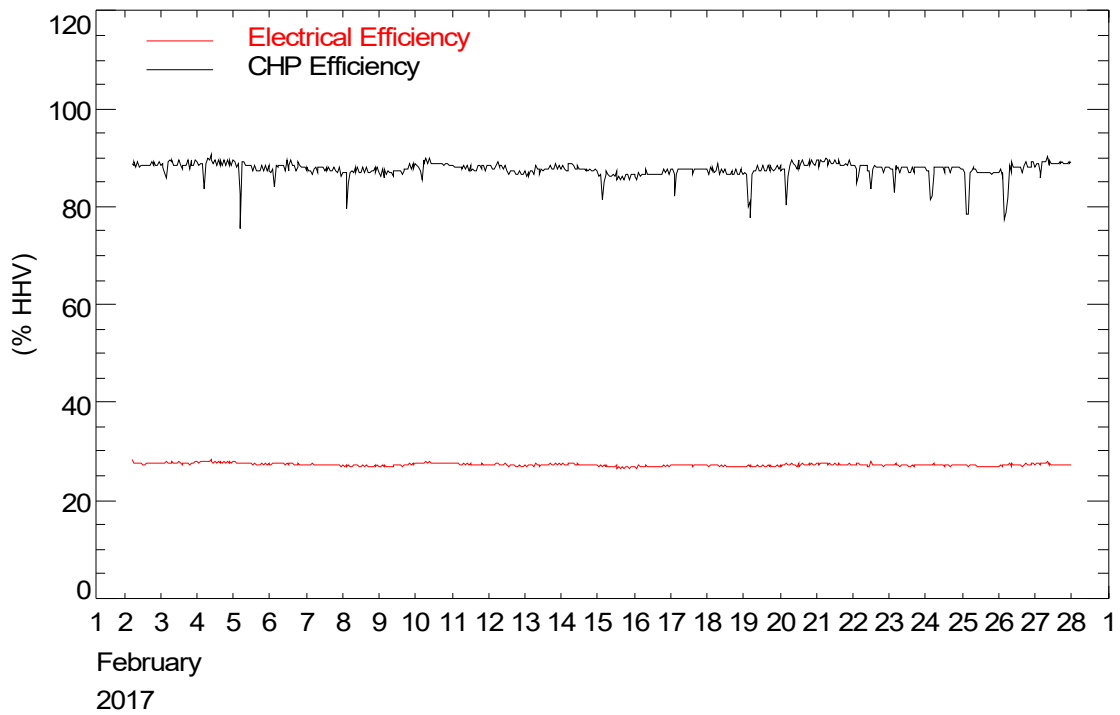
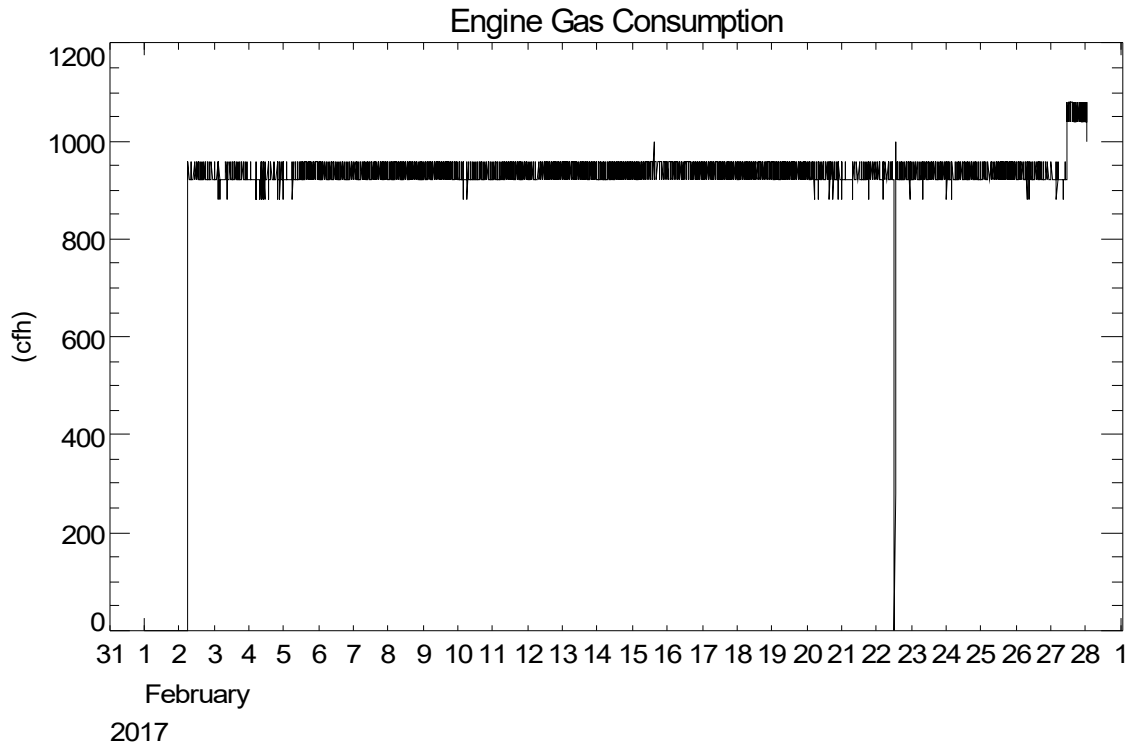
	Obvius (gpm)	Portaflow Meter (gpm)
FHW	43.7	43.1
	43.7	43.7

