



**DESIGN AND CONSTRUCTION GROUP  
THE GOVERNOR NELSON A. ROCKEFELLER  
EMPIRE STATE PLAZA  
ALBANY, NY 12242**

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**ADDENDUM NO. 1 TO PROJECT NO. 44892**

**PLUMBING AND ELECTRIC WORK  
PROVIDE ELECTRICAL UPGRADES,  
SENECA, CAYUGA & ONONDAGA COUNTIES**

April 22, 2016

**NOTE:** This Addendum forms a part of the Contract Documents. Insert it in the Project Manual. Acknowledge receipt of this Addendum in the space provided on the Bid Form.

**PLUMBING WORK SPECIFICATIONS**

1. SECTION 231100 LIQUID FUEL PIPING AND ACCESSORIES: Add the attached Section (pages 231100 - 1 through 231100 - 4) to the Project Manual.
2. SECTION 235417 ELECTRIC HEATING CABLE SYSTEM FOR FUEL OIL PIPING: Add the attached Section (pages 235417 - 1 through 235417 - 4) to the Project Manual.

**PLUMBING WORK DRAWINGS**

3. Addendum Drawing:
  - a. Drawing No. P-104, noted "4/22/2016" accompanies this Addendum and forms part of the Contract Documents.

**ELECTRICAL WORK DRAWING**

4. Addendum Drawing:
  - a. Drawing No. E-605, noted "4/22/2016" accompanies this Addendum and forms part of the Contract Documents.

**END OF ADDENDUM**

Margaret F. Larkin  
Executive Director  
Design and Construction  
GLB

## SECTION 231100

### LIQUID FUEL PIPING AND ACCESSORIES

#### PART 1 GENERAL

##### 1.01 SUBMITTALS

- A. Product Data:
  - 1. Catalog sheets and specifications indicating manufacturer's name, type, applicable reference standard, schedule, or class for specified pipe and fittings.
- B. Quality Control Submittals:
  - 1. Brazer Qualification Data: Copies of certification; include names, home addresses and social security numbers of brazers.

##### 1.02 QUALITY ASSURANCE

- A. Qualification of Brazers: Comply with the following:
  - 1. The persons performing the brazing and their supervisors shall be personally experienced in brazing procedures.

#### PART 2 PRODUCTS

##### 2.01 STEEL PIPE AND FITTINGS

- A. Steel Pipe for Threading: Standard Weight, Schedule 40, black or galvanized; ASTM A 53, or ASTM A 135.
- B. Malleable Iron, Steam Pattern Threaded Fittings:
  - 1. 150 lb Class: ASME B16.3.
- C. Unions: Malleable iron, 250 lb class, brass to iron or brass to brass seats.
- D. Couplings: Same material and pressure rating as adjoining pipe, conforming to standards for fittings in such pipe. Use taper tapped threaded type in screwed pipe systems operating in excess of 15 psig.
- E. Nipples: Same material and strength as adjoining pipe, except nipples having a length of less than one inch between threads shall be extra heavy.

##### 2.02 COPPER TUBING AND FITTINGS

- A. Copper Tube, Type L: ASTM B 88.
- B. Wrot Copper Tube Fittings, Solder Joint: ASME B16.22.
- C. Cast Copper Alloy Tube Fittings, Solder Joint: ASME B16.18.

### **2.03 JOINING AND SEALANT MATERIALS**

- A. Fuel Resistant Thread Sealant:
  - 1. Rectorseal Corp.'s Rectorseal No. 5.
  - 2. EMCO Wheaton Inc.'s Joint Seal.
  
- B. Brazing Alloys:
  - 1. Type 1: AWS A5.8, Class BCuP-5, for brazing copper to brass, bronze, or copper; Engelhard's Silvaloy 15, J.W. Harris Co. Inc.'s Stay-Silv 15, and Handy & Harman's Sil-Fos.
  - 2. Type 2: AWS A5.8, Class BAg-7, for brazing copper to steel or stainless steel; Engelhard's Silvaloy-56T, J.W. Harris Co. Inc.'s Safety-Silv 56, and Handy & Harman's Braze 560.
  
- C. Brazing Flux: FS O-F-499, Type B; Handy & Harman's Handy Flux or J.W. Harris Co. Inc.'s Stay-Silv.
  
- D. Anti-Seize Lubricant: Bostik Inc.'s Never Seez or Dow Corning Corp.'s Molykote 1000.

