SQ # 10166

13.2 KV Feeder # 1 Repairs

SECTION "C" TECHNICAL SPECIFICATIONS

OWNER

Board of Trustees
Middlesex County College
2600 Woodbridge Avenue
P.O. Box 3050
Edison, New Jersey 08818-3050

PREPARED BY

John Mondano
Director of Facilities Maintenance
(732) 906-2567
(732) 906-4199 Fax

(September 11, 2014)

SECTION C - TECHNICAL SPECIFICATIONS

TABLE OF CONTENTS

1. SCOPE OF WORK

The purpose of these specifications is the completion of a contract to install medium voltage splice kits. This work will be performed at the main Middlesex County College campus in Edison, New Jersey, in the center of the campus.

The contractor shall provide all of the necessary labor, materials, tools and equipment required to complete the work described on the drawings and in these specifications as follows:

Work in Manhole # 5

- Furnish and install two full lengths of PVC Coated Unistrut across the top sides of the switch. Mount them with stainless steel threaded rod/bolts and stainless steel anchors securely to the sides of the existing manhole.
- Drill two (2) ventilation holes, 2" inches in diameter into the existing switch, one (1) on the top of the switch and one (1) on the bottom of the switch.
- Furnish and install two (2) fiberglass non-metallic supports in manhole and re-secure cables as necessary. All anchors and bolts are to be stainless steel. These non-metallic supports will be utilized to fasten both feeder #1 and feeder #2 to the side walls of the manhole.
- Furnish and install three (3) new Raychem 4/0 15KV splices (furnished by Contractor). Install three (3) Elastimold 4/0 15KV splices and sections of 4/0 15KV cable approximately 10' to 12' long, to repair existing damaged cables in the manhole. **NOTE: Elastimold splices and 4/0 15KV cable to be furnished by Middlesex County College.**
- Replace all Elastimold splices on feeder #1. A total of twelve (12) tee spices. Elastimold splices will be furnished by Middlesex County College.
- Arc proof all feeder # 1 cables in manhole.
- Repair and/or install fireproofing as needed. Existing Arc proof tape may be reused if not damaged. Any damaged tape shall be replaced with Scott 77C arc Proof tape applied in a half-lap layer starting from the exit point of the conduit and ending at the Elastimold Splice.

Work in Manhole #10

- Furnish and install two full lengths of PVC Coated Unistrut across the top sides of the switch. Mount them with stainless steel threaded rod/bolts and stainless steel anchors securely to the sides of the existing manhole.
- Drill two (2) ventilation holes, 2" inches in diameter into the existing switch, one (1) on the top of the switch and one (1) on the bottom of the switch.
- Furnish and install two (2) fiberglass non-metallic supports in manhole and re-secure cables as necessary. All anchors and bolts are to be stainless steel. These non-metallic

supports will be utilized to fasten both feeder #1 and feeder #2 to the side walls of the manhole.

- Replace all Elastimold splices on feeder #1. A total of nine (9) tee spices. Elastimold splices will be furnished by Middlesex County College.
- Arc proof all feeder # 1 cables in manhole.
- Repair and/or install fireproofing as needed. Existing Arc proof tape may be reused if not damaged. Any damaged tape shall be replaced with Scott 77C arc Proof tape applied in a half-lap layer starting from the exit point of the conduit and ending at the Elastimold Splice.

Work in Manhole # 7

- Furnish and install two full lengths of PVC Coated Unistrut across the top sides of the switch. Mount them with stainless steel threaded rod/bolts and stainless steel anchors securely to the sides of the existing manhole.
- Drill two (2) ventilation holes, 2" inches in diameter into the existing switch, one (1) on the top of the switch and one (1) on the bottom of the switch.
- Furnish and install two (2) fiberglass non-metallic supports in manhole and re-secure cables as necessary. All anchors and bolts are to be stainless steel. These non-metallic supports will be utilized to fasten both feeder #1 and feeder #2 to the side walls of the manhole.
- Replace all Elastimold splices on feeder #1. A total of nine (9) tee spices. Elastimold splices will be furnished by Middlesex County College.
- Arc proof all feeder # 1 cables in manhole.
- Repair and/or install fireproofing as needed. Existing Arc proof tape may be reused if not damaged. Any damaged tape shall be replaced with Scott 77C arc Proof tape applied in a half-lap layer starting from the exit point of the conduit and ending at the Elastimold Splice.

Work in Manhole # 9

- Furnish and install two full lengths of PVC Coated Unistrut across the top sides of the switch. Mount them with stainless steel threaded rod/bolts and stainless steel anchors securely to the sides of the existing manhole.
- Drill two (2) ventilation holes, 2" inches in diameter into the existing switch, one (1) on the top of the switch and one (1) on the bottom of the switch.
- Furnish and install two (2) fiberglass non-metallic supports in manhole and re-secure cables as necessary. All anchors and bolts are to be stainless steel. These non-metallic supports will be utilized to fasten both feeder #1 and feeder #2 to the side walls of the manhole.
- Replace all Elastimold splices on feeder #1. A total of nine (9) tee spices. Elastimold splices will be furnished by Middlesex County College.

- Repair and/or install fireproofing as needed. Existing Arc proof tape may be reused if not damaged. Any damaged tape shall be replaced with Scott 77C arc Proof tape applied in a half-lap layer starting from the exit point of the conduit and ending at the Elastimold Splice.