System Temperatures

	Obvius (°F)	Gauge (°F)
THW1	160.7	160.0
	160.9	160.0
THW2	133.8	134.0
	134.1	134.0
THW3	133.9	134.0
	134.7	134.0

Gas to Engine

The gas meter installed when CDH was on site was not providing a pulse output. Aegis replaced the gas meter on February 2, 2017 and the new meter has been providing accurate pulse outputs ever since.



Site Photos



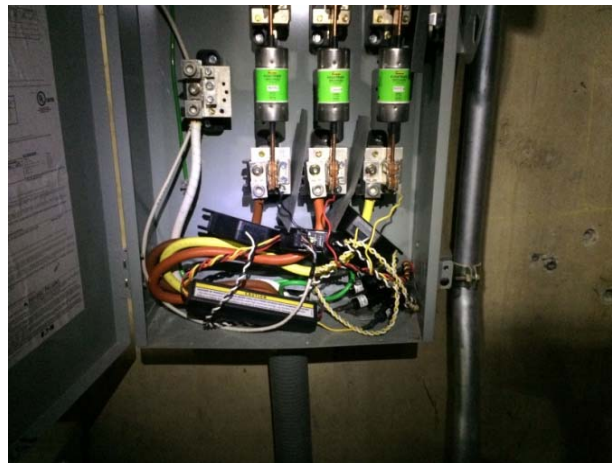
Aegen PowerVerter 100 kW cogen unit located in the boiler room.



CDH panel containing data logger and CDH network switch located in the boiler room.



Badger 380 BTU meter on DHW module across useful HX1 (THW1, THW2, FHW) in the boiler room.



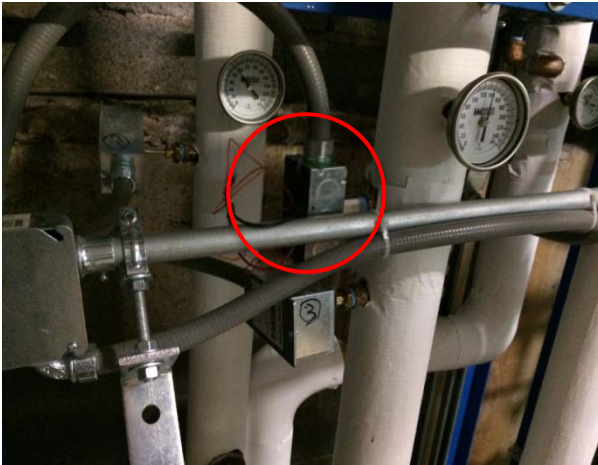
Gross generator power meter (WT) located in cogen disconnect on level two of the parking garage above the boiler room.



Romet RM2000 gas meter (FG) located in the boiler room.



Veris E51 total facility power meter (WB1 & WB2) in Beckwith panel on level two of the parking garage above the boiler room.