### **2.03 PIPING ACCESSORIES**

- A. Combination Fusible Plug and Shut Off Valve: Bronze body globe valve with threaded ends, spring and replaceable fusible element which melts at 165 degrees F; Preferred Utilities Fusomatic Valve, or equal.
  
- B. Oil Filter: Cast iron body with threaded ends, clamped cover and handle, brass bracket strainer with 1/16 inch perforations, and designed for 200 psig maximum working pressure; Preferred Utilities Model 125 or equal.
  
- C. Anti-Siphon Valve: Bronze body with oil proof gasketing, UL listed, spring poppet, resilient seat material sized for height of piping above generator pump 5-10 feet. Similar to Preferred Model A.
  - 1. Mount in supply line at highest point.

### **2.04 GATE VALVES (For Fuel Oil)**

- A. Type A: 125 psig WSP, 200 psig WOG, bronze body, union bonnet, solid wedge disc, and threaded ends. Acceptable Valves: Crane428UB, Hammond IB617, Jenkins 47CU, Milwaukee 1152, Nibco T134, and Stockham B105 or equals.

### **2.04 CHECK VALVES (For Fuel Oil)**

- A. Type S: 125 psig WSP, 200 psig WOG, bronze body, brass or bronze trim, horizontal swing, renewable and regrindable disc, and threaded ends. Face discs for cold water service with teflon. Acceptable Valves: Crane 37, Hammond IB940, Jenkins 4092, Milwaukee 509, Nibco T413Y, and Stockham B319Y or equals.

## **PART 3 EXECUTION**

### **3.01 INSTALLATION**

- A. Install piping at approximate locations indicated, and at maximum height.
- B. Install piping clear of door swings, and above sash heads.
- C. Make allowances for expansion and contraction.
- D. Allow for a minimum of one inch free air space around pipe or pipe covering, unless otherwise specified.
- E. Install horizontal piping with a constant pitch, and without sags or humps.
- F. Install vertical piping plumb.
- G. Use fittings for offsets and direction changes.
- H. Cut pipe and tubing ends square; ream before joining.
- I. Threading: Use American Standard Taper Pipe Thread Dies.

### **3.02 FUEL OIL SYSTEM PIPING**

- A. Above Ground Piping (Exterior to Building):
  - 1. Pitch horizontal piping from tank 1/8 inch per foot minimum.

### **3.03 PIPE JOINT MAKE-UP**

- A. Threaded Joint: Make up joint with a pipe thread compound applied in accordance with manufacturer's printed application instructions for the intended service.
- B. Brazed Joint: Thoroughly clean tube end and inside of fitting with emery cloth, sand cloth, or wire brush. Apply flux to the pre-cleaned surfaces. Install fitting, heat to brazing temperature, and join the metals with brazing alloy. Remove residue.
- C. Dissimilar Pipe Joint:
  - 1. Joining Dissimilar Threaded Piping: Make up connection with a threaded coupling or with companion flanges.
  - 2. Joining Dissimilar Non-Threaded Piping: Make up connection with adapters recommended by the manufacturers of the piping to be joined.

### **3.04 PIPE AND FITTING SCHEDULE**

- A. Abbreviations: The following abbreviations are applicable to the Pipe and Fitting Schedule.

BS	Black Steel.
MI	Malleable iron.
SE	Screwed end.
ST	Steel.
SW	Standard weight.

- B. Where options are given, choose only one option for each piping service. No deviations from the selected option will be allowed.
- C. Piping for No. 2 Fuel Oil:
1. Fuel Oil Product Piping (FOS and FOR):
    - a. Above Ground
      - 1) Option No. 1: SW BS pipe, with SE 150 lb. MI fittings, and fuel resistant thread sealant.
      - 2) Option No. 2: Type L hard drawn copper tubing with wrought copper or cast copper alloy fittings, and brazing alloy.

**END OF SECTION**

## SECTION 235417

### ELECTRIC HEATING CABLE SYSTEM FOR FUEL OIL PIPES

#### PART 1 GENERAL

##### 1.01 RELATED WORK SPECIFIED ELSEWHERE

- A. Insulation: Section 220700.

##### 1.02 REFERENCES

- A. FM, IEEE.

##### 1.03 SYSTEM DESCRIPTION

- A. Provide a low temperature, all electric, self-regulating type heating cable trace system for metallic pipes that will maintain the pipeline fuel temperature at approximately 50 degrees F when the ambient temperature drops to a low of -20 degrees F.

