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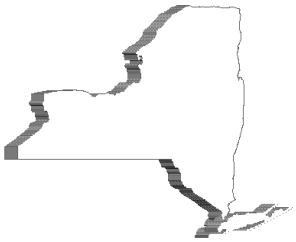


ADDENDUM NO. 1 TO PROJECT NO. 44180

CONSTRUCTION WORK, ELECTRICAL WORK, AND HVAC WORK
REPLACE SWITCHGEAR
PERRY B. DURYEA STATE OFFICE BLDG.
250 VETERANS MEMORIAL HIGHWAY
HAUPPAUGE, NY 11788

August 10, 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.

ELECTRICAL WORK SPECIFICATIONS

1. SECTION 260523 WIRING FOR MOTORS AND MOTOR CONTROLLERS: Add the attached Section (pages 260523-1 thru 260523-2) to the Project Manual.

2, Page 261313-1, Paragraph 1.01 C.: Change "261314" to read "261315".

3. Page 261313-4, Subparagraph 1.05 B.5.d.1.: Change "261314" to read "261315".

4. Page 261313-12, Paragraph 2.10 F.: Change "261314" to read "261315".

5. Page 261313-12, Paragraph 2.11 A.: Change "261314" to read "261315".

6. Page 261313-14, Paragraph 2.15 A.: Delete this Paragraph in its entirety.

7. Page 261313-19, Subparagraph 3.09 D.2.: Change "261314" to read "261315".

8. Page 262413-4, Paragraph 2.01 B.: Change Subparagraph "1q." to read "11."

9. Page 262413-4, Subparagraph 2.01 B.11.e.: Delete this Subparagraph in its entirety and replace with the following:
   "e. Component Description: All 480V power circuit breakers shall be equipped with LSIG adjustable overcurrent protection as well as with contacts for remote operation. In addition to the specific components, equip each circuit breaker with additional components as required to achieve a coordinated selective scheme between the main device and the feeder devices."

10. SECTION 271524 OPTICAL FIBER CABLES: Discard the Section bound in the Project Manual and substitute the attached Section (pages 271524-1 thru 271524-7) noted "REVISED 8-9-2016".

HVAC WORK SPECIFICATIONS

11. SECTION 231100 LIQUID FUEL PIPING: Discard the Section bound in the Project Manual and substitute the attached Section (pages 231100-1 thru 231100-8) noted "REVISED 8-9-2016".

12. SECTION 231313 UNDERGROUND FUEL STORAGE TANKS AND FUEL SYSTEMS: Discard the Section bound in the Project Manual and substitute the attached Section (pages 231313-1 thru 231313-11) noted "REVISED 8-9-2016".

ELECTRICAL WORK DRAWINGS

13. Drawing No. CE-201, ELECTRIC SITE PLAN: Add the following:

"**GENERAL NOTES**"

1. COORDINATE WITH FACILITY FOR SHUTDOWN TO RELOCATE EXISTING UNDERGROUND FIBER OPTIC CABLE LINE. SPLICE TO EXISTING MULTIMODE FIBER OPTIC CABLE WITH FUSHION SPLICE. EXISTING CABLE SHALL BE ASSUMED TO BE OSP 12 FIBER 50/125 MULTIMODE. CONTRACTOR TO CONFIRM EXACT FIBER SERVICE CABLE TYPE."

14. Drawing No. E-609, ELECTRIC SCHEDULES: Add the following:

"**GENERAL NOTES**

1. FEEDER SIZES ON RACEWAY AND CONDUCTOR SCHEDULE REFER TO INTERIOR CONDUIT SIZE ONLY. ALL UNDERGROUND DUCTBANK SHALL BE SIZED PER DRAWING CE-201 AND TRANSITION TO THE SIZES SHOWN IN THE RACEWAY AND CONDUCTOR SCHEDULE ONCE INSIDE THE BUILDING."

15. Drawing No. E-610: Change the note between 13.2kV Main Switchgear and Existing Master Control Panel from "CAT6 ETHERNET CONNECTION TO DIGITAL METERS" to read "CIRCUITS CC-MCP AND CC-NESC IN 1 ¼" RGS CONDUIT."

16. Revised Drawings:
    a. Drawing Nos. E-102, E-603, E-607, and E-608 noted "REVISED DRAWING 8-9-16" accompany this Addendum and supersede the same numbered originally issued drawings.

HVAC WORK DRAWINGS

17. Revised Drawings:
    a. Drawing Nos. M-101, M-102, M-401, M-501, and CM-401 noted "REVISED DRAWING 8-9-16" accompany this Addendum and supersede the same numbered originally issued drawings.

CONSTRUCTION WORK

18. No Addenda at this time.

END OF ADDENDUM

Margaret F. Larkin
Executive Director

SECTION 260523

WIRING FOR MOTORS AND MOTOR CONTROLLERS

PART 1 GENERAL

1.01 PRODUCTS INSTALLED BUT FURNISHED BY OTHERS

A. The following items will be furnished under related contracts for installation, and connection to power wiring.
   1. Motor controllers for all Contracts.
   2. Line voltage thermostats for HVAC Work Contract.

1.02 SUBMITTALS

A. Not Required. (Related contractors will deliver 2 copies of approved wiring diagrams required for power wiring and connections under the Electrical Work Contract).

PART 2 PRODUCTS

2.01 POWER WIRING

A. Materials: As specified in other Electrical Sections.

2.02 NAMEPLATES

A. General: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inch high.
   1. Phenolic: Two color laminated engravers stock, 1/16 inch minimum thickness, machine engraved to expose inner core color (white).
   2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.
   3. Materials for Outdoor Applications: As recommended by nameplate manufacturer to suit environmental conditions.

PART 3 EXECUTION

3.01 INSTALLATION

A. Power Wiring: Provide power wiring and connections for equipment installed under related contracts. Exception:
   1. Where a power source has been provided under this Contract and it is indicated that a related trade contractor is required to provide the power wiring from the power source to the equipment.

B. Control Equipment: Set and connect the items to power wiring, listed under 1.01 - PRODUCTS INSTALLED BUT FURNISHED BY OTHERS.

C. Control Wiring: Not included in Electrical Work Contract. (Provided by related contractors).

D. Nameplates: Identify each motor controller, indicating motor controlled:
   1. NEMA 1 Enclosures: Rivet or bolt nameplate to the cover.
   2. NEMA 12 Enclosures: Rivet or bolt and gasket nameplate to the cover.
   3. NEMA 3R, 4, 4X, 7, 9 Enclosures: Attach nameplates to the cover using adhesive specifically designed for the purpose, or mount nameplate on wall or other conspicuous location adjacent to switch. Do not penetrate enclosure with fasteners.

END OF SECTION

SECTION 271524

OPTICAL FIBER CABLES

PART 1 GENERAL

1.01 DEFINITIONS

Note: For this Section, the definition below supersedes the definition in Section 014200 for Company Field Advisor.

A. Company Field Advisor - An individual meeting the requirements of 1 or 2 below:
   1. An employee of the company producing the optical fiber cables, who is certified in writing by the company to be technically qualified in design, installation, servicing and testing of the required products. Personnel involved solely in sales do not qualify.
   2. An individual employed by an organization, other than the company producing the optical fiber cables, certified in writing by the company producing the optical fiber cables, that the individual is technically qualified in design, installation, servicing and testing of the required products and is capable to act as company field advisor in their behalf. Personnel involved solely in sales do not qualify.

1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittals Package: Submit the product data, samples, and quality control submittals specified below at the same time as a package.

C. Product Data:
   1. Catalog sheets, specifications and installation instructions for all products.
   2. Complete manufacturer's construction details and specifications for the cables. Include for each type of cable:
      a. Physical and optical characteristics of the optical fibers.
         1) Cable manufacturer's certified test data (attenuation, bandwidth).
      b. Physical characteristics of strength members, and jackets.
      c. Maximum pulling strain allowed.
      d. Crush resistance.
      e. Overall dimension of cable.
   3. Splicing and termination data, including the following:
      a. List of materials.
      b. Method of connecting cables.
      c. Details of cable preparation.

d. Method of applying materials, including quantities.
e. Precautionary measures.
f. Drawings showing method of splicing complete with dimensions.
g. Written statement from cable manufacturer that splices and terminations submitted are acceptable for use with their cable.
h. Written statement from splicing/termination manufacturer that the connectors submitted are suitable for the proposed application.
i. Written statement from cable manufacturer that the cable breakout and splitter kits submitted are acceptable for use with their cable.

4. Statement from the Company producing the optical fiber transmitter and receiver system for which the optical fiber cables are proposed to be used, indicating that the optical characteristics meet the requirements of the Company.
5. Written statement from cable manufacturer indicating recommended pulling compounds.

D. Samples:
1. Two foot sample of each type cable proposed for use.
2. One sample of each connector proposed for use.
3. One sample of each breakout and splitter kit proposed for use.

E. Quality Control Submittals:
1. Cable Installer's Qualifications Data:
a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
b. Name and addresses of the required number of similar projects worked on which meet the experience criteria.
2. Company Field Advisor Qualifications Data:
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.
3. Cable Splicer's Qualifications Data:
a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
b. All information required showing that the experience criteria have been met.

F. Contract Closeout Submittals:
1. Post installation test report.

1.03 QUALITY ASSURANCE

A. Equipment Qualifications For Products Other Than Those Specified:

1. At the time of submission provide written notice to the Director of the intent to propose an "or equal" for products other than those specified. Make the "or equal" submission in a timely manner to allow the Director sufficient time to review the proposed product, perform inspections and witness test demonstrations.
2. If products other than those specified are proposed for use furnish the name, address, and telephone numbers of at least 5 comparable installations that can prove the proposed products have performed satisfactorily for 3 years. Certify in writing that the owners of the 5 comparable installations will allow inspection of their installation by the Director's Representative and the Company Field Advisor.
    a. Make arrangements with the owners of 2 installations (selected by the Director) for inspection of the installations by the Director's Representative. Also obtain the services of the Company Field Advisor for the proposed products to be present. Notify the Director a minimum of 3 weeks prior to the availability of the installations for the inspection, and provide at least one alternative date for each inspection.
    b. Only references from the actual owner or owner's representative (Security Supervisor, Maintenance Supervisor, etc.) will be accepted. References from dealers, system installers or others, who are not the actual owners of the proposed products, are not acceptable.
        1) Verify the accuracy of all references submitted prior to submission and certify in writing that the accuracy of the information has been confirmed.
3. The product manufacturer shall have test facilities available that can demonstrate that the proposed products meet the contract requirements.
    a. Make arrangements with the test facility for the Director's Representative to witness test demonstrations. Also obtain the services of the Company Field Advisor for the proposed product to be present at the test facility. Notify the Director a minimum of 3 weeks prior to the availability of the test facility, and provide at least one alternative date for the testing.
4. Provide written certification from the manufacturer that the proposed products are compatible for use with all other equipment proposed for use for this system and meet all contract requirements.

B. Cable Installer's Qualifications: The persons installing the Work of this Section and their Supervisor shall be personally experienced in optical fiber cable systems and shall have been engaged in the installation of optical fiber cable systems for a minimum of 3 years.
    1. Furnish to the Director the names and addresses of 5 similar projects that the foregoing people have worked on during the past 3 years.

D. Cable Splicers' Qualifications: The persons installing the optical fiber splices and/or terminations, and their Supervisor, shall be personally experienced in splicing and terminating optical fiber cable systems and shall have been engaged in the installation of optical fiber cable systems for a minimum of 3 years.

1. Experience should be in the same types of splices and terminations proposed for this project and each project listed should be of similar size, as this project requires.
2. Furnish to the Director the following information on 5 similar projects that the foregoing people have worked on during the past 3 years.
   a. Qualifications Data should include:
      1) Names and addresses of the similar projects.
      2) Types of splices and terminations performed on the similar projects.
      3) Number of each type of splices and terminations for each of the listed projects.

1.04 DELIVERY, STORAGE AND HANDLING

A. Cable Delivery:
   1. No cable over one year old when delivered to the site will be accepted.
   2. Keep ends of cables sealed at all times, except when making splices or terminations. Use methods approved by cable manufacturer.
   3. Include the following data durably marked on each reel:
      a. Reel number.
      b. Facility name and address.
      c. Contractor's name.
      d. Project title and number.
      e. Date of manufacture.
      f. Manufacturer's name.
      g. Linear feet.
      h. Location where cable is to be installed (i.e., Between manholes No. _____ and _____).
   4. Include the following factory test data for each cable, showing the following:
      a. The reel number that the cable is on.
      b. The cable manufacturer's specified optical parameters for the type of fiber installed in the cable.
      c. Test readings for all fibers in the cable, showing that all fibers have been tested and that each fiber meets or exceeds the cable manufacturer's specified optical parameters for that fiber type.

B. Cable Storage: Store cable at temperature recommended by cable manufacturer for optimum workability.

PART 2 PRODUCTS

2.01 NONCONDUCTIVE OPTICAL FIBER CABLES - 50 MICRON/125 MICRON (CORE/CLAD)

A. Provide products from one of the following manufacturers:
   1. AMP Netconnect
   2. Belden
   3. Berk-Tek Leviton
   4. ComScope, Inc

5. Corning Cable Systems
6. General Cable

B. General: 50/125 Micrometer, Multimode,12 fiber, nonconductive, tight buffer, fiber optic cable (OM2)
   1. Conductive cable shall be steel armored type.
   2. Maximum Attenuation: 3.5 dB/km at 850nm; 1.5 dB/km at 1300nm.
   3. Minimum overfilled Modal Bandwith-length Product: 500 MHz-km at 850nm; 500 MHz-km at 1300nm.
   4. Jacket:
      a. Jacket Color: Orange
      b. Cable cordage jacket, fiber, unit, and group color shall be according to TIA-598-D.
      c. Imprinted with fiber count, fiber type, and aggregate length at regular intervals not to exceed 40 inches (1000 mm).
   5. Comply with ICEA S-83-596 for mechanical properties.
   6. Comply with TIA-568-C.3 for performance specifications.
   7. Comply with TIA-492AAAB for detailed specifications.
   8. Listed and labeled by an NRTL acceptable to authorities having jurisdiction as complying with UL 444, UL 1651, and NFPA 70 for the following types:
      a. Plenum Rated, Nonconductive: Type OFNP, or Type OFNR in metallic conduit.