Veris 10k Type II Thermistor (THW3) on DHW module after dump radiator HX



Parasitic power meter (WP) located in SBDP-A subpanel on level two of the parking garage above the boiler room.

PUMP SCHEDULE						
PUMP NO.	SERVICE	FLOW	HEAD	H.P.	PHASE	MODEL
P-1	COGEN MODULE	22 GPM	70 FT	3/4	3	BELL & GOSSETT SERIES 1535 353T
P-1A	COGEN MODULE	22 GPM	70 FT	3/4	3	BELL & GOSSETT SERIES 1535 353T
P-2	DHW LOOP	35 GPM	28 FT	2/5	1	BELL & GOSSETT PL-55B
P-3	HEAT DISSIPATION LOOP	40 GPM	50 FT	3/4	3	BELL & GOSSETT SERIES 1535 353T

HEAT EXCHANGERS HX-1		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-60	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	DHW	
	SIDE	HOT COLD
FLUID TYPE	WATER	WATER
FLUID FLOW	30 GPM	35 GPM
TEMPERATURE IN	225 DEG F	171 DEG F
TEMPERATURE OUT	176 DEG F	207 DEG F
PRESSURE DROP	0.91 PSI	1.55 PSI
INLET SIZE	2" NPT	2" NPT

COGENERATION SCHEDULE	
DESIGN MANUFACTURER	AEGENCO
FUEL	NATURAL GAS
FUEL INPUT	1230 SCFH
THERMAL OUTPUT	642,000 BTU/HR
ELECTRICAL OUTPUT	100 KW
GENERATION TYPE	SYNCHRONOUS
ACOUSTIC LEVEL	70 dBA @ 20 FT
VIBRATION ISOLATION	YES
CONTROLS	MICROPROCESSOR BASED
UNIT WEIGHT	3050
MODEL	POWERVERTER
AVG INLET TEMP	170 DEG F
AVG OUTLET TEMP	220 DEG F
MA GAS BOARD APPROVAL #	G1-04-06-12
DIMENSIONS	51"W X 101"L X 51"H

TEMPERATURE SENSOR SCHEDULE			
TS NO.	SERVICE	MODEL	WELL TYPE
TS-1	COGEN SUPPLY INTO HX-1	MAMAC TE-703-C-5A	AT-225
TS-2	COGEN SUPPLY INTO HX-2	MAMAC TE-703-C-5A	AT-225
TS-3	COGEN RETURN	MAMAC TE-703-C-5A	AT-225
TS-11	DHW ENTERING HX-1	MAMAC TE-703-C-5A	AT-225
TS-12	DHW LEAVING HX-1	MAMAC TE-703-C-5A	AT-225
TS-13	DHW STORAGE TANK TEMP 1/2	MAMAC TE-704-C-5	N/A
TS-14	DHW STORAGE TANK TEMP 3/4	MAMAC TE-704-C-5	N/A
TS-21	DUMP LOOP ENTERING HX-2	MAMAC TE-703-C-5A	AT-225
TS-22	DUMP LOOP LEAVING HX-2	MAMAC TE-703-C-5A	AT-225
TS-10	OUTSIDE AIR	MAMAC TE-205-F-5	AT-225
TS-B1	COGEN SUPPLY BTU	BADGER 380	AT-225
TS-B2	COGEN USEFUL BTU	BADGER 380	N/A
TS-B3	COGEN RETURN BTU	TIDB100	AT-225

CONTROL VALVE SCHEDULE					
VALVE NO.	SERVICE	FLOW TYPE	SIZE	VOLTAGE	ACTUATOR
V-1	DHW HEATING LOOP	PROPORTIONAL	2"	24 V	MS40-7043M MODULATING