##### 1.04 SUBMITTALS

- A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 01330 does not apply to this Section.
- B. Submittals Package: Submit the shop drawings, product data, and quality control submittals specified below at the same time as a package.
- C. Shop Drawings:
  - 1. Composite wiring and/or schematic diagrams of the complete system as proposed to be installed (standard diagrams will not be acceptable).  
Include:
    - a. Actual location length, routing, and rating of each heating cable.
    - b. Location of branch circuit connections, including conductor size and overcurrent rating recommended for each branch circuit.
    - c. Location of terminations, thermostats, etc.
    - d. Expected current draw of each heating cable (Data to be used in conjunction with system acceptance test).
- D. Product Data:
  - 1. Catalog sheets, specifications and installation instructions.
  - 2. Bill of materials.
- E. Samples: One of each product if different from Company or catalog number specified.
- F. Quality Control Submittals:
  - 1. Company Field Advisor Data: Include:

- a. Name, business address and telephone number of Company Field Advisor secured for the required services.
  - b. Certified statement from the Company listing the qualifications of the Company Field Advisor.
  - c. Services and each product for which authorization is given by the Company, listed specifically for this project.
- 2. Installation Training: Certificate of training from the heating cable manufacturer for each person performing the Work.
  - 3. List of Completed Installations: If brand names other than those specified are proposed for use, furnish the name, address and telephone number of at least 3 comparable installations which can prove the proposed products have operated satisfactorily for one year.
- G. Contract Closeout Submittals:
- 1. System acceptance test report.
  - 2. Certificates:
    - a. Affidavit, signed by the Company Field Advisor and notarized, certifying that the system meets the contract requirements and is operating properly.
  - 3. Operation and Maintenance Data:
    - a. Deliver 2 copies, covering the installed products, to the Director's Representative. Include:
      - 1) Operation and maintenance data for each product.

## **1.05 QUALITY ASSURANCE**

- A. Heating cables shall be Factory Mutual (FM) approved, in compliance with IEEE 515.
- B. Company Field Advisor: Secure the services of a Company Field Advisor for a minimum of 8 working hours for the following:
  - 1. Render advice regarding installation of the system.
  - 2. Witness final system test and then certify with an affidavit that the system is installed in accordance with the contract documents and is operating properly.

## **PART 2 PRODUCTS**

### **2.01 HEATING CABLES FOR FREEZE PROTECTION**

- A. Type SR-5: Self-regulating; Nelson Electric's Hevi-Duty Limitrace LT5/LT25, Raychem Corp.'s Chemelex Auto-Trace 5BTV1/5BTV2, or Thermon Mfg. Co.'s 5-FLX-1/5-FLX-2:
  - 1. Thermal output of approximately 5 watts/ft (120V cable operated at 120V).
  - 2. Tinned copper outer braid.

## **2.02 SYSTEM ACCESSORIES**

- A. Furnish the heating cable manufacturer's accessories to suit the system requirements:
  - 1. Splice, Tee & Power Connection Kits: Nelson Electric's Hevi-Duty PLT Series Kits, Raychem Corp.'s PMKG Series Kits, or Thermon Mfg. Corp.'s PCA Series Kits.
  - 2. Thermostat Control Kits: Remote bulb/capillary type; Nelson Electric's Hevi-Duty TH4X325 (22 amp @ 480 volts, SPDT), Raychem Corp.'s AMC-1B (22 amp @ 480 volts, SPDT), or Thermon Mfg. Corp.'s E4-35235 (25 amp @ 277 volts, SPST).
  - 3. Aluminum Foil Tape: Nelson Electric's Hevi-Duty AT-50, Raychem Corp.'s AT-180, or Thermon Mfg. Corp.'s AL-20P.
  - 4. Stainless Steel Banding: Nelson Electric's Hevi-Duty PS-6, Raychem Corp.'s NA, or Thermon Mfg. Corp.'s PCB.
  - 5. Fiberglass Tape: Nelson Electric's Hevi-Duty GT-6, Raychem Corp.'s GT-66, or Thermon Mfg. Corp.'s PF-1.
  - 6. Electric Traced Warning Labels: Nelson Electric's Hevi-Duty WS-100, Raychem Corp.'s ETL, or Thermon Mfg. Corp.'s CL.