2.02 CONNECTORS AND SPLICING

A. Cable Connecting Hardware:
   1. Comply with Optical Fiber Connector Intermateability Standards (FOCIS) specifications of TIA-604-2-B for Type ST connectors, TIA-604-3-B for Type SC connectors, TIA-604-10-B for Type LC connectors, TIA/EIA-604-12 for Type MT-RJ connectors, and TIA-604-5-D for Type MPO connectors. Comply with TIA-568-C.3.

B. Splicing: All fiber optic splices shall be via fusion splicing.

2.03 ACCESSORIES

A. Pulling Compounds: As recommended by cable manufacturer.

B. Tags: Precision engrave letters and numbers with uniform margins, character size minimum 3/16 inches high.
   1. Phenolic: Two color laminated engraver's stock, 1/16 inch minimum thickness, machine engraved to expose white inner core color.
   2. Aluminum: Standard aluminum alloy plate stock, minimum .032 inches thick, engraved areas enamel filled or background enameled with natural aluminum engraved characters.

C. Markers:

1. Premarked self-adhesive: W.H. Brady Co.'s B940, Thomas and Betts Co.'s E-Z code WSL self-laminating, Ideal Industries' Mylar/Cloth wire markers, or Markwick Corp.'s permanent wire markers.
2. Flexible sleeve markers: Plastic Extruded Parts Inc.'s FS series.
3. Snap-on markers: Plastic Extruded Parts Inc.'s RS series.

PART 3 EXECUTION

3.01 PREPARATION

A. Prior to installing cable, test the cable on the reels to verify that the cable's fibers are intact.
   1. At the contract site, perform a continuity test on each fiber in each cable to confirm light passes through each fiber.
   2. Remove defective cable from the Site.
   3. Identify the existing fiber optic cable and verify type prior to interruption to service.

3.02 INSTALLATION

A. Installing Cables:
   1. Install cables in conduit after conduit system is completed.
   2. Keep ends of cables sealed watertight at all times, except when making splices or terminations.
   3. No grease, oil, lubricant other than approved pulling compound may be used to facilitate the pulling-in of cables.
   4. Use pulling attachment connected to the cable strength member for pulling in cables. Seal the pulling attachment watertight.
   5. Incorporate into the pull line at the pulling attachment a tension-control swivel containing a shear pin designed to fail if the pre-determined maximum cable strain is applied.
   6. Pull cables with a dynamometer or strain gage incorporated into the pulling equipment. Do not pull cables unless the Director's Representative is present to observe readings on the dynamometer or strain gage during the time of actual pulling. Do not exceed cable manufacturer's recommended pulling strain.
   7. Provide 2 meters of slack in each cable, at the first and last manhole that the cable is running through.
   8. Provide 1 to 2 meters of slack in each cable, in the enclosures that the cable terminates or is spliced.

B. Splices and Terminations:
   1. Splice, where allowed, and terminate cable in accordance with manufacturer's approved installation instructions.
   2. No splicing of optical fiber cables will be allowed except:
      a. Fusion splicing.

C. Identification of Optical Fiber Cables: Identify cables in manholes, pullboxes and in equipment to which they connect:

1. Install tags on each cable indicating cable number, month and year installed, type of cable, and manufacturer. Attach tags to cables with non-ferrous metal wire or brass chain.
2. Use markers to identify each optical fiber in equipment to which they connect.

3.03 FIELD QUALITY CONTROL

A. Post Installation Test:
   1. Perform test on each active and spare optical fiber after cable has been installed complete with connectors, and prior to placing cable into service.
      a. Demonstrate that the amount of attenuation and connector losses through the fiber is no greater than 75 percent of the parameters allowed by the optical fiber transmitter/receiver manufacturer for wavelengths of 850nm and 1300nm.
         1) Example: If the optical fiber transmitter/receiver manufacturer allows a 12db loss between the transmitter and receiver. The amount of loss that would be allowed across the fiber should not be more than 8db.
         2) If the amount of attenuation measured across a fiber is above 75 percent, then that fiber is to be tested to determine the cause of the high measurement, faulty connector, damaged fiber, etc., and corrective actions are to be made to correct the problem
   2. Perform test in the presence of the Director's Representative.
   3. Supply equipment necessary for performing test.
   4. Submit written report of test results signed by Company Field Advisor and Director's Representative. Mount a copy of the final report in a plexiglass enclosed frame assembly adjacent to the security console.

END OF SECTION

SECTION 231100

LIQUID FUEL PIPING

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Through Penetration Firestops: Section 078400.

1.02 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.
   2. Material Schedule: Itemize pipe and fitting materials for each specified application in Pipe and Fittings Schedule in Part 3 of this Section. Where optional materials are specified indicate option selected.

B. Quality Control Submittals:
   1. Welder Qualification Data: Copies of certification; include names, home addresses and social security numbers of welders.

1.03 QUALITY ASSURANCE

A. Qualifications of Welding Procedures, Welders and Welding Operators: Comply with the following:
   1. American Welding Society Standard AWS B2.1

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.

F. Flanges, Welding Neck Type, Same Pressure Rating as Adjoining Pipe: ASME B16.5.

G. Weld Fittings, Carbon Steel:
   1. Butt Welding Type: ASME B16.9.
      a. Allied Piping Products Co., Inc.'s Branchlets, Type 1 or 2.
      b. Bonney Forge Corp.'s Weldolets.
   2. Socket Welding Type: ASME B16.11.
      a. Allied Piping Products Co., Inc.'s Branchlets, Type 1 or 2.
      b. Bonney Forge Corp.'s Thredolets or Sockolets.

2.02 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. Joint Packing:
   1. Oiled Oakum: Manufactured by Nupak of New Orleans, Inc., 931 Daniel St., Kenner, LA 70062, (504) 466-1484.

E. Anti-Seize Lubricant: Bostik Inc.'s Never Seez or Dow Corning Corp.'s Molykote 1000.

F. Electrodes and Welding Rods:
   1. Electrodes for Use in Arc Welding: Heavily coated, not larger than 3/16 inch diameter exclusive of coating, unless otherwise approved.
   2. Welding Rods: Free flowing when fused, so as to avoid excessive pudding.
   3. Electrodes for Welding Stainless Steels: Coated and used with reverse polarity.
   4. Filler material shall conform to the appropriate AWS-ASTM specification.

G. Corrosion Protective Tape System: 3M Co., St. Paul, MN.
   1. Tape: Scotchrap 50 or 51.

2. Primer: Scotchrap pipe primer.
3. Putty (if required): Strip Caulk insulation putty.

2.03 PACKING MATERIALS FOR BUILDING CONSTRUCTION PENETRATIONS

A. Oiled Oakum: Manufactured by Nupak of New Orleans, Inc., 931 Daniel St., Kenner, LA 70062, (504)466-1484.

B. Mechanical Modular Seals: Thunderline Corp.'s Link Seal wall and floor seals designed for the service of piping system in which installed.

2.04 PIPE SLEEVES

A. Type A: Schedule 40 steel pipe.

B. Type B: No. 16 gage galvanized sheet steel.

2.05 FLEXIBLE CONTAINMENT PIPING AND FITTINGS

A. Acceptable Piping:
1. Single wall corrugated, crush and puncture resistant, high density polyethylene; OPW FlexWorks Access Pipe
2. Multiple layer nylon 12; APT's XP SC.
3. UL Listed.
4. H-20 Loading.

B. Fittings, Seals, and Joining Materials: Comply with the pipe manufacturer's recommendations.

2.06 FLEXIBLE DOUBLE WALL PRIMARY PIPING

A. Acceptable Piping:
1. PVDF inner barrier layer, tie layer, PVDF outer barrier layer, PVDF secondary jacket, with stainless steel swage coupler; OPW FlexWorks Primary Pipe.
2. Multi layer nylon 12 inner layer with stainless swage couplers or clamshell fittings; APT's XP-SC.

B. UL 971 listed for underground service with petroleum products. The piping system provided shall comply with federal, state, and local environmental and fire safety regulations including but not limited to the US EPA (40 CFR), NYS DEC, New York State Uniform Fire Prevention and Building Codes, NFPA 1, NFPA 30, and NFPA 31.

2.07 FLEXIBLE COUPLINGS FOR CONTAINMENT PIPING

A. Type: Flexible PVC or nylon12 construction with stainless steel hose clamps, and sized to match secondary containment pipe diameter.

2.08 FLEXIBLE CONNECTIONS

A. Underground Application:
   1. Acceptable Companies:
      a. Titeflex Inc., Springfield, MA.
      b. Flex-ing, Sherman, TX.
   2. Features:
      a. Construction: Stainless steel innercore covered with braided type 304 stainless steel outer jacket.
      b. UL listed for underground fuel storage tank systems.
      c. Connections for unleaded gasoline systems shall be fire rated.
      d. Permanently crimped stainless steel collars with one threaded end and one threaded swivel end.

B. Underground or Above Ground Application:
   1. Acceptable Companies:
      a. Titeflex Inc., Springfield, MA.
      b. Flex-ing, Sherman, TX.
   2. Features:
      a. Construction: Convoluted, Type 321 stainless steel inner core, minimum .012 inch wall thickness covered with braided Type 304 stainless steel outer jacket.
      b. UL listed for above ground and underground use.
      c. Connections for unleaded gasoline systems shall be fire rated.
      d. Factory installed male swivel on one end.

2.09 FLEXIBLE CONNECTION ISOLATION JACKET

A. Type: High density polyethylene flexible tube with Buna-N rubber compression seals, air valve stem, and stainless steel clamps; Titeflex Inc.'s Model 111466-1, or Flexing Model Yellow Jacket.

2.10 TEST BOOTS

A. Test boots complete with stainless steel clamps, and air valve stem for tightness testing.
   1. Flexible Nitrile Rubber: OPW TBA series, or APT STB or STB-SW series.
   2. Flexible Pelethane (Filled with Petroseal Paste): Blue-Line Model Quick Fit series.

2.11 TRANSITION ASSEMBLY

A. The unit shall include all parts required to interface and seal a rigid 1-inch supply pipe and a rigid 1-inch return pipe with flexible underground piping of the same size enclosed in a nominal 4-inch dia. flexible containment pipe; OPW FlexWorks PTA-4175, or APT Model TSL, TST, or TSB.

2.12 SUMP WALL SEAL ASSEMBLY – 1 INCH AND 3/4 INCH PRIMARY PIPE, 4 INCH CONTAINMENT PIPE

A. Seal assembly complete with stainless steel clamps, and air valve stem for tightness testing;
   1. Flexible Nitrile Rubber: OPW FlexWorks Model DEB-400 seal w/ TBA-4175A test boot, or APT Model DDB-075-SC.
   2. Flexible Pelethane (Filled with Petroseal Paste): Blue-Line Model Quick Fit series.

2.13 SUMP WALL SEAL ASSEMBLY- 3/4 OR 1 INCH RIGID ELECTRICAL CONDUIT

A. Seal assembly complete with stainless steel clamps, and air valve stem for tightness testing;
   1. Flexible Nitrile Rubber: OPW FlexWorks Model DEB-0751, or APT Model FEB-075D.
   2. Flexible Pelethane (Filled with Petroseal Paste): Blue-Line Model Quick Fit series.

2.14 VALVES AND ACCESSORIES

A. Anti-Siphon Valve: Epoxy coated ductile iron body with brass cap and seat, and viton disc; Morrison Model 910ER.
   1. Used when supply line is below liquid level of tank

B. 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 Morrison Bros. 939

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, except for Type K soft temper water tube.

H. Cut pipe and tubing ends square; ream before joining.

I. Threading: Use American Standard Taper Pipe Thread Dies.

3.02 MOTOR FUEL DISPENSING SYSTEM PIPING

A. Pitch horizontal underground piping upward from the containment sump 1/8 inch per foot minimum.

3.03 FUEL OIL SYSTEM PIPING

A. Underground Piping:
   1. Pitch horizontal piping upward from containment sump 1/8 inch per foot minimum.
   2. Run fuel oil supply, return, and gage piping in single containment pipe from containment sump to one foot beyond interior surface of exterior building wall.

B. Piping Inside Building:
   1. Pitch horizontal piping downward from wall 1/8 inch per foot minimum.

C. Above Ground Piping (Exterior to Building):
   1. Pitch horizontal piping from tank 1/8 inch per foot minimum.
   2. At interior surface of exterior building wall, provide required adapters.
      a. Run fuel oil supply and return piping to burning apparatus.
      b. Run gage piping to gage display.
   3. Protection Pipe (when directed): Run above ground piping in galvanized steel protection pipe, and run from tank to interior surface of exterior building wall, or to connection with underground piping, or equipment.

3.04 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. Welded Pipe Joint: Make changes in direction in welded piping with weld fittings, including elbows and tees. V bevel pipe and fitting ends (70 degrees to 90 degrees included angle).

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.

3.05 PIPING PENETRATIONS

A. Sleeve Schedule: Sleeve or core drill and seal with sealant or with link seal.

B. Diameter of Sleeves and Core Drilled Holes:
   1. Unless otherwise specified, size holes thru floors and walls in accordance with the through penetration fire stopping system being used.
   2. Size holes thru exterior walls or waterproofed walls above inside earth or finished floors, and exterior concrete slabs in accordance with the following:
      a. Uninsulated (Bare) Pipe: Inside diameter of sleeve or core drilled hole 1/2 inch greater than outside diameter of pipe, unless otherwise specified.

C. Length of Sleeves (except as shown otherwise on Drawings):
   1. Walls and Partitions: Equal in length to total finished thickness of wall or partition.
   2. Floors, Finished: Equal in length to total finished thickness of floor and extending 1/2 inch above the finished floor level, except as follows:
      a. In furred spaces at exterior walls, extend sleeve one inch above the finished floor level.
   3. Exterior Concrete Slabs: Equal in length to total thickness of slab and extending 1/2 inch above the concrete slab.
   4. Roofs: Equal in length to the total thickness of roof construction, including insulation and roofing materials, and extending one inch above the finished roof level.

D. Packing of Sleeves and Core Drilled Holes:
   1. Unless otherwise specified, pack sleeves or cored drilled holes in accordance with Section 078400 - FIRESTOPPING.
   2. Pack sleeves in exterior walls with mechanical modular seals.