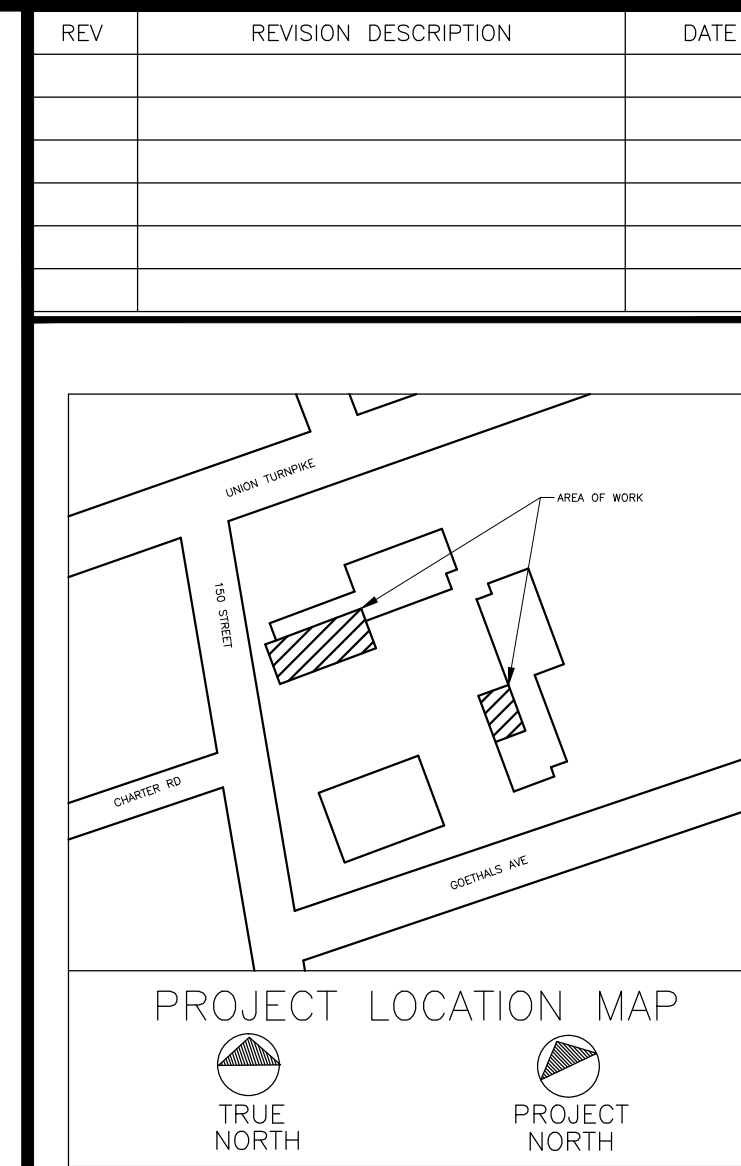
GLYCOL FEED SYSTEM GF-1	
UNIT NO	GF-1
SERVICE	HOT WATER
TANK CAPACITY (GALLONS)	6
FLUID TYPE	40% P.G.
ELECTRICAL	120V/1PH/60 HZ
MANUFACTURER	AXIOM INDUSTRIES
MODEL	MF200-S

INSULATION TABLE			
LOAD	PIPE SIZE	MAX PIPE TEMP	INSULATION THICKNESS
COGEN LOOP	2"	200°F	2"
DHW	1.5"-4"	180°F	2"
EXHAUST	3"	250°F	1"
HEAT DISSIPATION	1.5"	180°F	1"
DUCT	10"	150°F	1"

HEAT EXCHANGERS HX-2		
DESIGN MANUFACTURER	API HEAT TRANSFER	
MODEL	SBM7M-60	
TYPE	BRAZED PLATE	
MATERIAL	COPPER	
SERVICE	POOL/DUMP	
	SIDE	HOT COLD
FLUID TYPE	WATER	40% P.G.
FLUID FLOW	30 GPM	35 GPM
TEMPERATURE IN	225 DEG F	171 DEG F
TEMPERATURE OUT	176 DEG F	207 DEG F
PRESSURE DROP	0.91 PSI	1.55 PSI
INLET SIZE	2" NPT	2" NPT

HEAT DISSIPATION UNIT HX-3	
DESIGN MANUFACTURER	IEA OR EQUAL
SERVICE	HEAT DISSIPATION
FLOW RATE	35 GPM
GROSS HEAT LOAD	500 MBH
INLET WATER TEMP	197 DEG F
OUTLET WATER TEMP	168
BLOWER FAN	2 HP
NUMBER OF FANS	1
MODEL	HCR-M28-01-08-S XX
FAN SPEED	880 RPM
METIUM	40% P.G.

