STATE OF NEW YORK
OFFICE OF GENERAL SERVICES
DESIGN AND CONSTRUCTION GROUP
THE GOVERNOR NELSON A. ROCKEFELLER
EMPIRE STATE PLAZA
ALBANY, NY 12242

**ADDENDUM NO. 4 TO PROJECT NO. 44003**

**ELECTRICAL WORK**
**PROVIDE SITE ELECTRIC**
**DISTRIBUTION – PHASE 2**
**CREEDMOOR PSYCHIATRIC CENTER**
**80-45 WINCHESTER BLVD**
**QUEENS VILLAGE, NEW YORK**

January 26, 2012

**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.

**SPECIFICATIONS**

1. SPECIFICATION SECTION 00-7309 SUPPLEMENTARY CONDITIONS – LICENSE REQUIREMENTS: Add the accompanying Section to Project Manual.

2. SPECIFICATION SECTION 09-9102 ELECTRICAL PAINTING: Add the following:

   "1.07 APPLICATIONS

   A. Exterior: paint all exposed electrical junction/pull boxes and raceway to match surrounding surfaces.

   B. Interior: paint all exposed electrical junction/pull boxes and raceway to match surrounding surfaces in finished spaces."

3. SPECIFICATION SECTION 26-0513 PRIMARY TERMINATIONS – 15KV NOMINAL: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 260513 – 1 thru 260513 – 5) noted Revised 01/23/2012".

4. SPECIFICATION SECTION 26-1219 TRANSFORMERS – PAD MOUNTED: Discard the Section bound in the Project Manual and substitute the accompanying Section (pages 261219 – 1 thru 261219 – 5) noted Revised 01/23/2012".

**DRAWINGS**

5. Drawing No. P-101:
   a. GAS SERVICE NOTE, add note no. 2 to read as follows:

      "CONTRACTOR SHALL CONTRACT CON-EDISON OR CON-EDISON CERTIFIED CONTRACTOR FOR THE INSTALLATION OF THE INDICATED WORK. THE CONTRACTOR SHALL CONTACT CON-EDISON FIVE DAYS IN ADVANCE FOR INSPECTION IF WORK IS NOT COMPLETED BY CON-EDISON. THE CONTRACTOR IS REPSONSIBLE FOR ALL COSTS ASSOCIATED WITH THE INSTALLATION OF THE GAS LINE INCLUDING BUT NOT LIMITED TO FEES, CONNECTIONS, TRENCHING, BACKFILLING, PIPING, METER, REGULATOR, VALVES, AND FITTINGS. CONTACT BRIAN MCARDLE(718-802-5709) AT CON-EDISON FOR REQUIREMENTS FOR THE GAS SERVICE INSTALLATION. FOR BIDDING PURPOSES ALLOW $12,000 FOR CON EDISON SCOPE OF WORK"

6. Drawing No. E-104:
   a. ELECTRIC WORK KEY, amend note no. 7 to read as follows:

      "PROVIDE AUTOMATIC TRANSFER SWITCH: OPEN TRANSITION TYPE, 800-AMP RATED, 208Y/120V, 3-PHASE, 4-WIRE (SOLID NEUTRAL) IN A NEMA 1 ENCLOSURE".

**END OF ADDENDUM**

## SECTION 007309

## SUPPLEMENTARY CONDITIONS – LICENSE REQUIREMENTS

This supplement modifies the General Conditions. Where any part of the General Conditions is modified by this supplement, the unaltered provision of that part shall remain in effect.

### ARTICLE 25 - MISCELLANEOUS PROVISIONS

Add the following paragraphs:

25.9 Prime Contractor Qualification: Contractors shall comply with the current Electrical and Plumbing licensing requirements in accordance with the General Administrative Provisions of the New York City Construction Codes.

25.10 Electrical Work Contract: The Electrical Contractor must be a "Master Electrician Business", as defined in Title 27 of the New York City Administrative Code section of the New York City Electric Code, with current registration as an 'Electrical Firm' with the New York City Department of Buildings.

25.10.1 The firm must employ a holder of an active New York City Master Electrician License, registered with the New York City Department of Buildings as the firm's "Responsible Representative", who must supervise all of firm's physical work during course of the project.

25.10.2 Submit the New York City Electrical Firm Registration Number and the firm's Responsible Representative's current active New York City Master Electrician License Number to the Director's Representative for approval.

25.11 Plumbing Work Contract: The Plumbing Contractor must hold a current active New York City Department of Buildings Plumbing License. Submit license number to the Director's Representative for approval.