## **PART 3 EXECUTION**

### **3.01 EXAMINATION**

- A. Verification of Conditions:
  - 1. Examine areas and conditions under which electric heating cables are to be installed.
  - 2. Notify Director's Representative in writing of conditions detrimental to proper completion of the work.
  - 3. Ensure that surfaces, and pipes to which electric heating cables are to be installed are free of burrs and other sharp protrusions and that pipes have been pressure tested for leakage.
  - 4. Do not proceed with the Work until unsatisfactory conditions have been corrected in an acceptable manner.

### **3.02 INSTALLATION**

- A. Install the Work of this Section in accordance with manufacturer's printed instructions.
- B. Apply aluminum foil tape on black steel pipe to avoid overheating areas of the black steel pipe in contact with the heating cable and to aid overall heat transfer from heating cable to the entire pipe surface.
- C. After attaching heating cables to pipe, test cables for insulation resistance of 20 megaohms or greater, measured to ground. Where leakage is detected replace cable and retest.



- D. Install electric traced warning labels every 10 feet on the exterior of the pipe insulation.
- E. Set thermostats so that heating cables will be de-energized when the pipeline temperature rises above 55 degrees F.

**3.03 FIELD QUALITY CONTROL**

- A. System Test:
  - 1. Preparation: Notify the Director’s Representative at least 3 working days prior to the test so arrangements can be made to have a Facility Representative witness the test.
  - 2. Make the following tests:
    - a. Verify that each heating cable is operating properly by noting and recording its current draw. Note surface temperature of pipe to which cable is attached and ambient air temperature. Use manufacturers approved shop drawing data for expected current draw for each tape at given surface/ambient temperature. Compare actual current draw with expected draw. Any cable with a + 15 percent variance from the manufacturer’s expected draw will be rejected.
  - 3. Supply all equipment necessary for system adjustment and testing.
  - 4. Submit written report of test results signed by Company Field Advisor and the Director’s Representative.

**3.04 HEATING CABLE SCHEDULE**

- A. Unless otherwise indicated on the drawings, apply the following types of heating cables to suit pipe size and minimum ambient temperature, maintaining the drain pipeline water temperature at approximately 50 degrees F.

PIPE SIZE	MINIMUM AMBIENT TEMPERATURE		
		-20 degree F	
Up to 2”		SR-5	

**END OF SECTION**

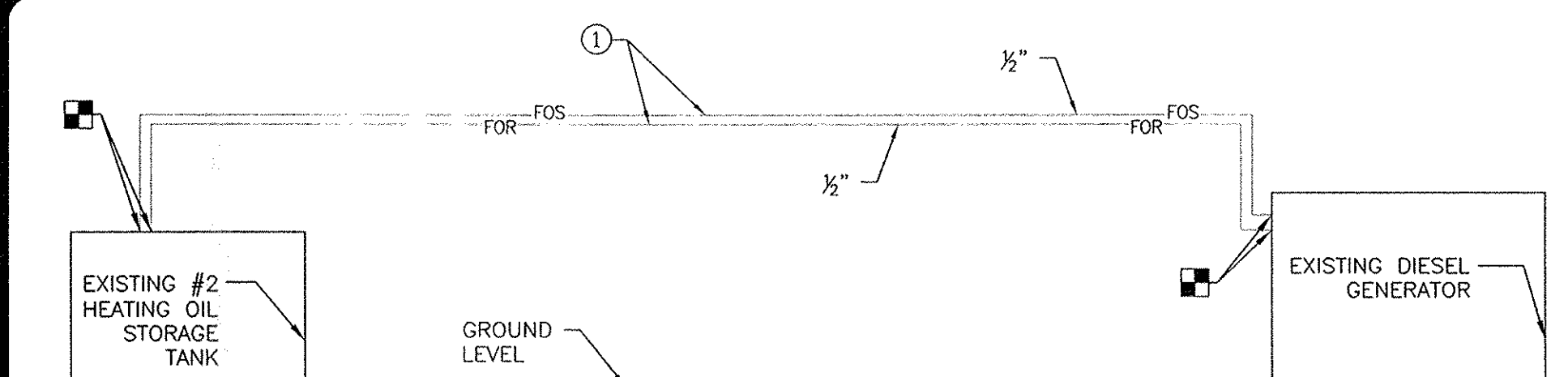
GENERAL NOTES:

1. INSTALLATIONS ASSOCIATED WITH THE PROVIDED PLUMBING SERVICE SHALL CONFORM TO UTILITY PROVIDER'S REQUIREMENTS AND SPECIFICATIONS FOR PLUMBING INSTALLATIONS 2015 NATIONAL STANDARD PLUMBING CODE AND OTHER LOCAL, STATE, AND FEDERAL CODES AND REGULATIONS, AS REQUIRED.
2. COORDINATION WITH THE DIRECTOR'S REPRESENTATIVE DURING ALL BUILDING SERVICE INTERRUPTIONS IS REQUIRED, SO AS TO MINIMIZE BUILDING DISRUPTION DURING LOSS OF BUILDING UTILITIES.