- NOTES:
- ALL PIPE TO BE COPPER "L" UNLESS OTHERWISE NOTED
 - COGEN HEAT DISSIPATION LOOP TO BE 40% PROP. GLYCOL. ALL FILLING OF GLYCOL LOOP BY AEGIS.
 - CONTRACTOR SHALL PROTECT FROM HARM AND MAINTAIN ALL EXISTING EQUIPMENT, PLANT, FACILITY, ETC. TO REMAIN.



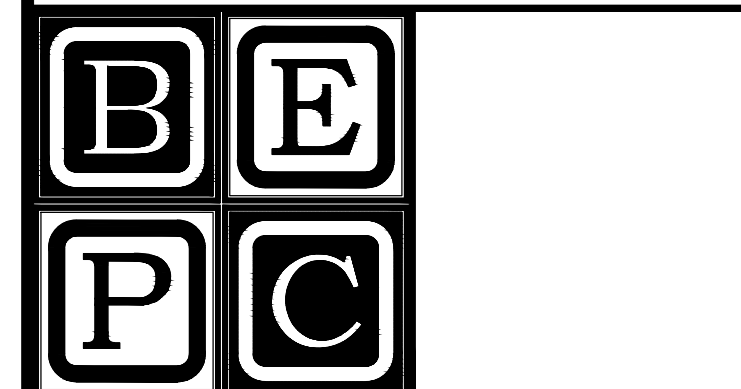
CLIENT:
AEGIS ENERGY SERVICES, INC
 55 JACKSON STREET
 HOLYOKE, MA 01040
 TEL.: 413-536-1156
 FAX: 413-536-1104
 ATTN: KEVIN MAY

ALL DRAWINGS ARE TO BE READ NOT SCALED.

STATEMENT:
 IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER/ARCHITECT, TO ALTER IN ANY WAY, ANY ITEM ON THESE DRAWINGS. IF AN ITEM BEARING THE SEAL OF AN ENGINEER/ARCHITECT IS ALTERED, THE ALTERING ENGINEER/ARCHITECT SHALL AFFIX TO THIS ITEM THEIR SEAL AND THE NOTATION "ALTERED BY", FOLLOWED BY HIS/HER SIGNATURE AND THE DATE OF SUCH ALTERATION, ALONG WITH A SPECIFIC DESCRIPTION OF THE ALTERATION ON THE DRAWING.

PROPRIETARY STATEMENT:
 THE PLANS AND SPECIFICATIONS HEREIN ARE INTENDED FOR THE SUBJECT PROJECT ONLY AND AS A RESULT OF CONTRACTUAL NEGOTIATIONS BETWEEN BECKER ENGINEERING, PC, THESE PLANS AND SPECIFICATIONS WILL BE THE SUBJECT OF A COPYRIGHT PETITION AND MAY NOT BE REVISED OR REUSED BY ANYONE WITHOUT THE WRITTEN AUTHORITY OF BECKER ENGINEERING, PC.

PREPARED BY:
BECKER ENGINEERING, PC
 777 SUNRISE HIGHWAY, SUITE 300,
 LYNBROOK, NY 11563
 PHONE: (516) 561-5922 FAX: (516) 823-0219 EMAIL: SUPPORT@BEPC.US
 WEB: WWW.BEPC.US