**END OF DOCUMENT**

# SECTION 260513

# PRIMARY TERMINATIONS - 15KV NOMINAL

## PART 1 GENERAL

### 1.01 REFERENCES TO STANDARDS

A. IEEE 48 Standard Test Procedures and Requirements for Live front High-Voltage Alternating-Current Cable Terminations.

### 1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 01 3300 does not apply to this Section.

B. Submittals Package: Submit the data specified below for preliminary approval all at the same time as a package. After preliminary approval, submit the data and samples specified below for final approval all at the same time as a package.
   1. Assemble submittal package in chronological order as indicated in the specifications sections and subsections; e.g., (26 0513-1.02C through 26 0513-2.06 ACCESSORIES

C. Submit the following for preliminary approval:
   1. Indicate Specification Section and Subsection at the top of each Catalog Sheet, Specifications and Installation Instructions.
   2. Splicing and termination data, including the following:
      a. Bill of materials.
         1) Indicate specification section and subsection next to each item listed on the Bill of materials; e.g., (16123-1.02, C, 4, f Drawings of splicings).
      b. Method of connecting conductors.
      c. Details of cable preparation.
      d. Method of applying materials (including quantities and recommended tools).
      e. Precautionary measures.
      f. Drawings showing method of splicing, complete with dimensions.
      g. Written statement from cable manufacturer that the specific splices and terminations submitted are acceptable.
      h. Written statement from splice/termination manufacturer that the specific splices and terminations submitted are suitable for the proposed application.

D. Final Approval: After preliminary approval, submit the following for final approval:
   1. Samples of splicing and termination materials if requested (complete kits will be returned and, if approved, may be used in the Work). Include:

a. Full roll of all tapes in original box or container, with the date of manufacture indicated thereon.
b. Other materials in sufficient quantity to construct a complete splice and labeled for identification.
c. Entire factory packaged kit if splice or termination is of the kit type.

2. Certificate of Training from Medium Voltage service group. Training to include.
   a. Detailed instruction on cable construction and how it relates to cable splices terminations and the use of separable connectors: loadbreak and dead break.
   b. Detailed instruction on how to prepare cable for the installation of live front terminations, inline splices and for all separable splices and dead front equipment terminations.
   c. Hands on training for cable preparation and cable accessory installation, operation of all separable splices and equipment connectors.
   d. Complete report of training services performed for the job and contracted lineman, the type and size of cable used, and the appropriate part numbers for the accessory connections as required from section A, B, and C.
   e. Report recommended method and test voltage levels for proof test.
3. Resume of each cable splicer's experience. Include:
   a. Details of type of high voltage splicing and terminations performed.
   b. Types of cables which were spliced.
   c. Job locations.
   d. Number of years performing splices and terminations.
   e. Certificate of training from the splice/termination manufacturer for heat-shrinkable products, if used.
4. Catalog sheets, specifications and installation instructions for all products.
5. Company Field Advisor 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.

E. Contract Closeout Submittals:
1. Test Report: (Test Record-Power Cable Proof Test) form (BDC-362).
2. Certificates:
   a. Affidavit, or signed job acceptance report by the splice and termination manufacturer's Company Field Advisor or the from Medium Voltage Services Group and notarized, certifying that the splices and terminations were constructed in accordance with the manufacturer's recommendations and are operating properly.

## 1.03 QUALITY ASSURANCE

A. Company Field Advisor: Secure the services of the cable manufacturer's Company Field Advisor for a minimum of 16 working hours for the following:
   1. Witness construction of at least one splice and one termination by each cable splicer who will be doing the actual cable splicing during the required training session.
      a. If the splices or terminations are other than the cable manufacturer's, secure the services of the splice and termination manufacturer's Company Field Advisor to concurrently witness construction of the splices and terminations and also certify with an affidavit that the splices and terminations were constructed in accordance with the splice and termination manufacturer's recommendations.
   2. Witness high voltage after installation test.
   3. Certify with an affidavit that the aforementioned particulars are satisfactory and the cable is installed in accordance with cable manufacturer's recommendations.

B. Cable Accessory Splicer Training and Field Services adviser: When required the Cable Manufacturer or Contractor should secure the services of a factory qualified field service provider.
   1. Medium Voltage Services Group - Northeast Headquarters, 610-438-1153.
   2. Thomas & Betts Field Services – Hackettstown NJ, 908-813-2147

C. Testing Company: Secure the services of a qualified independent testing company to perform specified field quality assurance testing, for a high voltage after installation test: Test Record-Power Cable Proof Test form BDC-362).
   1. Advanced Testing Systems, Inc., 15 Trowbridge Drive, Bethel, CT 06801, (203) 743-2001.
   2. ETL Testing Laboratories Inc. (Intertek), Industrial Park, Cortland, NY 13045, (607) 753-6711.
   3. Siemens Industrial Services, 1012D Greevy Ave North, Union, NJ 07083, (908) 620-7000
   4. High Energy Electrical Testing, Inc., 2119 Orien Road, Toms River, NJ 08755, (732) 286-4088.
   5. A&F Testing Inc., P.O. Box 446, St. James, NY 11780-0446, (631) 584 5625

## 1.05 MAINTENANCE

A. Special Tools: Furnish one set of special tools for the assembly of premolded splices (if used). Store them at the Site where directed.