3.06 PIPE AND FITTING SCHEDULE

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

BS	Black Steel.
CI	Cast iron.
MI	Malleable iron.
GS	Galvanized.
SE	Screwed end.
ST	Steel.
SW	Standard weight.
WE	Weld end.
XH	Extra heavy 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 and Diesel Fuel for Diesel-Alternators:
   1. Vent Piping:
      a. Underground: Single wall to match existing piping with fittings, joining methods, and materials as recommended by the piping system manufacturer.
      b. In Containment Sump, and Above Ground: SW BS pipe, with SE 150 lb MI fittings, and fuel resistant thread sealant.
      c. Exterior Underground and Exposed: SW GS pipe with galvanized iron fittings.
      d. Indoor Aboveground: SW BS pipe with MI fittings.
   2. Fuel Oil Product Piping (FOS and FOR):
      a. Underground:
         1) Double wall containment piping.
      b. Inside Building (125 psig and Less):
         1) SW BS pipe, with SE 150 lb MI fittings and fuel resistant thread sealant, or WE SW ST fittings.
   3. Protection Piping (when directed):
      a. Above Ground: SW GS pipe with SE 150 lb. MI fittings, and fuel resistant thread sealant.
   4. Fill Piping (Underground): SW BS pipe with SE 150 lb MI fittings, and fuel resistant sealant. Coat piping with corrosion protective tape primer, and wrap with corrosion protective tape.
   5. Interstitial Leak Monitor and Probe Riser Piping: SW BS pipe with SE 150 lb MI fittings, and fuel resistant sealant. Coat piping with corrosion protective tape primer, and wrap with corrosion protective tape.
   6. Fuel Oil Suction Drop Pipe: SW BS pipe, length as required to reach within 4 inches of tank bottom.

END OF SECTION

SECTION 231313

UNDERGROUND FUEL STORAGE TANKS AND FUEL SYSTEMS

PART 1 GENERAL

1.01 RELATED WORK SPECIFIED ELSEWHERE

A. Liquid Fuel Piping: Section 231100.

1.02 REFERENCES

A. NFPA 30 - Flammable and Combustible Liquids Code.

B. NFPA 30A - Automotive and Marine Service Station Code.

C. NFPA 31 - Oil Burning Equipment.

D. NFPA 70 - National Electric Code.

E. API 1615 - Installation of Underground Liquid Storage Systems.

F. Underwriter's Laboratories (UL).

G. ETL Testing Laboratories (ETL).

H. Steel Tank Institute (STI).

I. Factory Mutual Engineering and Research (FM).

J. NYS Department of Environmental Conservation Regulations.

K. US Environmental Protection Agency Regulations.

1.03 DEFINITIONS

A. Fuel System for Diesel-Generators: Fuel storage tank including corrosion prevention (steel tanks only), leak containment and detection for tank and underground piping, overfill prevention, high level alarm, gage system, and required accessories to connect to diesel-alternator.

1.04 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 013300 does not apply to this Section.

B. Submittals Package: Submit the Product Data, and Quality Control Submittals specified below at the same time as a package.

C. Product Data: Catalog sheets, specifications, illustrations, wiring diagrams, CARB Stamp (where applicable), and installation instructions for each item specified for each type of system.

D. Quality Control Submittals:
   1. Tank Installation Contractor's Qualifications Data:
      a. Name of Contractor, business address and telephone number.
      b. Names and addresses of 3 similar projects that the Contractor has worked on during the past 5 years.
   2. Pipe Installer's Qualifications Data:
      a. Name of each person who will be performing the Work and their employer's name, business address and telephone number.
      b. Names and addresses of 3 similar projects that each person has worked on during the past 5 years.
      c. Copy of certification from pipe manufacturer(s).
   3. 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.
   4. Factory Test Certificate: For each fuel storage tank.
   5. Final test procedure documentation.

1.05 QUALITY ASSURANCE

A. Qualifications:
   1. Tank Installation Contractor: The firm performing the Work of this Section shall have been regularly engaged in the installation and maintenance of underground fuel storage tanks for a minimum of 5 years, and shall have completed 3 similar projects.
   2. Pipe Installer: Individual with minimum 5 years experience in installing fuel piping, have worked 3 similar projects, and shall be certified by pipe manufacturer of the type of pipe being installed.

B. Listings: Components of the system(s) for which Underwriters' Laboratories, Inc. (UL) provides product listing service, shall be listed and bear the listing mark.

C. Regulatory Requirements:
   1. Systems for storing No. 2 fuel oil and diesel fuel for diesel-generators shall comply with the applicable requirements of UL 58, NFPA 30 and NFPA 31.
   2. Systems for storing diesel fuel or unleaded gasoline for motor fuel dispensing systems shall comply with the applicable requirements of UL 58, NFPA 30 and NFPA 30A.
   3. New York State Department of Environmental Conservation Bulk Storage Regulations 6 NYCRR Parts 612, 613, and 614.

4. New York State Department of Environmental Conservation Petroleum and Volatile Organic Liquid Storage and Transfer 6 NYCRR Part 229.
5. New York State Department of Environmental Conservation Dispensing Site and Transport Vehicles 6 NYCRR Part 230.
6. Suffolk County Department of Health Ordinance, Article 12.

D. Company Field Advisor:
1. Secure the services of a Company Field Advisor of the manufacturer of the leak and overfill monitoring system for a minimum of 8 hours for the following:
   a. Inspect installation and witness initial startup of system.
   b. Train facility personnel in the operation and maintenance of the system (minimum of two 2 hour training sessions). Schedule training sessions with the Director's Representative.
2. Secure the services of a Company Field Advisor of the manufacturer of the fuel management system for a minimum of 8 hours for the following:
   a. Inspect installation and witness initial startup of system.
   b. Train facility personnel in the operation and maintenance of the system (minimum of two 2 hour training sessions). Schedule training sessions with the Director's Representative.

1.06 WARRANTY

A. Double Wall ACT 100-U Tanks: Ten year manufacturer's warranty with additional 20 year extended warranty for each tank for internal and external corrosion.

1.07 MAINTENANCE

A. Spare Parts:
1. Two keys for each padlock.

B. Special Tools:
1. One stick gage and two calibration charts for each fuel tank.
2. Two tools for each type and size vandal resistant fastener.
3. Two lifting arms for composite type manhole frames and lids.

PART 2 PRODUCTS

2.01 DOUBLE WALL ACT 100-U TANKS

A. Features:
1. Underground storage tank with a steel primary (internal) tank completely surrounded (full 360 degrees, 100 percent of Volume) by a steel secondary (external) tank complete with 70 mil polyurethane coating.
2. Interstitial space between the primary and secondary tank walls to allow for the free flow and containment of all leaked product from the primary tank, and the insertion of a monitoring device at the bottom of the secondary tank.

a. Ship tanks to the work site with interstitial space pulled with a 20 inch hg vacuum to protect tank from condensation and corrosion.

B. Design Criteria: UL labeled for underground service in accordance with UL-58 (Type I) Construction Standard for Underground Tanks, UL-1746 Part 3 for external corrosion protection. ACT-100-U.

C. Construction:
1. Primary Steel Tank: Class A mild open hearth, or basic oxygen steel.
   a. Manufacturer Factory Pressure Test: Air test before installing secondary tank; prove tight under test pressures recommended by tank manufacturer.
2. Secondary Steel Tank: Class A mild open hearth, or basic oxygen steel.
   a. Manufacturer Factory Vacuum Test: 20 inch hg for one hour.
   b. Secondary tank outer shell is physically separated from primary tank outer shell by structural standoffs measuring 1.5 inches on the shell and 3 inches on the heads.
3. Coating: Minimum 70 mil thick multi-component polyurethane with high cross link density.
   a. Complete integrity of the jacketing system is assured by a 10,000 volt minimum spark test performed over the entire surface at manufacturer's plant.
4. Head Design: Flat type.
5. Manway:
   a. Above liquid level type with reversed flange with double bolt ring mounting, and 24 inch minimum inside diameter. Provide one manway on tanks.
   b. Bolted cover with UL listed gasket, and welded threaded openings of number and sizes required. Secure nuts or heads of bolts to underside of flange.
   c. Protect threads on bolts during transit and installation.
6. Containment Sump Mounting Collar: Sized to accept 45 inch fiberglass containment sump, and as available by tank size.
7. Surface Preparation: Sandblast exterior surface areas of the tank to a SSPC-6 commercial finish, as required by manufacturer's UL listing..
8. Electric Isolation: Nylon dielectric bushings.
9. Impact Plates:
   a. Under Manway: 24 x24 x 1/4 inch thick steel or 24 inch circular x 1/4 thick steel.
   b. Under Threaded Fittings: 12 x 12 x 1/4 inch thick steel
10. Strap Isolation Liner for Metallic Straps (Between Tank and Hold-Down Strap): Neoprene.

D. Tank Hold-Down Device:
1. Hold-Down Strap (By Tank Manufacturer):
   a. Polyester Straps (Tanks 10 ft dia. and smaller): Two ply, 9800 lb polyester webbing fabricated with twisted eye reinforced loop on both ends for connecting to concrete anchors.

1) Strap width dependent on tank diameter and as recommended by tank manufacturer.

b. Stainless Steel Straps (Tanks 12 ft dia. and Larger): : Type 304 stainless steel (ASTM A 276), preshaped to tank contour; each strap terminating with a Type 304 stainless steel (ASTM A 276) threaded adjustment rod and turnbuckle on both ends.

2. Anchor Bolt: Type 304 stainless steel (ASTM A 276), same diameter as the strap end rods and threaded on both ends; one end to fit the turnbuckle and the other end fitted with a 1/4 x 4 inch square Type 304 stainless steel plate (ASTM A 666), Type 304 stainless steel structural nut and washer. Length as required for proper anchoring.

E. Tank Identification: Permanent stencils, labels, or plates mounted on tanks, and include the following information:
1. Manufacturer's statement that tank conforms with Bulk Storage Regulation 6 NYCRR Part 614.
2. Standards of Design by which tank was manufactured.
3. List of products and additives which may be permanently stored in tank.
4. Year in which tank was manufactured.
5. Unique identification number.
6. Dimensions, working capacity, and tank model number.
7. Name of tank manufacturer and installer.
8. Tank manufacturer and date of tank installation.

F. Reverse Flanged (Double Ring) Manway: One required.
1. Required Ring Patterns:
a. One ring pattern for mounting cover plate.
b. One ring pattern for mounting containment chamber.

2.02 CONTAINMENT SUMP ASSEMBLY FOR DOUBLE WALL ACT 100-U TANKS AND JACKETED SECONDARY CONTAINMENT TANKS

A. Fiberglass Containment Chamber (watertight): TSDF-4536 by OPW Pices, or Franklin T48360/0.
1. Minimum I.D.: 45 inches.
2. Watertight cover lid.
3. Manway Mounting Kit: Resin kit; OPW RK-5000.
4. Entry Fitting and Test Boot with Air Stem: OPW Pisces PTB, or APT MD Series (entry boots) and STB Series (test boots).
5. Containment chamber shall seal watertight to the tank and secondary containment system.

2.03 FLUSH MOUNT WATERTIGHT ACCESS LID ASSEMBLY (AT GRADE)

A. Acceptable Manufacturers:
a. EBW Safe-Lite FRC Slide Action.
b. OPW Conquistador.

B. Cover: Fiber reinforced composite type complying with DOT H-20 load requirements, and identified with API color coding, and fuel identification plate, minimum 44 inch dia.

C. Skirt: 1/4 inch rolled steel angle iron ring welded to 14 gage steel skirt with galvanized finish, and provisions to secure cover to skirt ring with vandal resistant fasteners.

D. Slide Action Handle: Allows cover removal from a standing position.

2.04 TANK ACCESSORY PACKAGE

A. Tank Fill Assembly:
   1. Top Seal Fill Pipe Cap: OPW 634-TT, Franklin 777-201-01.
   2. Top Seal Fill Pipe Swivel Adapter: CARB/EVR approved; OPW61SALP-1020-EVR, or Franklin SWF-100-B.
   3. Below Grade Spill Containment Assembly: EBW 715-474-01 Flex Catch, or OPW 101BG-2115.
      a. Size: 15 gallon.
      b. Cover: Waterproof, hinged, locking type.
      c. Shell: Durable polyethylene, or fiberglass shell with plastic or cast iron base.
      d. Cover Lid Manhole: Plastic or steel skirt with composite manhole cover complying with DOT H-20 load requirements.
      e. Drain valve.
   4. Fill Limiting Valve: OPW 61SO, EBW 708-49 series, or EMCO Wheaton A1100.
      a. Any hydraulic shock resulting from valve operation shall be minimal to prevent damage to the delivery hose.

B. Nameplate Holders: Corrosion resistant steel plates and straps (4 inch) with vandal resistant fasteners; OPW 107, or EBW 787.

C. Fill Port Nameplate:
   1. Construction: Minimum 1/8 inch thick two color laminated plastic engravers stock with the following items engraved in contrasting symbol and background colors conforming to the American Petroleum Institute (API) color coding for the particular fuel type, and consistent with facility fuel supplier's marking.
      1. Manufacturer's statement that tank conforms with Bulk Storage Regulation 6 NYCRR Part 614.
      2. Standard of Design by which tank was manufactured.
      3. List of products and additives which may be permanently stored in tank.
      4. Year in which tank was manufactured.
      5. Unique identification number.
      6. Dimensions, design, working capacity, and tank model number.
      7. Name of tank manufacturer.
      8. Date of tank installation.
      9. API color symbol.

10. Installers name.

D. Padlock: Bronze, Master Lock 911-DKA.
1. Key all locks alike.

E. Stick Gage: Hardwood, calibrated in 1/8 inch increments.

F. Manhole for Leak Monitor System: H-20 loading, 18 inch dia cast iron body, minimum 18 inch steel skirt and cover secured with minimum of 2 cap screws; OPW 6110-18WT, Morrison Bros. 418TM (18 inch dia.), or EBW MW-1800.

2.05 FUEL OIL OR GENERATOR TANK INSTALLATION PACKAGE

A. Vents (Diesel Motor Fuel Tanks): Aluminum body and cover, open type 30 or 40 mesh brass screen, and rain shield, designed to direct vapors upward; OPW 23; EMCO Wheaton A4103, Morrison Bros. 354, or EBW 800 series.

B. Foot Valve Extractor Assembly:
1. Pipe Cap: Die cast zinc, steel cross bar, (4 inch), OPW 116, Morrison Bros. 578, or EBW 320 series.
2. Foot Valve: Double poppet type with bronze body and poppet, metal to metal seat, 8 or 24 mesh galvanized brass screen, and extension legs; OPW 92, Morrison Bros. 335A, or EBW 50 thru 201 series.
3. Extractor Fitting: Cadmium plated cast iron body with bronze cap and chromed tanned leather gasket; OPW 233, Morrison Bros. 560, or EBW 320 series.