PROJECT
**VILLAGE MALL
 COGENERATION PROJECT
 150-38 UNION TURNPIKE
 FLUSHING, NY 11367**

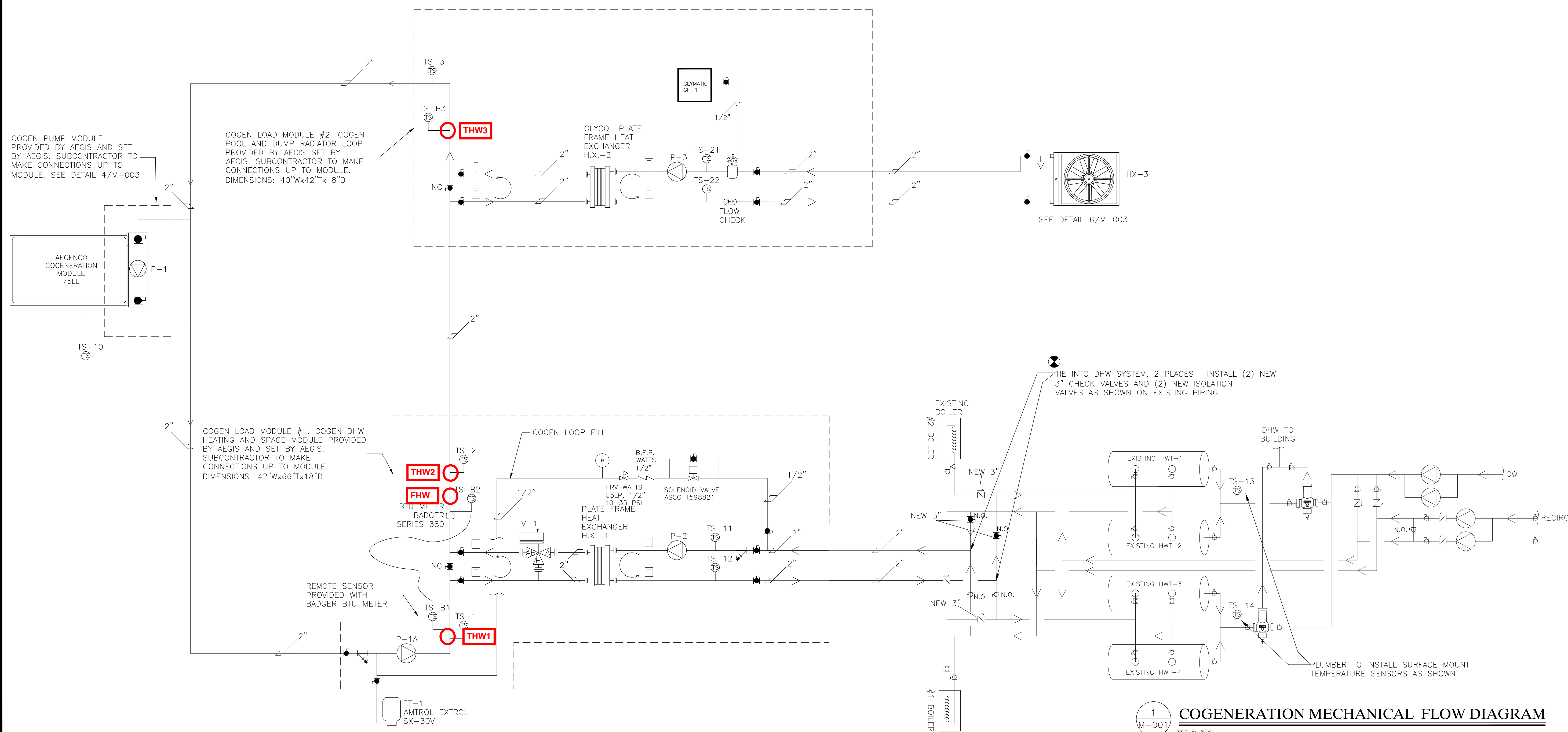
DRAWING TITLE:
**COGENERATION
 MECHANICAL
 FLOW DIAGRAM**

DESIGN BY:	KM	DATE:	11/19/15
DRN BY:	KM	DATE:	10/7/15
CKD BY:	AD	DATE:	6/6/16
FINAL CKD BY:	JCB	DATE:	6/10/16
SCALE:	AS NOTED	DATE:	
DWG No.		PAGE 3 OF 12	