SPECIFIC NOTES:

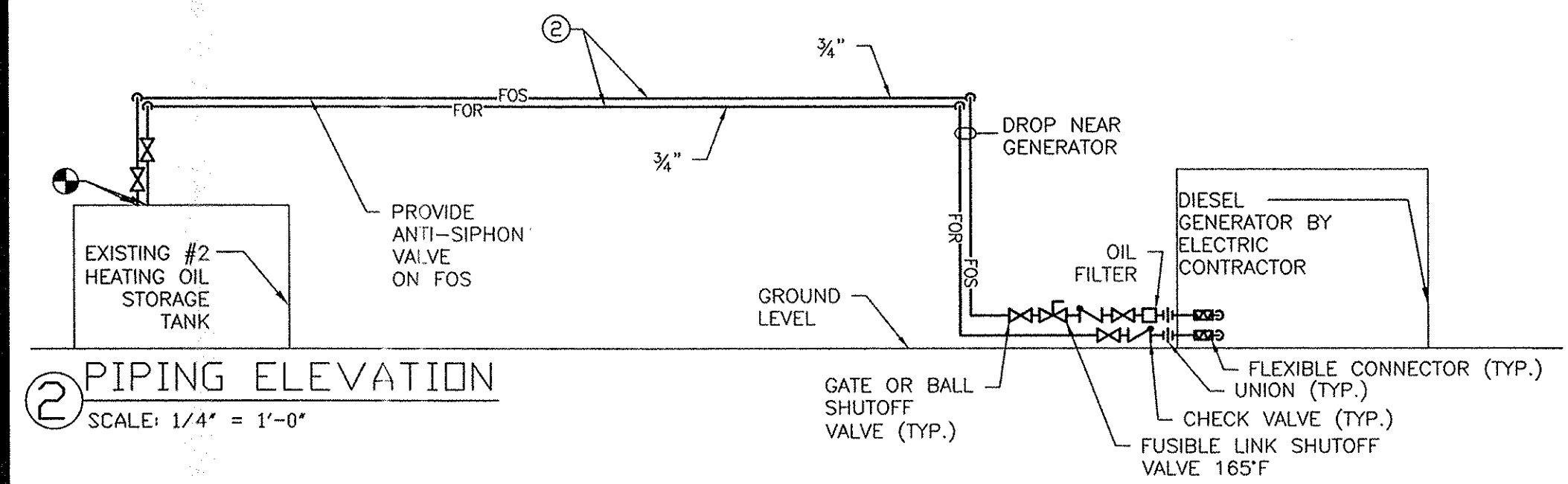
(THIS DRAWING ONLY)

- ① REMOVE EXISTING PIPING, HEAT TRACING, AND INSULATION.
- ② CONNECT BLACK STEEL THREADED PIPING, VALVES, AND FITTINGS FROM HEATING OIL STORAGE TANK TO DIESEL GENERATOR, HEAT TRACE FOS & FOR PER SPEC SECTION 235417. INSULATE PER SPEC. SECTION 220700.