C. Locking Pipe Cap with Adapter (Fuel Oil and Diesel Fuel for Diesel Generators): Cast iron collar and cap with buna gasket (3 inch); OPW 634TE-7085 cap with OPW 633T-8076 adapter, Morrison Bros. 178 cap with Morrison Bros. 305 adapter, or EBW 779-200-01 cap with 778-302-01 adapter.

D. Riser: Standard weight galvanized steel pipe with 150 lb galvanized malleable iron fittings, and threaded joints with thread sealant.

E. Test Valve: 200 psig WOG, bronze body, screwed end, gate or ball valve; Morrison Bros. 691, or OPW 21BV.

F. 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 Morrison Bros. 939.

G. Oil Filter: Cast iron body with threaded ends, clamped cover and handle, brass bracket strainer with 3/64 inch perforations, and designed for 150 psig maximum working pressure; Preferred Utilities 72.

H. Anti-Siphon Valve: Epoxy coated ductile iron body with brass cap and seat, and viton disc; Morrison Model 910ER.
1. Used when supply line is below liquid level of tank.

2.06 TANK GAGING, LEAK AND OVERFILL MONITOR SYSTEM

A. Acceptable Companies:
   1. Veeder Root Inc., Simsbury, CT, (800) 873-3313.
   2. OPW, Hotchkins, IL, (708) 465-4200.
   3. Pneumercator Co., Inc., Farmingdale, NY, (516) 293-8450.
   4. Intelligent Controls Inc., Saco, ME, (800) 225-9787.
   5. OMNTEC/Electro Levels Mfg. Co., Ronkonkoma, NY, (516) 467-5787.

B. Type: Continuous operation tank gaging, leak detection and overfill monitor system for double wall storage tanks, double wall product piping, and containment sumps.
   1. Systems shall have system test capability, and shall be UL listed and/or FM approved.

C. Alarm Monitor Panels: Locate panel inside nearest appropriate building as directed by Director's Representative.
   1. The alarm panel shall visually indicate the following:
      a. Status of each tank's interstitial space.
      b. Status of each containment system.
      c. Status of high level sensor set at 95 percent of tank operating capacity (on or off). When sensor is tripped, audio alarm shall be activated and be audible at fill port location.

D. Non Discriminating Leak Sensors:
   1. Detects leaks in the following:
      a. Interstitial space between tank walls.
      b. Piping system which drains into containment sump.
   2. Sensors: Non discriminating type not sensitive to condensation forming on the sensor surface, or dripping across the sensor surface.

E. Magnetostrictive Gage Probe:
   1. Includes temperature sensors, and both product and water floats capable of sensing product level to nearest 0.001 inch.
   2. Upon demand, the system shall indicate water level, product level, and average product temperature.
   3. System shall sense and alarm leakage rates greater than 0.2 gal/hr.

F. Instrumentation Control Cable: Connect probe and sensor to alarm monitor panel, as recommended by manufacturer of leak and overfill monitor system.

G. Audible Overfill Alarm Device: Weatherproof, surface mounted basic grille type, 120 V ac as manufactured by tank gaging, leak detection and overfill monitor system manufacturer. To be tied into existing fuel oil overflow alarm.

H. Overfill Alarm Device Sign: Constructed of 1/8 inch thick two color laminated plastic engravers stock, with the words "OVERFILL ALARM DEVICE"

engraved in white on red background. Size sign and lettering for easy reading from ground level.

I. Printer: As recommended by system manufacturer. If printer is thermal type provide 6 rolls of thermal paper at each location.

2.07 FUEL FOR TESTING

A. Coordinate with the Facility thru the Director's Representative for the delivery of a full tank of each appropriate fuel type for testing to verify that fuel transfer equipment and instrumentation is operating properly.
   1. The Facility shall pay for delivery of fuel.

2.08 FASTENERS

A. Vandal Resistant Fasteners: Stainless steel, allen or torx head, both with center post.

PART 3 EXECUTION

3.01 PREPARATION

A. Testing Prior to Installation:
   1. Before placing the tank into its excavation, plug all openings and pressure test tank in accordance with manufacturer's printed test instructions, unless otherwise specified.
   2. Tanks should not be pressurized beyond manufacturer's specified limits. The tank must hold the test pressure for 30 minutes.
   3. Check fitting connections, and seams in outermost tank by applying a soap suds solution.
   4. Reject any leaking tanks.

3.02 INSTALLATION

A. Install the Work of this section in accordance with the item manufacturer's printed installation instructions, unless otherwise shown or specified.

3.03 FUEL STORAGE TANKS

A. Double Wall ACT 100-U Tanks: Touch-up any abraded or marred factory coating as directed by tank manufacturer before placing tank and containment sump into excavation.

B. Lower tank carefully into the excavation using lifting lugs provided on the tank. Set the tank on a full length concrete slab covered with a 12 inch layer of pea gravel.

C. Set tank to pitch one inch down toward the interstitial leak monitor.

D. Do not use chocks or saddles to support or block the tank in position.

E. Install tank anchoring devices to secure tank firmly in place.

F. Do not place fuel into tank until backfilling is completed.

G. Plug and seal all unused openings in containment sump.

3.04 TANK ACCESSORIES

A. Fuel Identification: Attach laminated plastic nameplate to each tank fill pipe to identify the fuel in the tank.

B. Tank Identification: Affix tank identification stencil, label, or plate permanently to tanks and fill ports.

C. Install padlocks on all lockable caps on fill and vapor recovery piping.

D. Terminate vent lines with vent caps.

E. Overfill Alarm Device Sign: Mount sign adjacent to alarm device in a location that is easily readable from ground level.

F. Vent Caps:
   1. All Locations except New York City: Install vent caps at end of vent piping minimum of 12 feet above finished grade.

3.05 FIELD QUALITY CONTROL

A. Testing: After installation of tank and piping, test the system in the presence of the Director's Representative, as follows:
   1. Piping: Before painting or backfilling, plug ends and test with air at manufacturer's recommended test pressure, and hold for 5 hours without leaking.
   2. Tanks:
      a. Before backfilling, pressure test tank in accordance with manufacturer's printed test instructions, unless otherwise specified.
      b. Tanks should not be pressurized beyond manufacturer's specified limits.
      c. The tank must hold the test pressure for 30 minutes.
      d. Check fitting connections, and seams in outermost tank by applying a soap suds solution.
      e. After backfilling, make measurement of vertical distance from top of 4 inch gage opening to top of impact/deflector plate, and submit this information to the Director's Representative.
   3. Fuel System for No. 2 Fuel Oil:
      a. After reconnecting piping, burning apparatus, and tanks, and when directed, perform a system acceptance test in the presence

of the Director's Representative to demonstrate that the fuel system is operating properly.

b. Make required repairs and final adjustments.

4. Fuel System for Diesel-Generators:

a. After reconnecting piping, diesel-alternator, and tanks, and when directed, perform a system acceptance test in the presence of the Director's Representative to demonstrate that the fuel system is operating properly.

b. Make required repairs and final adjustments.

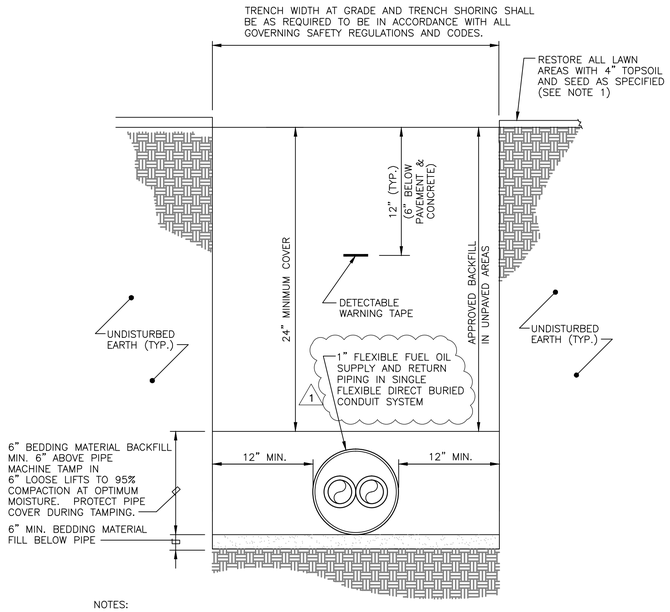
3.06 ALARMS

A. The high level sensor shall be set to trip the system at 90% of full tank capacity. The visual and audible alarm devices shall be seen and heard from the fill port location.

END OF SECTION

GENERAL H–CONTRACT NOTES FOR FUEL OIL TANK:

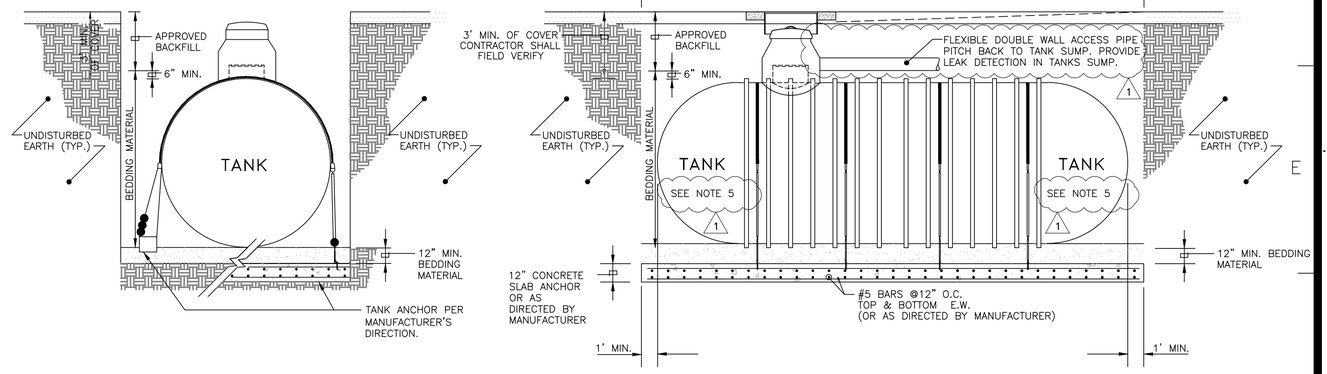
1. H–CONTRACT SHALL PROVIDE FUEL TANK, DOUBLE WALL FUEL PIPING AND CONDUIT, LEAK DETECTION, AND ALL WORK ASSOCIATED WITH THE FUEL OIL TANK, INCLUDING PROVIDING THE 660 GALLON TEMPORARY FUEL OIL TANK, ASSOCIATED FUEL OIL PIPING, SPILL CONTAINMENT, ETC.
2. UNDERGROUND FUEL OIL TANK SHALL BE REGISTERED WITH THE NY DEC.
3. EXCAVATION AND ANY REQUIRED TRENCH SHORING FOR THE FUEL OIL TANK SHALL BE BY THE H–CONTRACT CONTRACTOR.
4. H–CONTRACT CONTRACTOR SHALL PROVIDE ALL FUEL OIL REQUIRED FOR TESTING EMERGENCY GENERATOR. CONTRACTOR SHALL ALSO PROVIDE INITIAL FUEL OIL TANK FILL.
5. COORDINATE FUEL OIL TANK REMOVAL AND INSTALLATION WITH OWNER. PRIOR TO BEGINNING ANY REMOVAL OR NEW WORK, NOTIFY THE OWNER OF WORK ACTIVITIES AT LEAST ONE WEEK IN ADVANCE.
6. REFER TO SPECIFICATION SECTION 231310 – PETROLEUM TANK CLEANING AND INSPECTION, FOR FUEL OIL TANK REMOVAL.
7. REFER TO SPECIFICATION SECTION 231313 – UNDERGROUND FUEL STORAGE TANKS AND FUEL SYSTEMS, FOR FUEL OIL TANK PRODUCT AND INSTALLATION REQUIREMENTS.



NOTES:

1. REFER TO CIVIL SPECIFICATIONS FOR WALKS, BACKFILL AND RESTORATION OF SURFACE. PROVIDE NEW SEED IN ACCORDANCE WITH SPECIFICATIONS.
2. ALL EXISTING UTILITIES UNCOVERED DURING EXCAVATION SHALL BE SUPPORTED AND PROTECTED AT ALL TIMES. ALL UTILITIES DAMAGED AS A RESULT OF NEW WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. REMOVE ALL DEMOLISHED MATERIALS AND UNUSED EXCAVATED EARTH FROM THE SITE.
4. INSTALL DETECTABLE WARNING TAPE ABOVE ALL UTILITIES, 12" BELOW GRADE.