## PART 2 PRODUCTS

### 2.01 TERMINATIONS

A. Materials: All materials required for a complete termination the standard product of one manufacturer, designed specifically for the type of cable and conductor to be terminated.

B. Ampere Rating: Not less than ampere rating of cable.

C. Voltage Rating: Not less than voltage rating of cable.

D. Manufacturer: Furnish terminations by one of the manufacturers listed below, if acceptable to the cable manufacturer.

1. IEEE 48 Class 1 outdoor Terminations:
   a. For Solid Dielectric Cables: 3M QT III, Raychem HVT, Prysmian PCT Elastimold PCT-1, 35MTG with appropriate sealing and grounding kit, or when required Capnut type pothead, cast iron, aluminum, bronze body or bell, wiping sleeve type, with insulating compound by Adalet-PLM, G & W Electric Co. Mac Products, Inc. or Joslyn High Voltage.
2. IEEE 48 Class 3 indoor Terminations:
   a. For Solid Dielectric Cables: Elastimold's PCT-1, 35MSC or 35MTGI, with cable shield adapter, 3M Tape Termination Kit or Cold-Shrink Terminations QT III , Prysmian PICT, Raychem Corp.'s Heat-Shrinkable High Voltage Termination System HVT.

### 2.06 ACCESSORIES

A. Arc Proofing Tapes:

1. Arc Proofing Tape: Mac Products Inc's AP30-30 or AP, Minnesota Mining & Mfg. Co.'s 3M 77, Plymouth Rubber Co.'s Plymouth Bishop 53 Plyarc, or Quelcor Inc.'s Quelpyre.
2. Glass Cloth Tape: Mac Products Inc.'s TAPGLA 5066, Minnesota Mining & Mfg. Co.'s 3M 69, or Plymouth Rubber Co.'s Plymouth Bishop 77 Plyglas.
3. Glass-Fiber Cord: Mac Products Inc.'s MAC 0527, or Quelcor Inc.'s QTC-250.

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 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.

## PART 3 EXECUTION

### 3.01 INSTALLATION

A. Terminations:
   1. At padmount transformers - tighten electrical connectors and terminals according to manufacturer's published torque-tightening values.

B. Phase Relationship: Connect feeders to maintain phase relationship through system. Phase legs of feeders shall match bus arrangements in equipment to which the feeders are connected. Use Elastimold PD35 Low Impedance phase meter with accessory test point to verify phase relationship.

**END OF SECTION**

# SECTION 261219

# TRANSFORMERS - PAD MOUNTED

## PART 1 GENERAL

### 1.01 REFERENCES

A. NEMA, ANSI/IEEE.

### 1.02 SUBMITTALS

A. Waiver of Submittals: The "Waiver of Certain Submittal Requirements" in Section 01 3300 does not apply to this Section.

B. Submittals Package:
   1. For Transformers Rated over 75KVA: Submit the product data, and quality control submittals preliminary data specified below at the same time as a package.

C. Product Data:
   1. Catalog sheets, specifications and installation instructions.
   2. Proof that enclosure integrity and finish meets latest specified ANSI C57.12.28, or C57.12.2.
   3. For Less-Flammable Liquid-Insulated Transformers: Proof of UL listing, including details required for the installation to comply with the listing.

D. Quality Control Submittals:
   1. Transformers Rated Over 75KVA:
      a. Preliminary Data: Submit certified report of the Company's standard tests for each type transformer. Test report format shall be NEMA "Transformer Test Report".
      b. Final Approval: After approval of preliminary data and after construction of transformers, make routine commercial ANSI/IEEE tests at the factory on the actual transformers and submit certified test reports. Test report format shall be NEMA "Transformer Test Report".

E. Contract Closeout Submittals:
   1. Operation and Maintenance Data: Deliver 2 copies, covering the installed products, to the Director's Representative.

### 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.

## PART 2 PRODUCTS

### 2.01 THREE PHASE COMPARTMENTAL PAD MOUNTED TRANSFORMERS

A. ABB Power T & D Company Inc.'s MTR or Plazapad, Alstom USA/Balteau's Three Phase Compartmental Padmount Transformers, Cooper Power Systems' Three Phase Compartmental Transformers, General Electric Co.'s Compad, Niagara Transformer Corp.'s OAPTD, or Square D Co.'s Three Phase Compartmental Transformers:

1. Cooling liquid, transformer mineral oil as recommended by the transformer Company.
2. Less-Flammable Cooling Liquid: A type listed by UL. Transformer construction, electrical requirements, and physical installation shall be in

accordance with the listing for the type of fluid being furnished, including:

a. Transformer tank capable of withstanding an internal pressure of 12 psig without rupture.
b. Transformer equipped with pressure relief devices having pressure relief capacity per the UL Classification Marking.
c. Integral primary fusing in accordance with the transformer manufacturer's protection scheme, which limits $I^2T$ to the value required by the transformers' UL Classification marking for the type of less-flammable fluid being used.