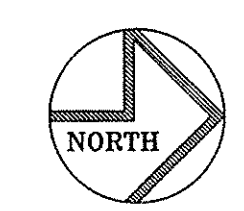
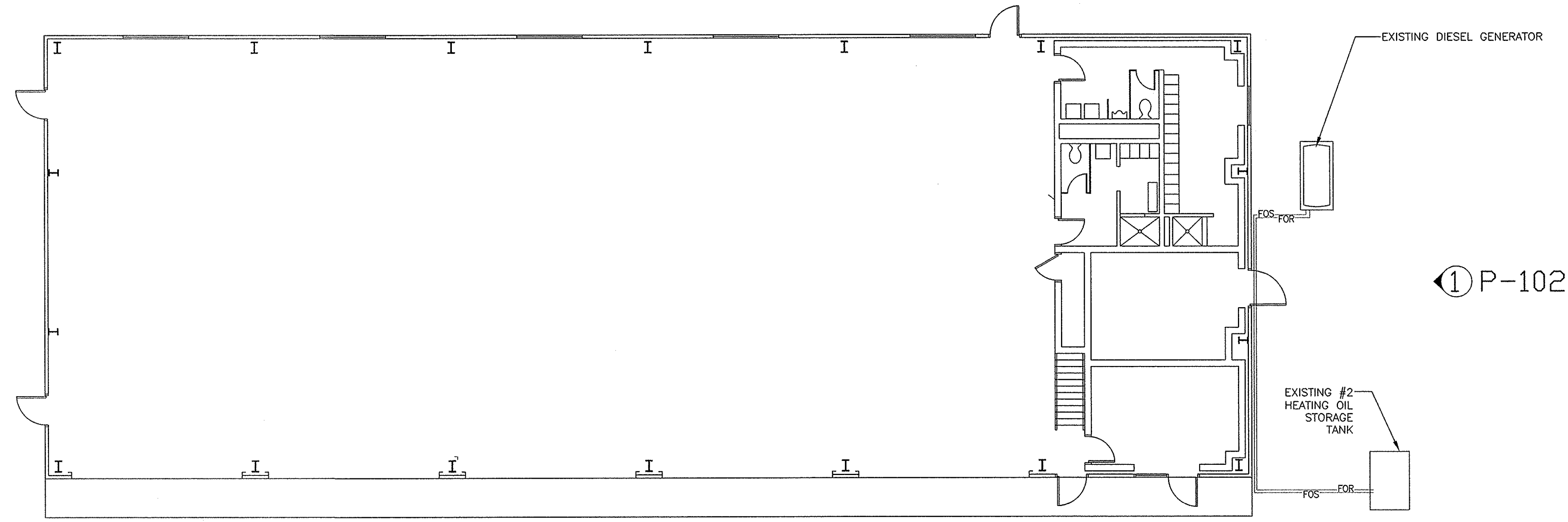
① REMOVALS PIPING ELEVATION

SCALE: 1/4" = 1'-0"



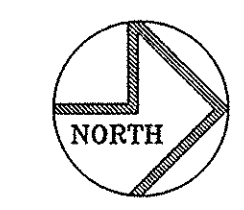
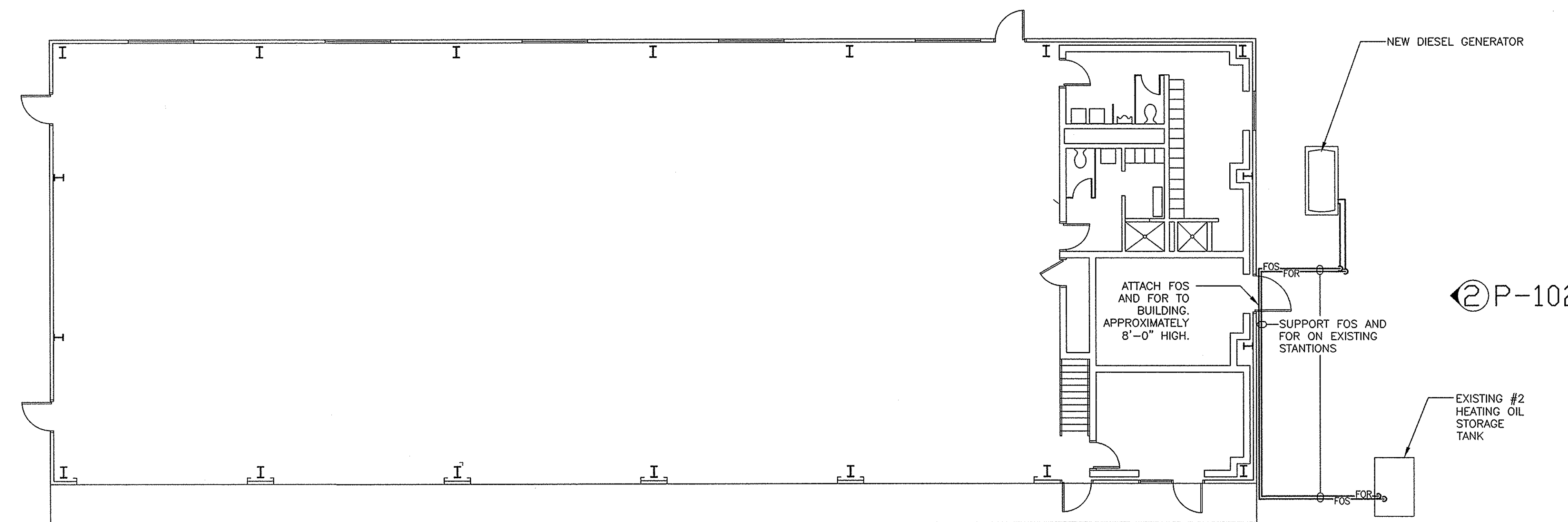
② PIPING ELEVATION