M-001.00

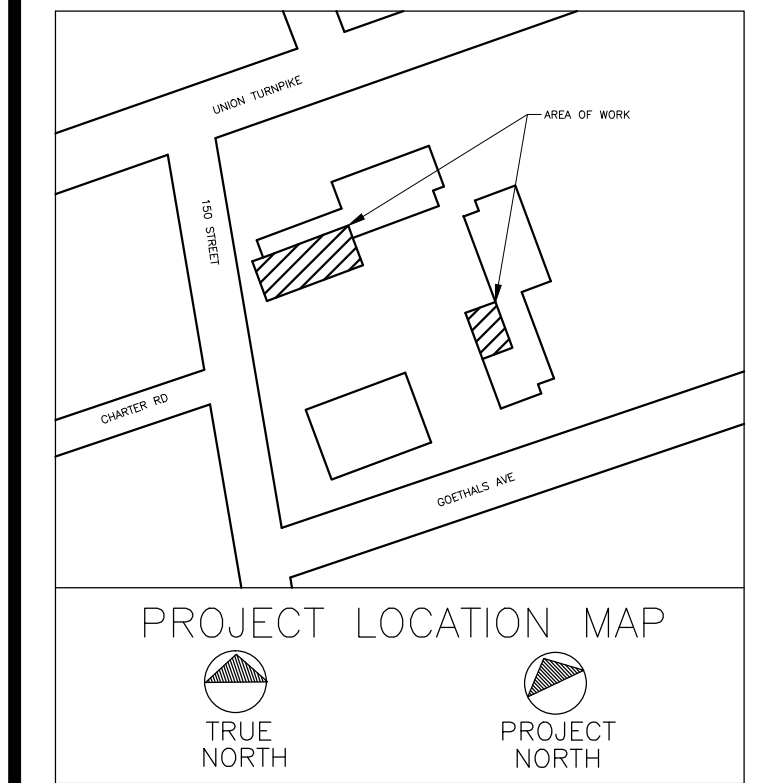
PROJECT NO. **XXXX**

B-SCAN:



1
M-001 COGENERATION MECHANICAL FLOW DIAGRAM
 SCALE: NTS

REV	REVISION DESCRIPTION	DATE



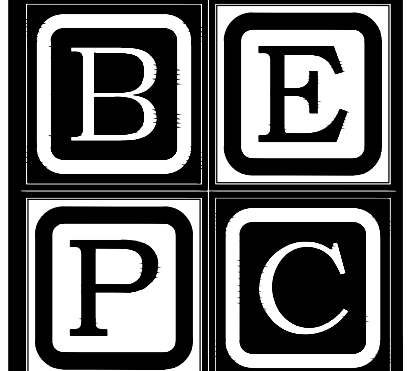
CLIENT:
AEGIS ENERGY SERVICES, INC
 55 JACKSON STREET
 HOLYOKE, MA 01040
 TEL.: 413-536-1156
 FAX: 413-536-1104
 ATTN: KEVIN MAY

ALL DRAWINGS ARE TO BE READ NOT SCALED.

STATEMENT:
 IT IS A VIOLATION OF THE LAW FOR ANY PERSON, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED ENGINEER/ARCHITECT, TO ALTER IN ANY WAY, ANY ITEM ON THESE DRAWINGS. IF AN ITEM BEARING THE SEAL OF AN ENGINEER/ARCHITECT IS ALTERED, THE ALTERING ENGINEER/ARCHITECT SHALL AFFIX TO THIS ITEM THEIR SEAL AND THE NOTATION "ALTERED BY", FOLLOWED BY HIS/HER SIGNATURE AND THE DATE OF SUCH ALTERATION, ALONG WITH A SPECIFIC DESCRIPTION OF THE ALTERATION ON THE DRAWING.

PROPRIETARY STATEMENT:
 THE PLANS AND SPECIFICATIONS HEREIN ARE INTENDED FOR THE SUBJECT PROJECT ONLY AND AS A RESULT OF CONTRACTUAL NEGOTIATIONS BETWEEN BECKER ENGINEERING, PC, THESE PLANS AND SPECIFICATIONS WILL BE THE SUBJECT OF A COPYRIGHT PETITION AND MAY NOT BE REVISED OR REUSED BY ANYONE WITHOUT THE WRITTEN AUTHORITY OF BECKER ENGINEERING, PC.