1 CM401 TYPICAL FUEL OIL PIPE SECTION
SCALE: NONE



NOTES:

1. REFER TO SPECIFICATIONS FOR BACKFILL AND RESTORATION OF SURFACE.
2. ALL EXISTING UTILITIES UNCOVERED DURING EXCAVATION SHALL BE SUPPORTED AND PROTECTED AT ALL TIMES. ALL UTILITIES DAMAGED AS A RESULT OF NEW WORK SHALL BE REPAIRED AT THE CONTRACTOR'S EXPENSE.
3. REMOVE ALL DEMOLISHED MATERIALS AND UNUSED EXCAVATED EARTH FROM THE SITE.
4. INSTALL DETECTABLE WARNING TAPE ABOVE FUEL TANK, 12" BELOW GRADE.
5. PROVIDE LEAK DETECTION IN INTERSTITAL SPACE OF DOUBLE WALL TANK. 1

2 CM401 UNDERGROUND FUEL OIL STORAGE TANK
SCALE: NONE

SITE MECHANICAL DETAILS
SCALE: AS SHOWN

REVISED DRAWING 8-9-2016

NYS OFFICE OF GENERAL SERVICES
Serving New York
ANDREW M. CUOMO
Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

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STATE OF NEW YORK JAMES KENYON RICHES NO. 091491 LICENSED PROFESSIONAL ENGINEER

CONTRACT: HVAC
TITLE: REPLACE SWITCHGEAR
LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788
CLIENT: NYS OFFICE OF GENERAL SERVICES

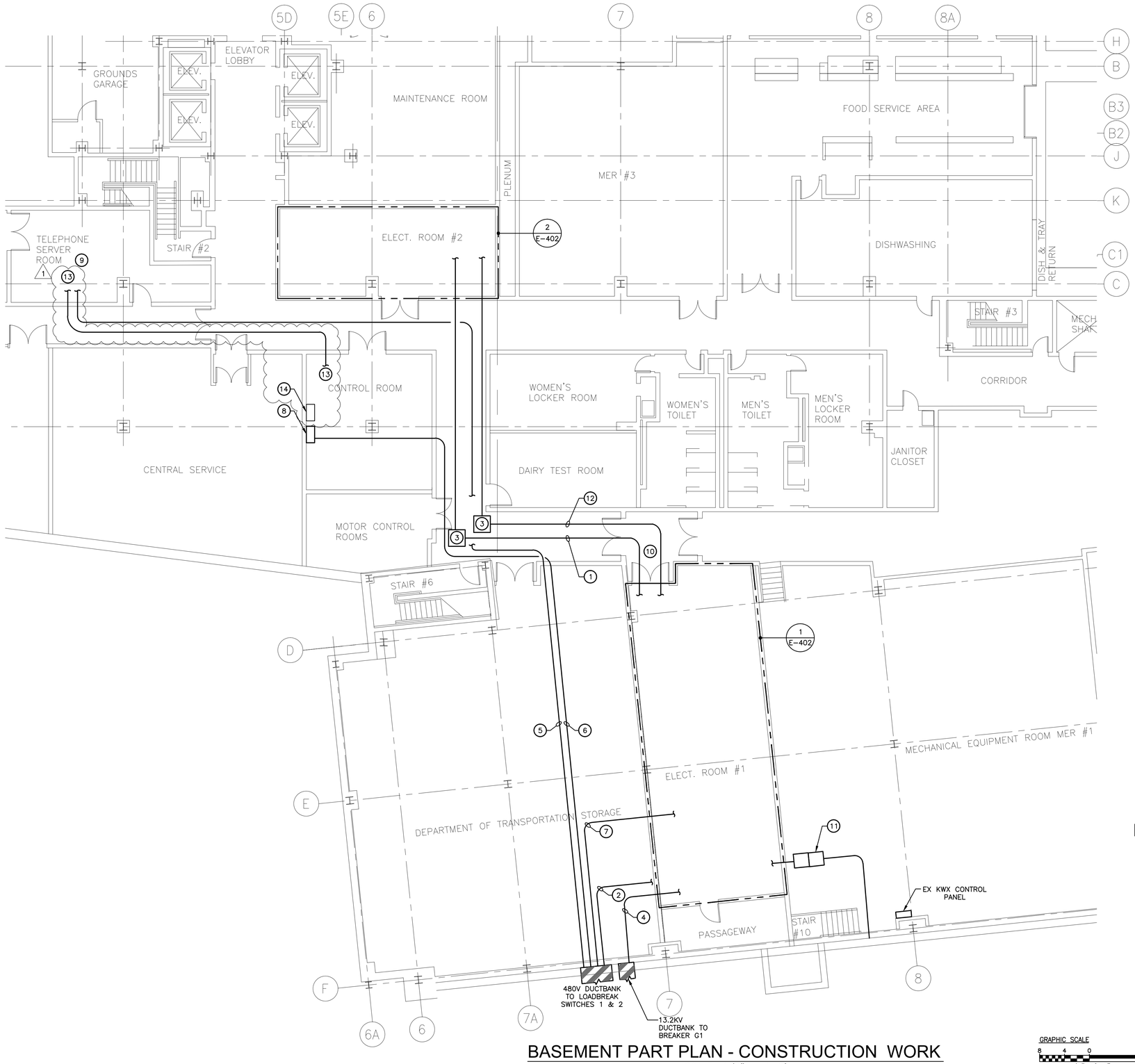
MARK	DATE	DESCRIPTION
1	08–09–2016	ADDENDUM NO. 1
	6–22–2016	FINAL SUBMISSION

PROJECT NUMBER:	44180–H
DESIGNED BY:	SRB
DRAWN BY:	SRB
FIELD CHECK:	SRB
APPROVED:	WAE

SHEET TITLE: SITE MECHANICAL DETAILS

DRAWING NUMBER: CM-401

SHEET 3 OF 25



BASEMENT PART PLAN - CONSTRUCTION WORK

SCALE: 1/8" = 1-0'

GRAPHIC SCALE
8 4 0 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

KEY PLAN
SCALE: NONE

N

GENERAL NOTES:

1. MODIFICATIONS TO THE EXISTING HALLWAY CEILING FOR CONDUIT INSTALLATION SHALL BE COMPLETED UNDER THE " C CONTRACT".
2. AS PART OF CEILING REMOVAL FOR CONDUITS INSTALLATION, DISCONNECT 1 CAMERA, 6 (2X4) LIGHTING FIXTURES AND 2 SMOKE DETECTORS. ONCE THE CEILING IS FINISHED, RECONNECT THE ABOVE DEVICES. SEE ARCHITECTURAL DRAWING A-100 IN C-CONTRACT.

DRAWING NOTES:

(1) FIELD ROUTE 2000A FEEDER FROM 480V SWITCHGEAR E-1 TO 480V SWITCHGEAR E-2. CONDUITS SHALL BE TRAPEZE MOUNTED ABOVE THE DROP CEILING IN THE EXISTING HALLWAY. UTILIZE THE SPARE 4" CONDUIT TO ROUTE THE TEMPORARY 13.2KV FEEDER TO THE SUBSTATION #2 TRANSFORMER. REMOVE FEEDER UPON REMOVAL OF THE SUBSTATION TRANSFORMERS AND SPLICE TO THE COGENERATION FEED PER DRAWING NOTE 4 ON THIS PAGE.

(2) FIELD ROUTE 4000A SERVICE ENTRANCE FEEDERS TO 480V MAIN SWITCHGEAR. CONDUITS SHALL BE TRAPEZE MOUNTED FROM THE DOT STORAGE CEILING.

(3) GALVANIZED STEEL PULL BOX 32"X32"X18" TO BE MOUNTED ABOVE THE HALLWAY DROP CEILING.

(4) 13.2KV FEEDER FROM SWITCHGEAR BREAKER G1. FEED TO BE FIELD ROUTED TO THE PRIMARY SIDE OF SUBSTATION 1 TRANSFORMER AND JUMPERED TO THE PRIMARY SIDE OF SUBSTATION 2 TRANSFORMER TO SERVE AS A TEMPORARY FEED PER THE PHASING PLAN IN THE PROJECT MANUAL. UPON REMOVAL OF THE EXISTING SUBSTATION TRANSFORMERS, CONTRACTOR SHALL SPLICE TO THE EXISTING COGENERATION FEED CURRENTLY FEEDING THE LOAD BREAK SWITCH IN THE MECHANICAL EQUIPMENT ROOM.

1 (5) ROUTE 1-2" RGS CONDUIT TO SECURITY OFFICE FOR CONNECTION TO EXISTING CCTV SYSTEM. ALSO ROUTE 1-2" RGS CONDUIT TO SECURITY OFFICE FOR CONNECTION TO EXISTING FIRE ALARM SYSTEM. CCTV CABLE SHALL BE 16 FIBER 50/125 MULTIMODE FIBER OPTIC CABLE. PROVIDE 12"X12"X6" JUNCTION BOX IN SECURITY OFFICE FOR FIBER OPTIC CONVERSION EQUIPMENT TO BE PROVIDED BY THE STATE. COIL 6' SPARE CABLE IN JUNCTION BOX.

(6) ROUTE 2-2" RGS CONDUITS TO CONTROL ROOM FOR SCADA MONITORING OF SUBSTATION EQUIPMENT.

(7) ROUTE 2-2" RGS CONDUITS TO ELECTRICAL ROOM #1 FOR CONNECTION TO REMOTE PLC CONTROL SYSTEM FOR 480V SWITCHGEAR.

(8) SUBSTATION MIMIC PANEL TO BE INSTALLED IN CONTROL ROOM.

(9) EXISTING SECURITY OFFICE LOCATED ON FLOOR ABOVE TELEPHONE SERVER ROOM.

(10) PROVIDE AND INSTALL 2-2X4 FLUORESCENT LIGHT FIXTURES IN NEW CEILING WIRED FROM EXISTING 20A, 120V LIGHTING CIRCUIT.

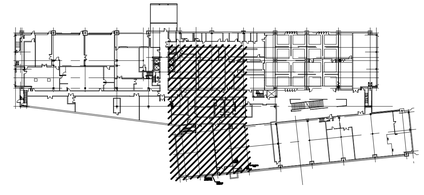
(11) EXISTING SWITCH TO BE USED AS PULLBOX FOR COGEN FEEDER.

(12) ROUTE 6-3.5", 2-2.5" AND 1-2" RGS METAL CONDUITS VIA TRAPEZE MOUNTING ABOVE EXISTING DROP CEILING. FOR EXISTING SUBSTATION 2 RELOCATE LOADS TO SWITCHGEAR E-1.

1 (13) ROUTE CAT6A CABLE WITH OVERALL SHIELD IN 3/4" RGS CONDUIT FROM SECURITY OFFICE TO CONTROL ROOM FOR CCTV MONITOR. PROVIDE 20' SPARE CABLE COILED AT EACH END OF CONDUIT FOR FACILITY USE.

(14) EXISTING MASTER CONTROL PANEL.

REVISED DRAWING 8-9-2016



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BALTIMORE, MD 21228

STATE OF NEW YORK
ANDREW JONATHAN HAY
LICENSE No. 089313-1
LICENSED PROFESSIONAL ENGINEER
6/17/16

CONTRACT: ELECTRICAL

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
1	08-09-2016	ADDENDUM NO. 1
	06-22-2016	FINAL SUBMISSION

PROJECT NUMBER:	44180-E
DESIGNED BY:	JTM
DRAWN BY:	KT
FIELD CHECK:	JTM
APPROVED:	WAE

SHEET TITLE: BASEMENT PART PLAN - ELECTRICAL - CONSTRUCTION WORK

DRAWING NUMBER: E-102

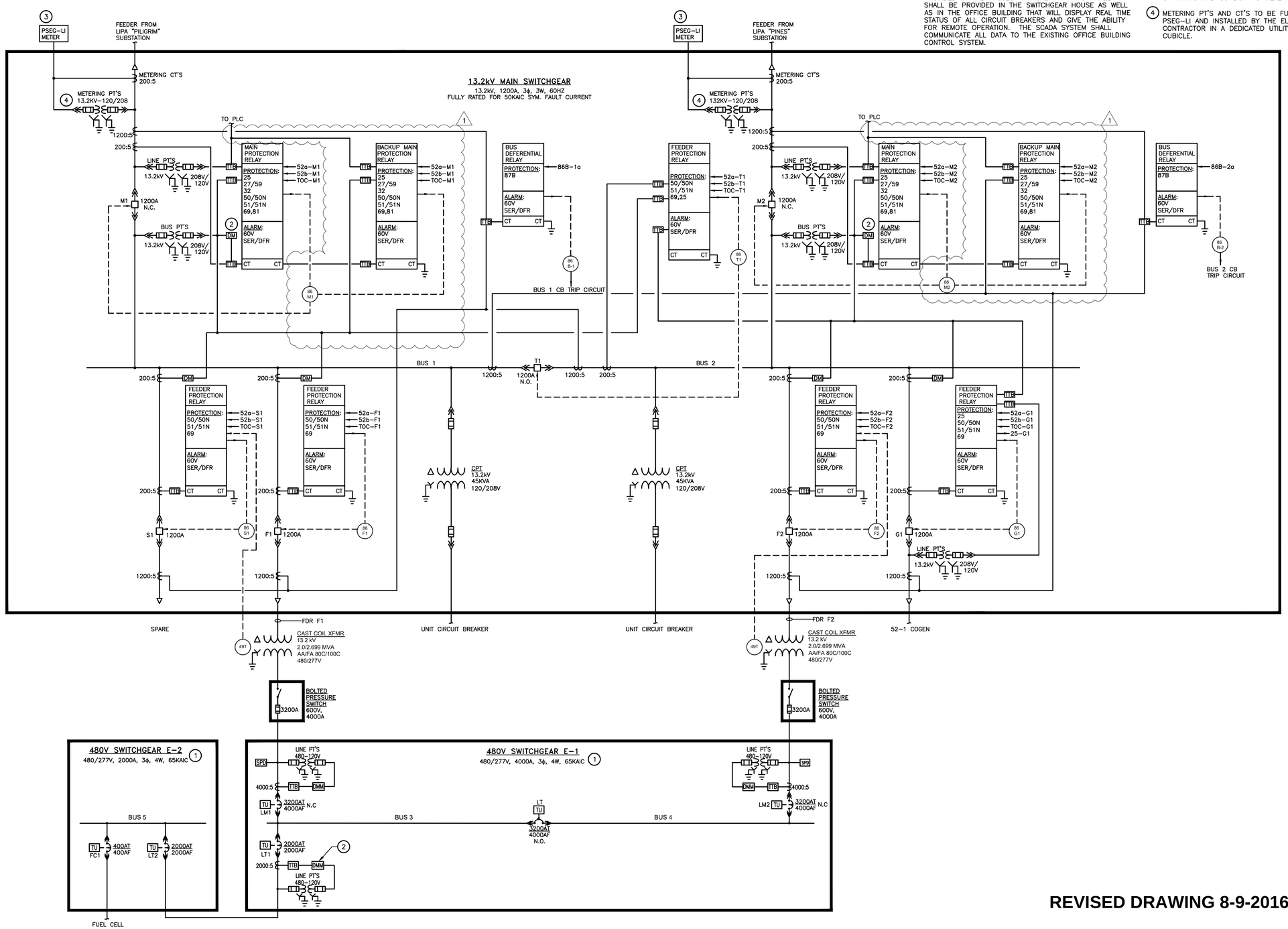
SHEET 08 OF 27

GENERAL NOTES:

1. 13.2KV SWITCHGEAR AND 480V SWITCHGEAR TO BE PROVIDED BY SAME MANUFACTURER. IT SHALL BE THIS MANUFACTURER'S RESPONSIBILITY TO PROVIDE AN INTEGRATED PLC CONTROL SYSTEM CAPABLE OF METERING ALL 13.2KV FEEDERS AS WELL AS 480V MAIN AND TIE BREAKERS, REMOTELY OPERATE ALL CIRCUIT BREAKERS IN THE 13.2KV AND 480V SWITCHGEAR, AND AUTOMATICALLY SOURCE TRANSFER AT THE 13.2KV AND 480V LEVEL IN ACCORDANCE WITH THE SEQUENCE OF OPERATIONS PROVIDED IN THE PROJECT MANUAL. A MIMIC PANEL SHALL BE PROVIDED IN THE SWITCHGEAR HOUSE AS WELL AS IN THE OFFICE BUILDING THAT WILL DISPLAY REAL TIME STATUS OF ALL CIRCUIT BREAKERS AND GIVE THE ABILITY FOR REMOTE OPERATION. THE SCADA SYSTEM SHALL COMMUNICATE ALL DATA TO THE EXISTING OFFICE BUILDING CONTROL SYSTEM.