SCALE: 1/4" = 1'-0"



REMOVALS FLOOR PLAN - RESIDENT ENGINEER SUB-HEADQUARTERS

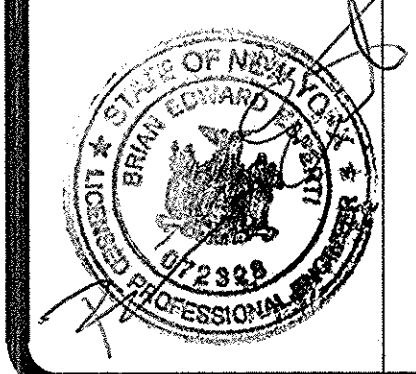
SCALE: 1/8" = 1'-0"



NEW WORK FLOOR PLAN - RESIDENT ENGINEER SUB-HEADQUARTERS

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

WARNING:  
THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.



CONTRACT: **PLUMBING**

TITLE: **PROVIDE ELECTRICAL UPGRADES SENECA, CAYUGA, & ONONDAGA COUNTIES**

LOCATION: **REGION 3 SENECA, CAYUGA, AND ONONDAGA COUNTIES**

CLIENT: **NYS DEPARTMENT OF TRANSPORTATION**

MARK	DATE	DESCRIPTION
	4/21/2016	ADDENDUM DWG P-104
	3/9/2016	BID DOCUMENTS
PROJECT NUMBER:	<b>44892 - P</b>	
DESIGNED BY:	SPB	
DRAWN BY:	SPB	
FIELD CHECK:		
APPROVED:		
SHEET TITLE:	<b>REMOVALS/WORK TO BE PROVIDED NORTH VICTORY DOT</b>	
DRAWING NUMBER:	<b>P-104</b>	
SHEET	5	of 6

## LOADCENTER SCHEDULE - LC-KITCHEN

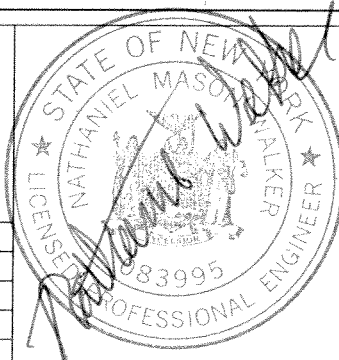
DESIGNATION: <u>LC-KITCHEN</u>  CABINET NEMA TYPE: 1 <input checked="" type="checkbox"/> 3R <input type="checkbox"/> 4 <input type="checkbox"/> 4X <input type="checkbox"/> 12 <input type="checkbox"/> MOUNTING: <u>SURFACE</u>  MAIN: <u>100A</u>  VOLTAGE: <u>120/240</u>  PHASE: <u>1</u>  NO. WIRES: <u>3</u>  OTHER REQ: <u>---</u>  FULL CAPACITY NEUTRAL BUS <input checked="" type="checkbox"/>  EQUIPMENT GROUNDING BUS <input checked="" type="checkbox"/>  SECONDARY SURGE ARRESTORS CATEGORY C <input type="checkbox"/>  MICROPROCESSOR BASED MULTIFUNCTION POWER AND ENERGY METER <input type="checkbox"/>	<input checked="" type="checkbox"/> FULLY RATED EQUIPMENT RATING IS REQUIRED FOR THIS PANELBOARD  <input type="checkbox"/> UL LISTED INTEGRATED EQUIPMENT SHORT CIRCUIT RATING IS ACCEPTABLE FOR THIS PANELBOARD  <input type="checkbox"/> UL LABEL 'SUITABLE FOR USE AS SERVICE EQUIPMENT'	PANELBOARD SHORT CIRCUIT RATING 10,000 RMS SYMMETRICAL AMPERES  MAIN LUG ONLY <input type="checkbox"/>  MAIN CIRCUIT BREAKER <input checked="" type="checkbox"/>  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>FRAME</th> <th>POLES</th> <th>ATE</th> <th>COMPONENTS (SEE BELOW)</th> </tr> <tr> <td>100</td> <td>2</td> <td>60</td> <td>-</td> </tr> </table>	FRAME	POLES	ATE	COMPONENTS (SEE BELOW)	100	2	60	-
FRAME	POLES	ATE	COMPONENTS (SEE BELOW)							
100	2	60	-							
BRANCH/FEEDER CIRCUIT BREAKERS										
DESCRIPTION	ATE	NO.	A B C	NO.	ATE	DESCRIPTION				
KITCHEN RECEPTACLES E WALL	20	1	↑	2	20	KITCHEN RECEPTACLES N-WALL				
SPARE	20	3	↑	4	20	SPARE				
SPARE	20	5	↑	6	20	SPARE				
		7	↑	8						
		9	↑	10						
		11	↑	12						
		13	↑	14						
		15	↑	16						
		17	↑	18						
		19	↑	20						
		21	↑	22						
		23	↑	24						