3. Average winding temperature rise not exceeding 55 degrees C.
4. Minimum of two 2-1/2 percent FCAN and two 2-1/2 percent FCBN primary taps.
5. Externally operated tap changer for operation when the transformer is de-energized.
6. Surge (lightning) arrester for each ungrounded conductor, metal-oxide varistor, heavy duty, distribution class (Tested in accordance with ANSI/IEEE C62.11 and IEC 99-4 for heavy duty arresters):
   a. Porcelain: Cooper Power Systems' VariSTAR Type AZL, or Joslyn Corp.'s ZQ Series.
   b. Polymer: Joslyn Corp.'s ZHP Series, General Electric Co.'s Tranquell Type 9L23, or Ohio Brass Co.'s Type PDV-100.
   c. Silicone: Cooper Power Systems' VariSTAR Type UHS.
   d. Rating: As recommended by arrester manufacturer.
   e. Location: High voltage compartment.
7. Four or five-legged core/coil construction.
8. Live front construction.
9. Enclosure Integrity: ANSI C57.12.28 1999 Pad Mounted Equipment-Enclosure Integrity.
10. Accessories and operating procedure which will allow access to the high-voltage compartment only after the door to the low-voltage compartment has been opened:
    a. Accessories:
       1) Door handle and three-point latching mechanism for low-voltage compartment door. Equip door handle with locking device that includes provision for securing door handle with padlock. Padlock: Furnished by Director's Representative.
       2) One or more captive and recessed pentahead bolts for additional security of the low-voltage compartment door.
       3) Key interlock between transformer low-voltage compartment door and pad mounted high voltage switch and fuse assembly so that transformer door cannot be opened unless the high voltage switch is in the open position. Match key interlock supplied with high voltage switch. Flush mount key interlock. Padlock type key interlocks are not acceptable.
       4) Internal locking device for high-voltage compartment door, which is accessible only after low-voltage compartment door is opened.
    b. Procedure:

1) Remove padlock securing low-voltage compartment door handle.
2) Release pentahead bolts.
3) Obtain key from key interlock provided on the pad mounted high voltage switch and fuse assembly serving the transformer. (High voltage switch must be in the open position before the key can be removed).
4) Insert key into key interlock on transformer low-voltage compartment door and release key interlock.
5) Operate door handle to unlatch and open low-voltage compartment door.
6) Release internal locking device that allows high-voltage compartment door to be opened.

## PART 3 EXECUTION

### 3.01 EXAMINATION

A. Examine areas and conditions for compliance with requirements for pad mount transformers.

B. Examine roughing-in of conduits and grounding systems to verify the following:

1. Wiring entries comply with layout requirements.
2. Entries are within conduit-entry tolerances specified by manufacturer and no feeders will have to cross section barriers to reach load or line lugs.

C. Examine walls, floors, roofs, and concrete bases for suitable mounting conditions where transformers will be installed.

D. Reconnect existing ground grids. Verify maximum ground resistance is 25-ohms at location of transformer.

E. Proceed with installation only after unsatisfactory conditions have been corrected.

### 3.02 INSTALLATION

A. Install transformers on existing concrete vaults.

B. Securely anchor transformers to existing concrete vaults according to manufacturer's written instructions.

## 3.03 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing and inspecting agency to perform the following field tests and inspections and prepare test reports:

1. Transformer oil analysis:

a. Determine transformer oil's dielectric breakdown, acidity and color.

2. Provide mega-ohm testing of transformer. Consult manufacturer for maintenance acceptance values.

B. After installing transformers but before primary is energized, verify that grounding system at transformer is 25-ohms or less.

## 3.04 VOLTAGE MONITORING AND ADJUSTMENT

A. Perform the following voltage monitoring after Substantial Completion but not more than six months after Final Acceptance:

1. During a period of normal load cycles as evaluated by Owner, perform seven days of three-phase voltage recording at secondary terminals of each transformer. Use voltmeters with calibration traceable to National Institute of Science and Technology standards and with a chart speed of not less than 1 inch per hour. Voltage unbalance greater than 1 percent between phases, or deviation of any phase voltage from nominal value by more than plus or minus 5 percent during test period, is unacceptable.

2. Corrective Actions: If test results are unacceptable, perform the following corrective actions, as appropriate:

a. Adjust transformer taps and retest.

3. Report: Prepare written report covering monitoring and corrective actions performed.

**END OF SECTION**