DRAWING NOTES:

1. SWITCHGEAR E–1 AND E–2 TO BE PROVIDED WITH ZONE SELECTIVE INTERLOCKING.
2. PROVIDE PROVISIONS INCLUDING DOOR CUT–OUT, CT'S WITH SHORTING BLOCKS, AND PT TERMINALS FOR CONNECTION TO EXISTING ION 7650 METER.
3. REVENUE METER TO BE PROVIDED AND INSTALLED BY PSEG–LI. CONTRACTOR TO INSTALL PT AND CT WIRING AND CONDUIT TO METER.
4. METERING PT'S AND CT'S TO BE FURNISHED BY PSEG–LI AND INSTALLED BY THE ELECTRICAL CONTRACTOR IN A DEDICATED UTILITY METERING CUBICLE.



REVISED DRAWING 8-9-2016

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STATE OF NEW YORK · ANDREW JONATHAN HAY · No. 089313 · LICENSED PROFESSIONAL ENGINEER · 6/17/16

CONTRACT: ELECTRICAL

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
1	08–09–2016	ADDENDUM NO. 1
	06–22–2016	FINAL SUBMISSION

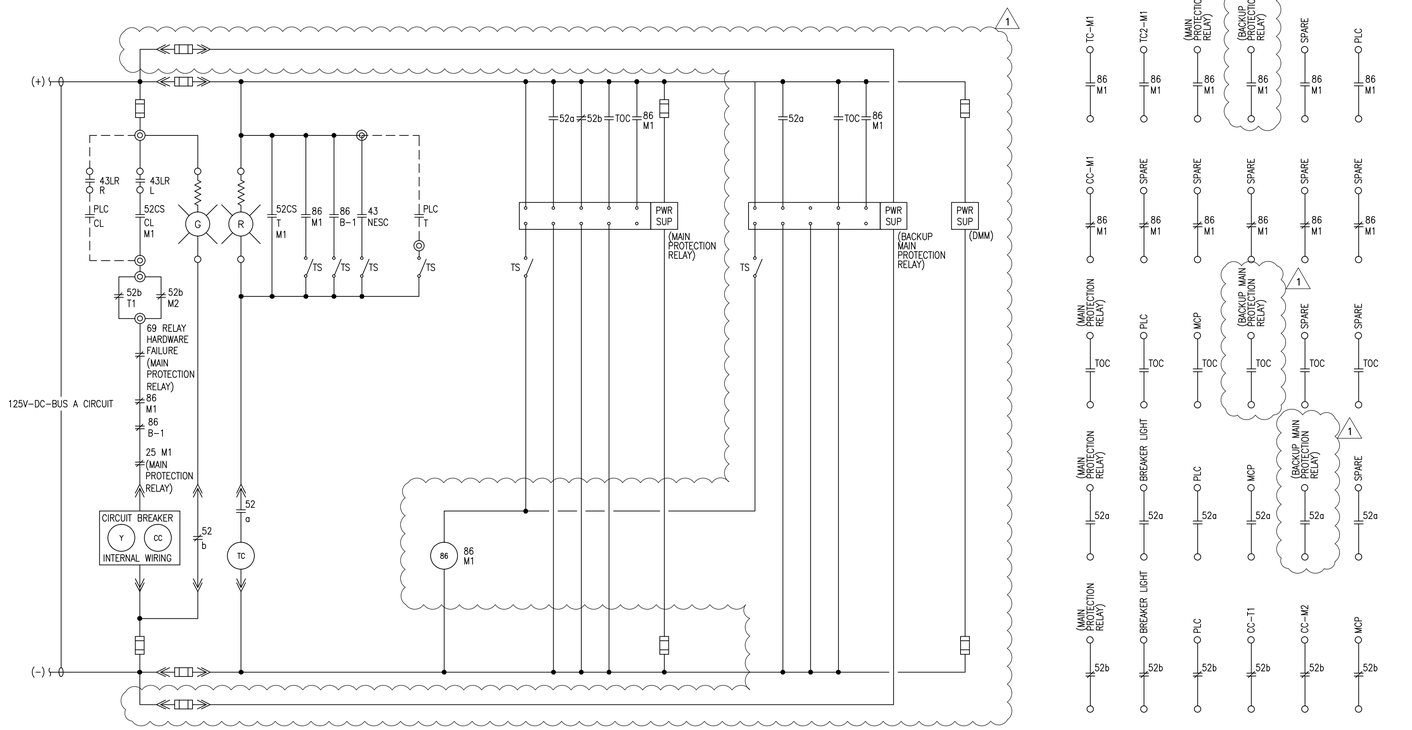
PROJECT NUMBER:	44180–E
DESIGNED BY:	JTM
DRAWN BY:	PRC
FIELD CHECK:	JTM
APPROVED:	AJH

SHEET TITLE:

13.2kV ELECTRICAL SYSTEM RELAY DIAGRAM - CONSTRUCTION WORK

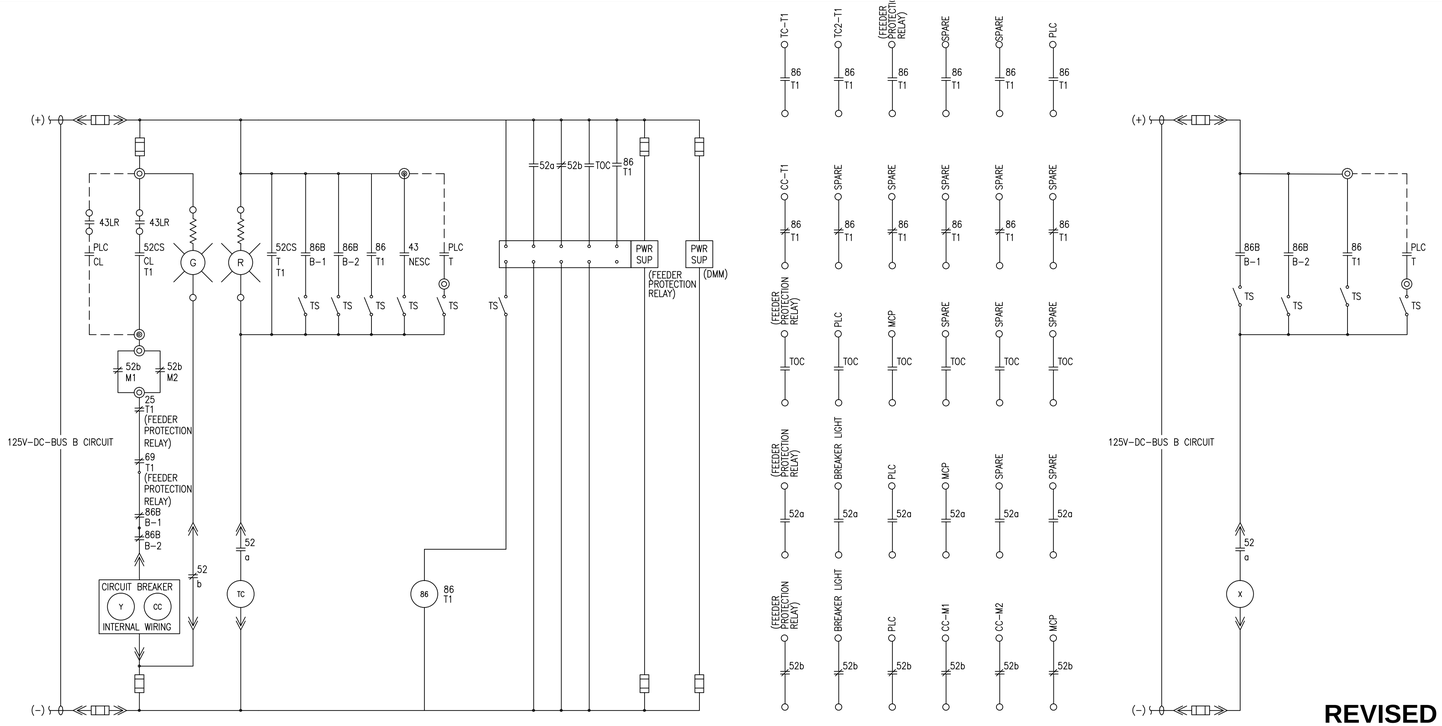
DRAWING NUMBER: E-603

SHEET 18 OF 27



C.B. M1 – 13.2kV SWITCHGEAR MAIN

SCALE: NOT TO SCALE



C.B. T1 – 13.2kV SWITCHGEAR TIE

SCALE: NOT TO SCALE

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ANDREW JONATHAN HAY
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6/17/16

CONTRACT: ELECTRICAL

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG.
250 VETERANS MEMORIAL HIGHWAY,
HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
1	08-09-2016	ADDENDUM NO. 1
	06-22-2016	FINAL SUBMISSION

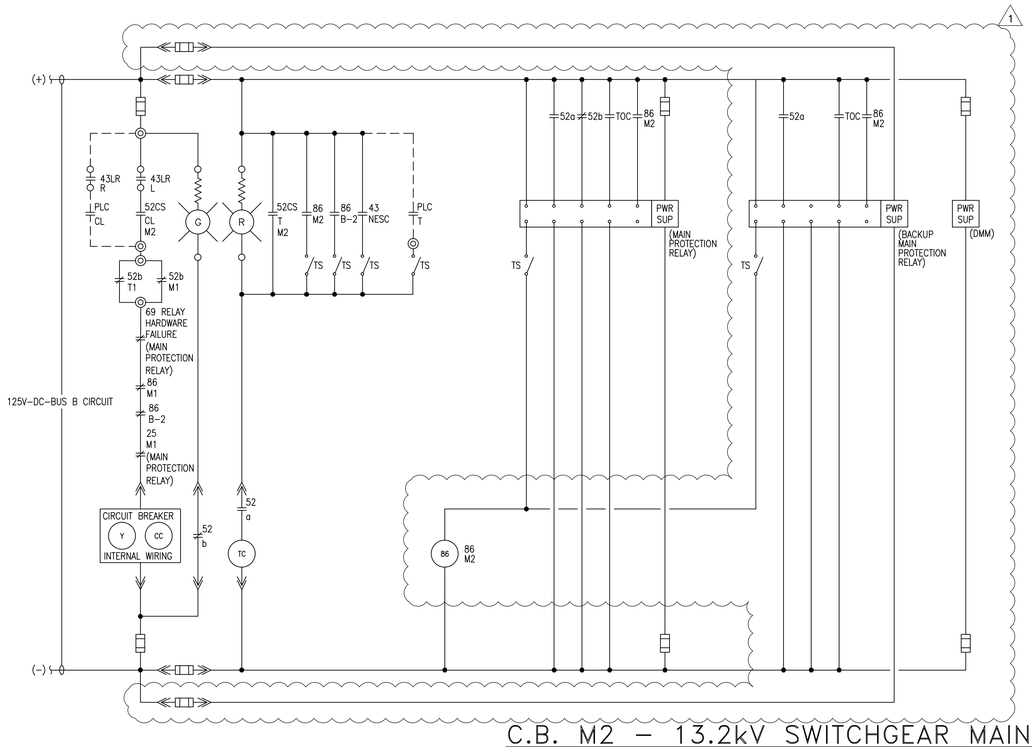
PROJECT NUMBER:	44180-E
DESIGNED BY:	JTM
DRAWN BY:	PRC
FIELD CHECK:	JTM
APPROVED:	AJH

SHEET TITLE:

CIRCUIT BREAKER
CONTROL SCHEMATICS

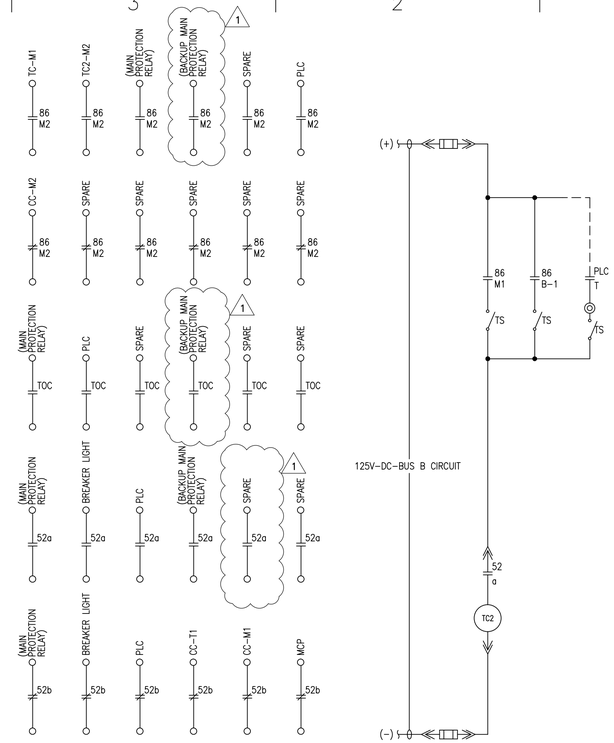
DRAWING NUMBER: E-607

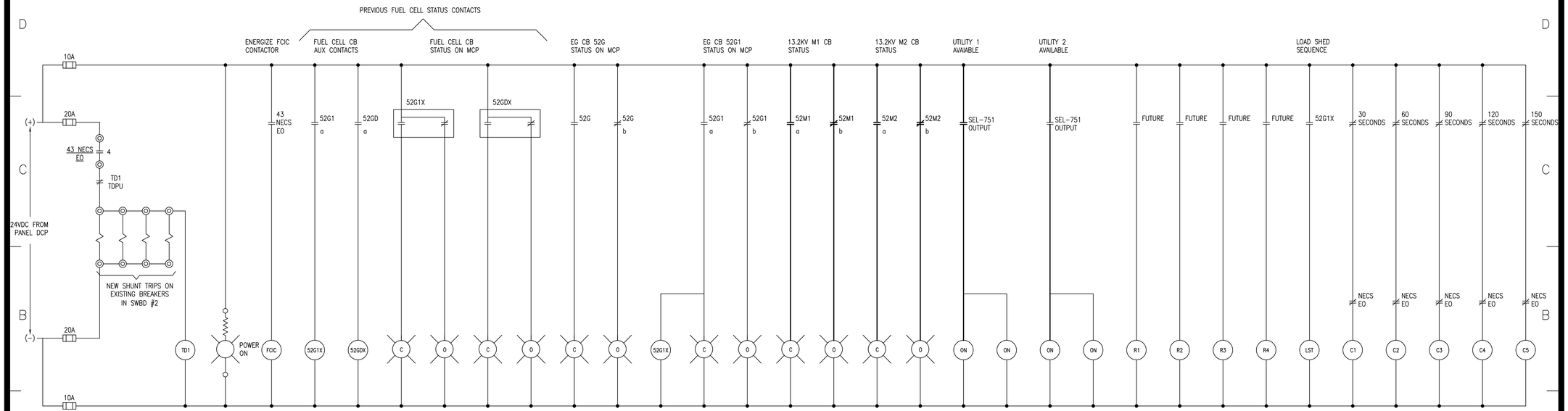
SHEET 22 OF 27



C.B. M2 – 13.2kV SWITCHGEAR MAIN

SCALE: NOT TO SCALE





EXISTING MASTER CONTROL PANEL

SCALE: NOT TO SCALE

REVISED DRAWING 8-9-2016

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BALTIMORE, MD 21228

CONTRACT: ELECTRICAL

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

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	06-22-2016	FINAL SUBMISSION