## LOADCENTER SCHEDULE - LP-SS

DESIGNATION: <u>LP-SS</u>  CABINET NEMA TYPE: 1 <input type="checkbox"/> 3R <input type="checkbox"/> 4 <input type="checkbox"/> 4X <input checked="" type="checkbox"/> 12 <input type="checkbox"/> MOUNTING: <u>SURFACE</u>  MAIN: <u>100A</u>  VOLTAGE: <u>120/208</u>  PHASE: <u>1</u>  NO. WIRES: <u>3</u>  OTHER REQ: <u>---</u>  FULL CAPACITY NEUTRAL BUS <input checked="" type="checkbox"/>  EQUIPMENT GROUNDING BUS <input checked="" type="checkbox"/>  SECONDARY SURGE ARRESTORS CATEGORY C <input type="checkbox"/>  MICROPROCESSOR BASED MULTIFUNCTION POWER AND ENERGY METER <input type="checkbox"/>	<input checked="" type="checkbox"/> FULLY RATED EQUIPMENT RATING IS REQUIRED FOR THIS PANELBOARD  <input type="checkbox"/> UL LISTED INTEGRATED EQUIPMENT SHORT CIRCUIT RATING IS ACCEPTABLE FOR THIS PANELBOARD  <input type="checkbox"/> UL LABEL 'SUITABLE FOR USE AS SERVICE EQUIPMENT'	PANELBOARD SHORT CIRCUIT RATING 10,000 RMS SYMMETRICAL AMPERES  MAIN LUG ONLY <input type="checkbox"/>  MAIN CIRCUIT BREAKER <input checked="" type="checkbox"/>  <table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th>FRAME</th> <th>POLES</th> <th>ATE</th> <th>COMPONENTS (SEE BELOW)</th> </tr> <tr> <td>100</td> <td>2</td> <td>60</td> <td>-</td> </tr> </table>	FRAME	POLES	ATE	COMPONENTS (SEE BELOW)	100	2	60	-
FRAME	POLES	ATE	COMPONENTS (SEE BELOW)							
100	2	60	-							
BRANCH/FEEDER CIRCUIT BREAKERS										
DESCRIPTION	ATE	NO.	A B	NO.	ATE	DESCRIPTION				
EXISTING	20	1	↑	2	20	EXISTING				
EXISTING	20	3	↑	4	20	EXISTING				
EXISTING	20	5	↑	6	30	EXISTING				
EXISTING	30	7	↑	8	20	EXISTING				
EXISTING	30	9	↑	10	20	EXISTING				
BLOCK HEATER UNIT	20	11	↑	12	20	SPARE				
SPACE	-	13	↑	14	-	SPACE				
SPACE	-	15	↑	16	-	SPACE				
SPACE	-	17	↑	18	-	SPACE				



DESIGN & CONSTRUCTION



SHEET TITLE: PANELBOARD SCHEDULE CAMILLUS DOT

PROJECT: PROVIDE ELECTRICAL UPGRADES SENECA, CAYUGA, & ONONDAGA COUNTIES

WARNING: THE ALTERATION OF THIS MATERIAL IN ANY WAY, UNLESS DONE UNDER THE DIRECTION OF A COMPARABLE PROFESSIONAL, I.E. ARCHITECT FOR AN ARCHITECT, ENGINEER FOR AN ENGINEER OR LANDSCAPE ARCHITECT FOR A LANDSCAPE ARCHITECT, IS A VIOLATION OF THE NEW YORK STATE EDUCATION LAW AND/OR REGULATIONS AND IS A CLASS 'A' MISDEMEANOR.

DWG NO: E-605