The contractor shall apply for and secure all required permits.

The contractor shall be required to attend a pre-construction meeting on campus at a time to be scheduled after the contract is awarded and other job progress meetings as required by the College.

The following is a list of drawings that are attached and are a part of these specifications and contract:

CAMPUS SITE PLAN
MANHOLE ELECTRICAL DRAWING

2. MATERIALS

The materials used under this contract shall be as specified on the drawings and in the specifications, be of a quality acceptable to the college and meet applicable codes.

3. INSTALLATION/EXECUTION

The work shall be completed during normal hours of operation Monday through Friday 8:00am through 4:30pm. The Contractor must document previous experience with spicing Kerite cable and Elastimold modular spice kits. Included in the bid submission a listing of five projects completed within the past three years utilizing Elastimold spices including the name of the qualified electrician that completed the work.

The college will also require confined space training certificates for any electrician entering or monitoring confined space (manholes) during the course of the project.

The manholes will contain live feeders during this work. Only feeder #1 will be de-energized.

Pre and post testing of feeder #1 will be required. Visual and mechanical inspection of the cables will be required. Cable inspection and testing shall consist of the following.

VISUAL AND MECHANICAL INSPECTION

1. Inspect exposed sections of the cables for physical damage.

2. Inspect bolted electrical connections/splices for high resistance using one or more of the following methods.

   A. Use of a low-resistance ohmmeter.

   B. Verify tightness of accessible bolted electrical splices by calibrated torque-wrench method in accordance with the manufacturer's recommendation.

3. Inspect compression-applied connectors for correct cable match and indentations.

4. Inspect shield grounding, cable supports, and terminations.

5. Inspect fireproofing.

6. Inspect for correct identification and arrangement.

7. Inspect cable jacket and insulation condition.

TESTING

In accordance with ICEA, IEC, IEEE and other power cable consensus standards, testing shall be performed by means of very low frequency (VLF) alternating current. This method will be used to perform insulation-withstand testing and baseline diagnostic tests such as partial discharge analysis, and power factor or dissipation factor. Testing values shall be as follows:

VERY LOW FREQUENCY TESTING LEVELS
0.1 HZ TESTING VOLTAGE (RMS) "Root-Mean-Square"

System Voltage Phase to Phase (kv)(rms)	Maintenance Voltage Phase to Ground (kv) (rms)
15	**16**

4. COMPLIANCE

The Contractor shall comply with all of the College's safety and work rules when

performing work at the college. All contractor employees, subcontractors, etc. shall sign-in daily at the Facilities Management Building upon arrival on campus to be issued a contractors identification badge. It is expected that all contractor employees will conduct themselves in a professional manner.

All Campus buildings will be occupied during this project. The contractor shall not interrupt or disturb any operations of the College during the completion of this project. Any work performed that could be loud or disruptive in nature must be done during unoccupied hours when the Camus is not occupied at no cost to the College.

Prior to any entry into the designated manholes, the contractor will be required to fill out confined space permits utilizing the College's Confined Space Entry Forms.

5. SITE CLEANUP

The work area shall be cleaned on a daily basis. Any opened manhole shall be barricaded with manhole safety railings. All service vehicles must remain on the pathways so not to cause any lawn damage. Any damage caused by the contractor shall be repaired at no cost to the college.

The contractor is to remove all trash, excavated materials, and other waste off site and disposed of it in accordance with current regulations. Provide the college with weight tickets for any materials that can be recycled if applicable. The cost for the testing of any materials prior to the removal from the campus as required by regulatory agencies is the responsibility of the contractor.

6. TIME CONSTRAINTS

If the Board of Trustees of Middlesex County College has approved an award on December 17, 2014 the Contractor can start shortly after all permits, insurance and written documentations are submitted to the Director of Purchasing and a Notice to Proceed is issued. If the Board has not approved the award on December 17, 2014, then the College will advise the contractor of an alternate start date. All work must be completed no later than 30 days from the date of the Notice to Proceed.

7. WORK HOURS

All work is to be performed during normal work hours 8:00 am to 4:30 pm, Monday through Friday. If additional work hours are required, they shall be included in the contractor's bid price and approval of the College shall be requested by the contractor in writing 48 hours prior to the desired work date.

The work hours in this section take precedent over, and will supersede any conflicting references to hours of work elsewhere in these plans and specifications.

8. WARRANTY

All materials and workmanship shall be replaced at no cost for a period of one year from the date of final payment unless noted otherwise.

9. PERMITS

The contractor shall apply for and secure all required building permits from Edison Township. The fee will be waived by Edison when a letter provided by the College is submitted with the application. As part of the permit process, Edison also requires a Contractor's License. This fee is the responsibility of the contractor. The contractor is also responsible for obtaining and paying for a fire permit or any other such permit that may be required by the Township of Edison.

The contractor is also responsible for coordinating and obtaining all inspections, approvals and the final Certificate of Occupancy or Approval. Final payment will not be made until all work is completed and the final Certificate and all close-out documents described in these specifications are received.

10. ADDITIONAL INFORMATION

Additional information may be obtained from the following individuals:

Facility/specifications:

John Mondano
Director of Facilities Maintenance
732-906-2567
732-906-4199 Fax
jmondano@middlesexcc.edu

Proposal:

David Fricke
Director, Purchasing & Inventory
732-906-2519
732-906-4236 Fax
DFricke@MiddlesexCC.edu