PROJECT NUMBER:	44180-E
DESIGNED BY:	JTM
DRAWN BY:	PRC
FIELD CHECK:	JTM
APPROVED:	AJH

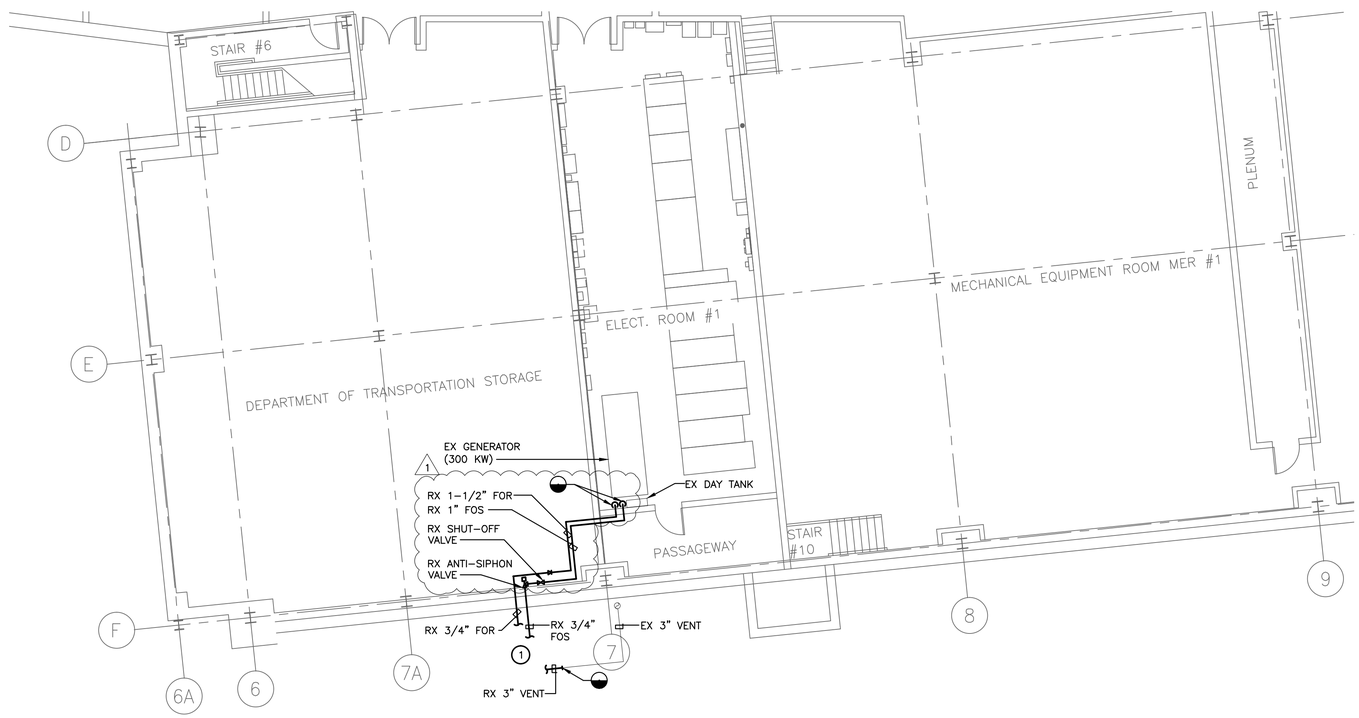
SHEET TITLE: CIRCUIT BREAKER CONTROL SCHEMATICS

DRAWING NUMBER: E-608

SHEET 23 OF 27

DRAWING NOTES:

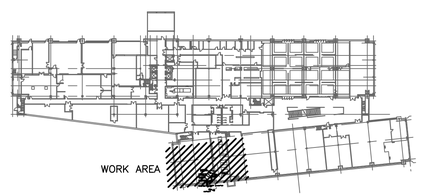
1. REFER TO DRAWING CM-201 FOR CONTINUATION OF FUEL OIL SUPPLY, FUEL OIL RETURN, AND VENT PIPING.



BASEMENT PART PLAN - REMOVALS

SCALE: 1/8" = 1-0'

REVISED DRAWING 8-9-2016



KEY PLAN
SCALE: NONE

GRAPHIC SCALE
8 4 0 8 16
SCALE: 1/8"=1'-0"
UNIT OF MEASURE: FEET

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STATE OF NEW YORK · ROBERT D. YAX · 075446 · LICENSED PROFESSIONAL ENGINEER
JUNE 22, 2016

CONTRACT: HVAC

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
1	08-09-2016	ADDENDUM NO. 1
	6-22-2016	FINAL SUBMISSION

PROJECT NUMBER:	44180-H
DESIGNED BY:	JTM
DRAWN BY:	KT
FIELD CHECK:	JTM
APPROVED:	WAE

SHEET TITLE: BASEMENT PART PLAN - MECHANICAL - REMOVALS

DRAWING NUMBER: M-101

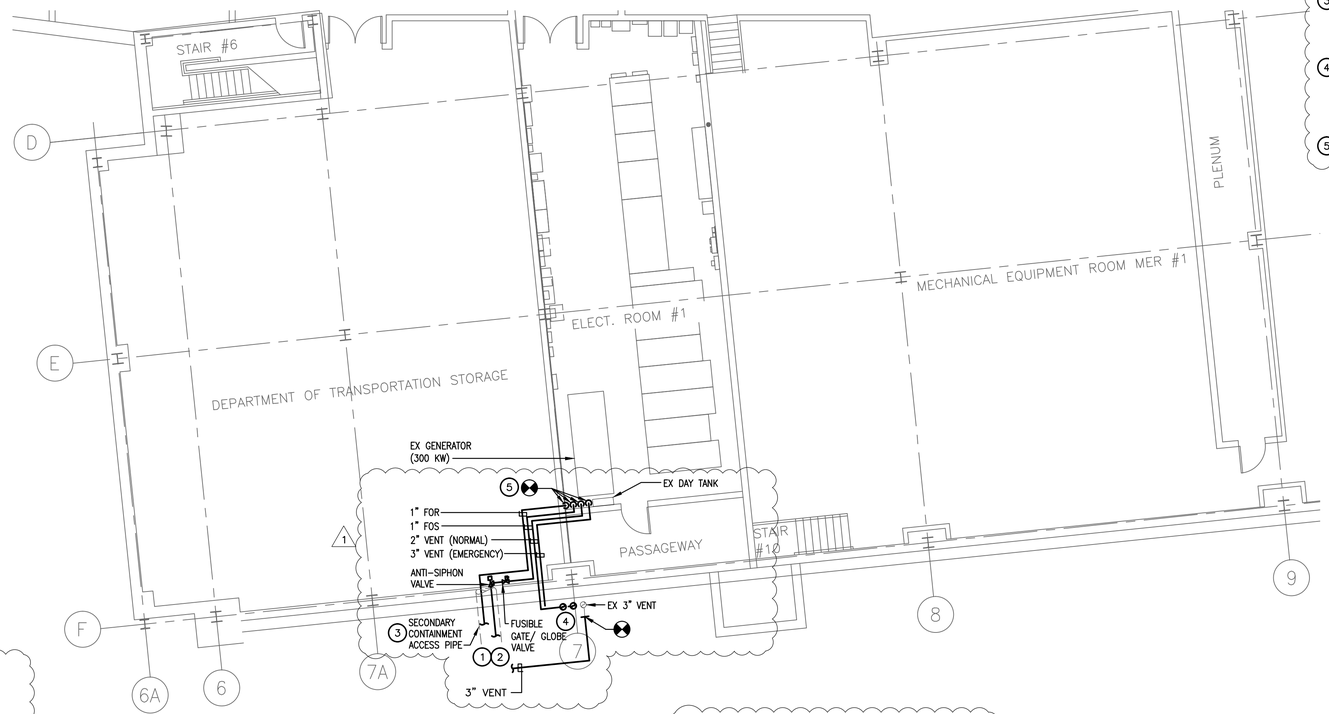
SHEET 4 OF 9

GENERAL NOTES:

1. PROVIDE LEAK DETECTION PANEL ABOVE DAY TANK. UTILIZE EXISTING LEAK DETECTION CONDUIT INSIDE BUILDING FOR UNDERGROUND TANK INTERSTITIAL MONITORING AND FUEL OIL DOUBLE WALL PIPE MONITORING. LEAK DETECTION SHALL REPORT TO GENERATOR CONTROL PANEL.
   1.1. UPON DETECTION OF LEAK, A NOTIFICATION SHALL BE SENT TO THE BMS AND SHALL BE MANUALLY RESET AT GENERATOR CONTROL PANEL.
2. TEST, ADJUST, AND BALANCE FUEL OIL SYSTEM AND GENERATOR.

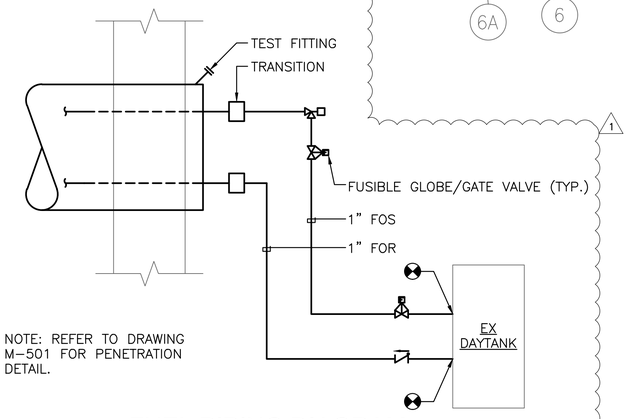
DRAWING NOTES:

1. REFER TO DRAWING CM–201 FOR CONTINUATION OF FUEL OIL SUPPLY, FUEL OIL RETURN, AND VENT PIPING.
2. EXTEND FUEL OIL CONDUIT INSIDE BUILDING WITH LINK SEAL AT WALL PENETRATION. PROVIDE CONDUIT END SEAL, DRAIN, AND TEST LEAK DETECTION SYSTEM. ON 3/4" FUEL OIL SUPPLY LINE, PROVIDE ANTI–SIPHON VALVE DIRECTLY INSIDE BUILDING, FOLLOWED IMMEDIATELY BY FUSIBLE LINK VALVE.
3. PROVIDE FLEXIBLE DOUBLE WALL PIPING IN SECONDARY CONTAINMENT ACCESS PIPE. TERMINATE AND SEAL SECONDARY CONTAINMENT PIPE AT WALL. PROVIDE END SEAL DRAIN.
4. TERMINATE VENTS 12–FEET ABOVE GRADE. PROVIDE EMERGENCY PRESSURE RELIEF VENT CAP ON EMERGENCY VENT AND RAIN CAP ON NORMAL VENT. VENTS SHALL BE MINIMUM 5–FEET FROM OPENINGS AND OPERABLE WINDOWS.
5. PROVIDE FIRE SAFETY FUSIBLE LINK VALVE AT DAY TANK.



BASEMENT PART PLAN - CONSTRUCTION WORK

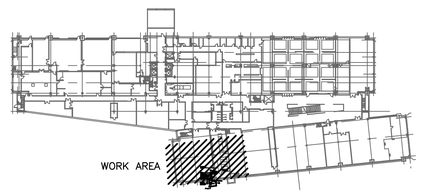
SCALE: 1/8" = 1–0'



FUEL PIPING DIAGRAM

SCALE: NONE

REVISED DRAWING 8-9-2016



GRAPHIC SCALE
8 4 0 8 16
SCALE: 1/8"=1'–0"
UNIT OF MEASURE: FEET

KEY PLAN
SCALE: NONE

N

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STATE OF NEW YORK · LICENSED · ROBERT D. YAX · 075446 · PROFESSIONAL ENGINEER
JUNE 22, 2016