PREPARED BY:
BECKER ENGINEERING, PC
 777 SUNRISE HIGHWAY, SUITE 300,
 LYNBROOK, NY 11563
 PHONE: (516) 561-5922 FAX: (516) 823-0219 EMAIL: SUPPORT@BEPC.US
 WEB: WWW.BEPC.US



PROJECT
**VILLAGE MALL
 COGENERATION PROJECT
 150-38 UNION TURNPIKE
 FLUSHING, NY 11367**

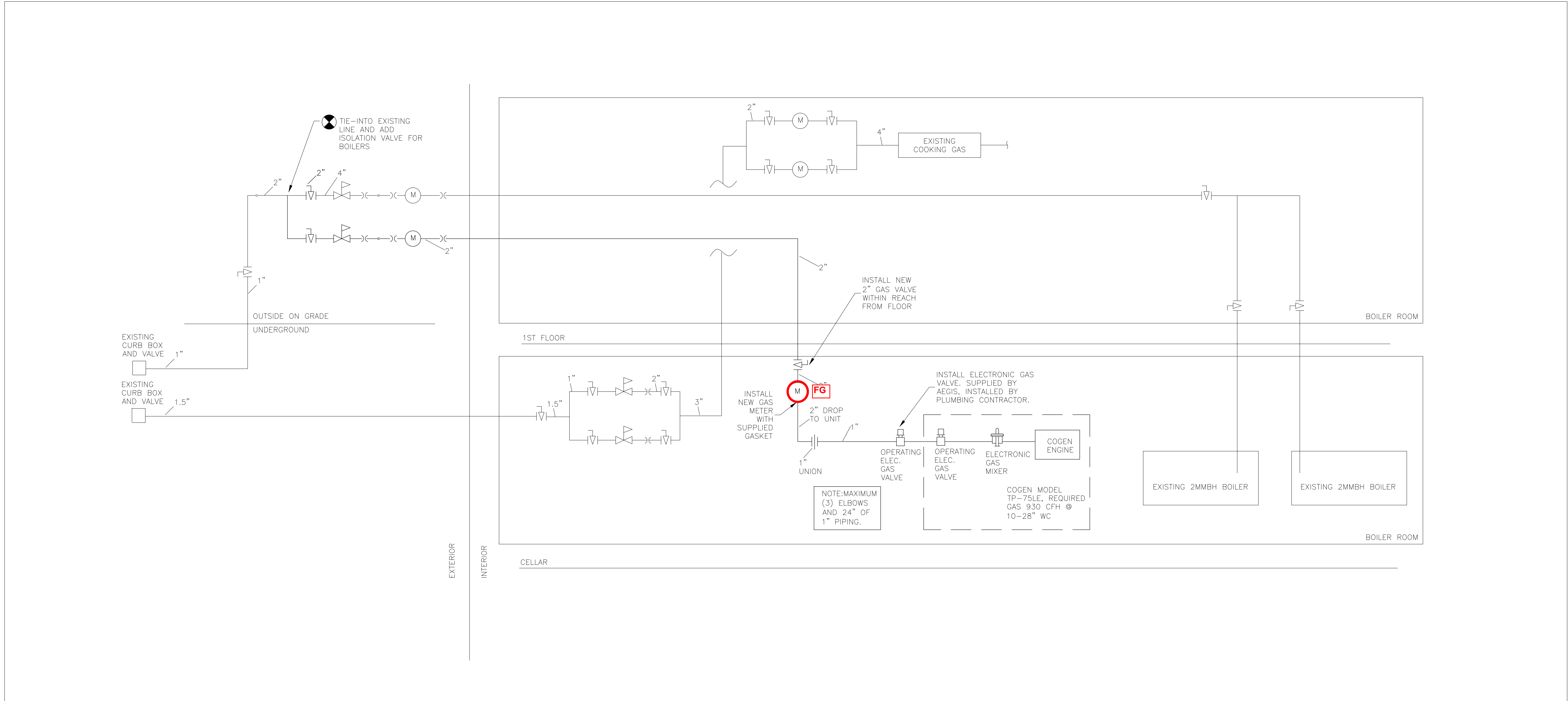
DRAWING TITLE:
GAS RISER DIAGRAM

DESIGN BY:	KM	DATE:	11/19/15
DRN BY:	KM	DATE:	10/7/15
CKD BY:	AD	DATE:	6/6/16
FINAL CKD BY:	JCB	DATE:	6/10/16
SCALE:	AS NOTED	DATE:	
DWG No.	PAGE 7 OF 12		

P-002.00

PROJECT NO.
XXXX

B-SCAN:



10 COGENERATION GAS RISER DIAGRAM
 P-002 SCALE: NTS