CONTRACT: HVAC

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

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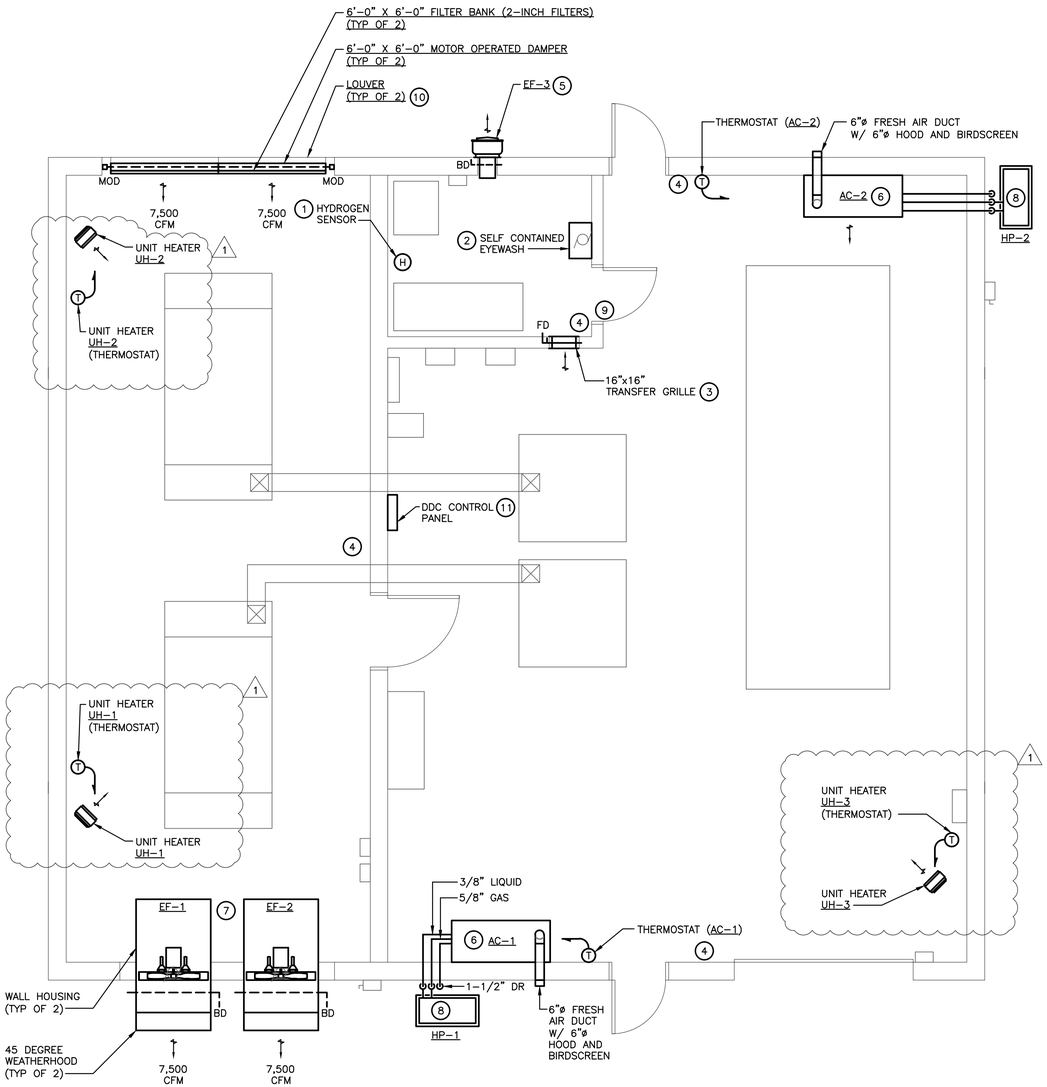
1	08–09–2016	ADDENDUM NO. 1
	6–22–2016	FINAL SUBMISSION

PROJECT NUMBER:	44180–H
DESIGNED BY:	JTM
DRAWN BY:	KT
FIELD CHECK:	JTM
APPROVED:	WAE

SHEET TITLE: BASEMENT PART PLAN - MECHANICAL - CONSTRUCTION WORK

DRAWING NUMBER: M-102

SHEET 5 OF 9



SWITCHGEAR HOUSE – MECHANICAL PLAN – CONSTRUCTION WORK

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

GENERAL NOTES:

1. EQUIPMENT REQUIRING PENETRATIONS OR ANCHORING TO THE PRE-CAST PANELS ARE CRITICAL COORDINATION ITEMS AND SUBMITTALS ARE TO BE PROVIDED AS SOON AS POSSIBLE.

DRAWING NOTES:

1. STORAGE BATTERY SYSTEMS, INC. (SBS) HYDROGEN GAS DETECTOR MODEL HGDI-DR.
2. EYE WASH SHALL BE PORTABLE TYPE WITH INTEGRAL HEATING ELEMENT. UNIT SHALL BE EQUIPPED WITH A HEATER, SPILL CONTAINMENT, AND BE ANSI Z358.1 COMPLIANT.
3. PROVIDE 16"x16" WALL TRANSFER GRILLE. GRILLE SHALL BE OF STEEL CONSTRUCTION, 3/4" BLADE SPACING, 0 DEGREE DEFLECTION, AND MANUFACTURER'S STANDARD FINISH. BASIS OF DESIGN IS TITUS-HVAC MODEL 350ZRS OR APPROVED EQUAL. PROVIDE FIRE DAMPER.
4. PROVIDE FIRE EXTINGUISHER. 10 POUND WALL MOUNT MULTI-PURPOSE TYPE ABC.
5. MOUNT EF-3 HIGH NEAR CEILING. REFER TO ARCHITECTURAL DRAWINGS FOR MOUNTING HEIGHT.
6. MOUNT AIR CONDITIONING UNITS APPROXIMATELY 12' AFF.
7. REFER TO ARCHITECTURAL DRAWINGS FOR EXHAUST FAN MOUNTING HEIGHT.
8. MOUNT HEAT PUMP ON 4-INCH CONCRETE PAD.
9. PROVIDE NFPA 1 SIGNAGE ON INTERIOR AND EXTERIOR OF BATTERY ROOM DOOR.
10. BLANK OFF BOTTOM 4-FEET OF LOUVER. REFER TO ARCHITECTURAL DRAWINGS FOR DIMENSIONS AND ELEVATIONS.
11. DDC CONTROL SYSTEM SHALL BE TIED INTO EXISTING BMS SYSTEM.

MECHANICAL LEGEND

SYMBOL	ABBREVIATION	DESCRIPTION
☒	SA	SUPPLY AIR
⧄	RA	RETURN AIR
⧄	EA	EXHAUST AIR
–	OA	OUTSIDE AIR
(H)	–	HYDROGEN SENSOR
	–	AIR FLOW
(T)	–	THERMOSTAT
	VD	VOLUME DAMPER
	FD	FIRE DAMPER
	BD	BACK DRAFT DAMPER
–	AC	AIR CONDITIONER
–	HP	HEAT PUMP

REVISED DRAWING 8-9-2016

GRAPHIC SCALE
4 2 0 4 8
SCALE: 1/4"=1'-0"
UNIT OF MEASURE: FEET

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STATE OF NEW YORK · ROBERT D. YAX · 075446 · LICENSED PROFESSIONAL ENGINEER
June 22, 2016

CONTRACT: HVAC

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

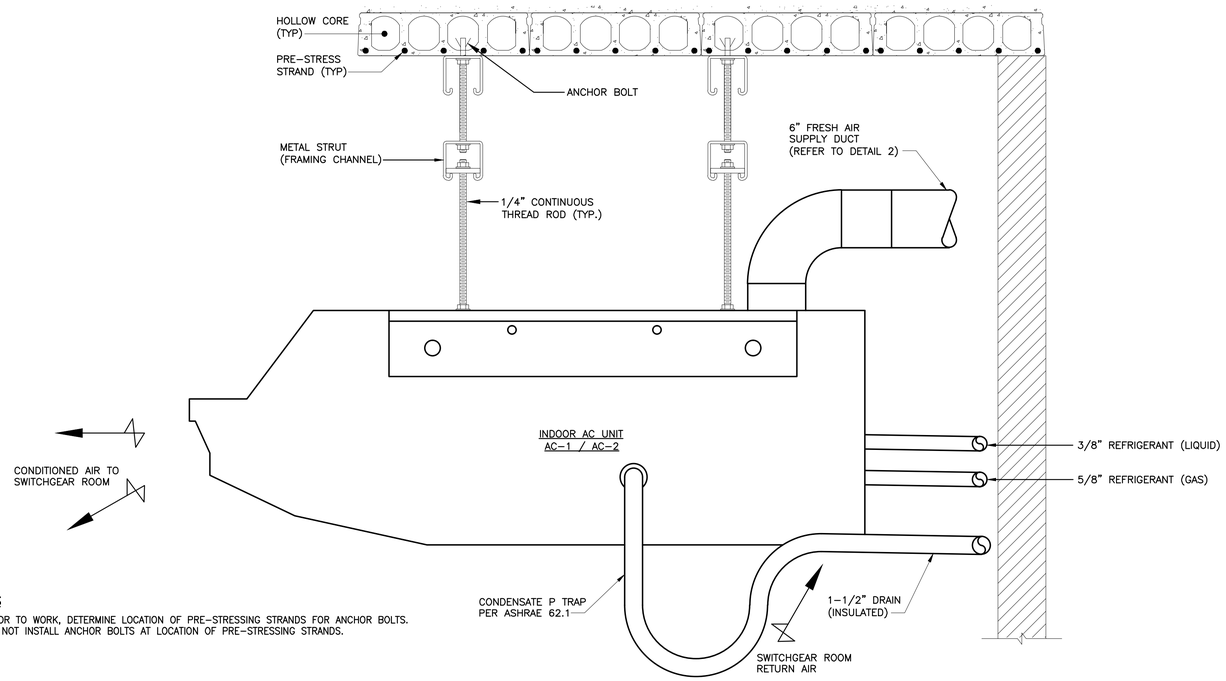
MARK	DATE	DESCRIPTION
1	08-09-2016	ADDENDUM NO. 1
	6-22-2016	FINAL SUBMISSION

PROJECT NUMBER:	44180-H
DESIGNED BY:	EEC
DRAWN BY:	EEC
FIELD CHECK:	–
APPROVED:	WAE

SHEET TITLE: SWITCHGEAR HOUSE - MECHANICAL - CONSTRUCTION WORK

DRAWING NUMBER: M-401

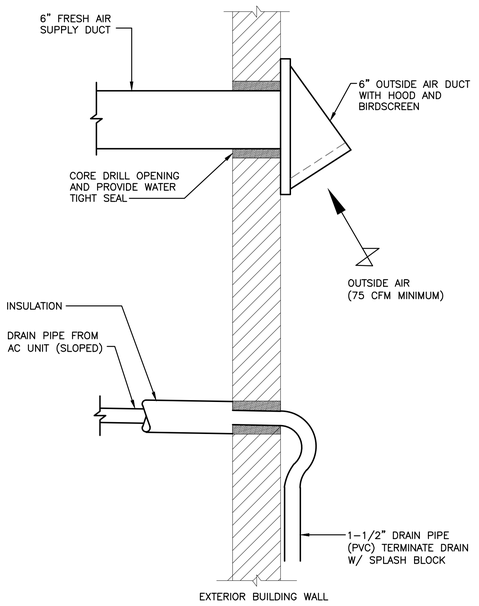
SHEET 6 OF 9



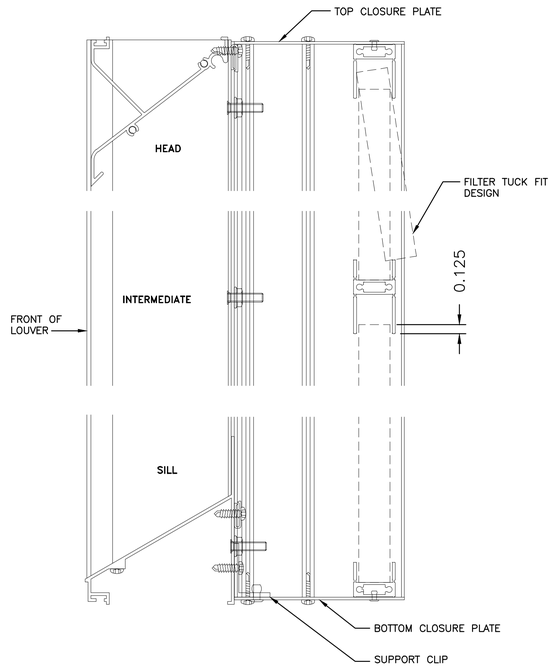
NOTES

1. PRIOR TO WORK, DETERMINE LOCATION OF PRE-STRESSING STRANDS FOR ANCHOR BOLTS.
2. DO NOT INSTALL ANCHOR BOLTS AT LOCATION OF PRE-STRESSING STRANDS.

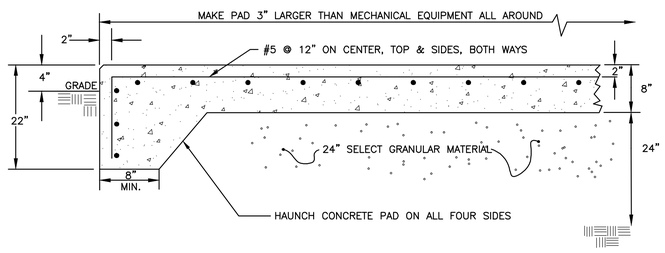
AC UNIT INSTALLATION — SCALE: NONE — 1



AC UNIT DUCT AND DRAIN — SCALE: NONE — 2



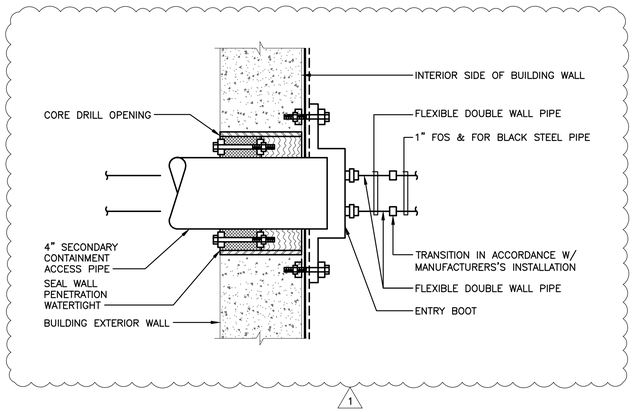
LOUVER AND FILTER BANK ASSMEBLY — SCALE: NONE — 3



NOTES:

1. SEE ELECTRICAL DRAWINGS FOR PAD DIMENSIONS.
2. CONTRACTOR SHALL INSTALL 24" OF #57 STONE OR APPROVED EQUAL BENEATH PAD.

EXTERIOR PAD DETAIL — SCALE: NONE — 4



REVISED DRAWING 8-9-2016

PIPE WALL PENETRATION DETAIL — SCALE: NONE — 5

NYS OFFICE OF GENERAL SERVICES

Serving New York

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Governor
ROANN M. DESTITO
Commissioner

CONSULTANT

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STATE OF NEW YORK · ROBERT D. YEE · 075446 · LICENSED PROFESSIONAL ENGINEER · June 22, 2016

CONTRACT: HVAC

TITLE: REPLACE SWITCHGEAR

LOCATION: PERRY B. DURYEA STATE OFFICE BLDG. 250 VETERANS MEMORIAL HIGHWAY, HAUPPAUGE, NY 11788

CLIENT: NYS OFFICE OF GENERAL SERVICES

MARK	DATE	DESCRIPTION
1	08-09-2016	ADDENDUM NO. 1
	6-22-2016	FINAL SUBMISSION

PROJECT NUMBER:	44180-H
DESIGNED BY:	EEC
DRAWN BY:	EEC
FIELD CHECK:	–
APPROVED:	WAE

SHEET TITLE: HVAC DETAILS

DRAWING NUMBER: M-501

SHEET 7 OF 9