



**To: All Vendors Bidding on The College of New Jersey
Steam Piping and IT Conduit Replacement**

**From: Anup Kapur
Finance & Business Services**

Date: May 13, 2021

ADDENDUM NO. 2

ISSUE DATE: May 13, 2021

REFERENCE: The College of New Jersey
Steam Piping and IT Conduit Replacement
Project No. AB210020

Date of Original Bidding Documents: April 28, 2021

INTENT: This Addendum forms a part of the Contract Documents and modifies the original Bidding Documents and Prior Addenda if any, as identified above. Acknowledge receipt of this Addendum in the space provided on the Bid Form. Failure to do so may subject Bidder to disqualification.

TCNJ Clarifications:

1. Bidders are to figure the thickness of the existing concrete sidewalk to be 16 inches.
2. Non-destructive inspection of all field welds using X-ray methods shall be included as an Alternate to the base bid. Contractor shall hire the services of a testing company that is trained and certified in x-ray inspection. Contractor shall provide written reports to TCNJ detailing the results and any recommendations for joints that did not pass inspection.

Vendor Questions:

1. **Question:** Can this project be bid by a HVAC/Plumbing Classified Contractor as the prime contractor?

TCNJ Response: Yes, a Plumbing/HVAC contractor can bid on this project.

2. **Question:** The specification calls for fusion bonded epoxy coating on the conduit for the pipe. The attached drawing details show fusion bonded epoxy and polyurethane foam with an HDPE jacket. There is also a detail for cathodic protection but no specification. If fusion bonded epoxy coated conduit is to be utilized, the manufacturers distributor recommends cathodic protection be included. If HDPE jacketed conduit is to be utilized, the manufacturers distributor recommends that cathodic protection not be required. Please advise if fusion bonded epoxy coated conduit with cathodic protection is to be figured or if we should assume the use of HDPE jacketed conduit without cathodic protection.



TCNJ Response: Bids shall utilize the fusion bonded epoxy coating for the new steam piping with a cathodic protection system. See attached Specification section 264200 for Cathodic protection.

ATTACHMENTS:

1. Pre-bid Sign in sheet.
2. Specification Section 264200 for Cathodic Protection
3. Price bid sheet (with Add Alternative No. 1)

END OF ADDENDUM NO. 2



**Steam Piping & IT Conduit Replacement
Project
Pre-bid Meeting
May 3, 2021, 9:00 am**

Meeting Sign-In Sheet

	<u>Name</u>	<u>Company</u>	<u>Cell Phone</u>	<u>Email</u>
1	Mumtaz Makhdomi	TCNJ, Planning and Construction	609-678-6632	makhdomm@tcnj.edu
2	Dan Rehberg	DLB	732-318-0314	drehberg@d1bassociates.com
3	Chris Chappelle	Chappelle mech	732-685-3363	Cmechanical@optonline.net
4	FRANK MANCIANELLI	FRAMAN MECH	732-661-0001	FRANKMANCIANELLI@FRAMANMECH.COM
5	Bob DiFerdinando	AP CONST. INC	215-688-0533	bobde@apconstruction.com
6	DAVID JURKIN	TCNJ	732-233-8082	JURKIN@TCNJ.EDU
7	BRAD COBURN	TCNJ		cburn@tcnj.edu
8				
9				
10				
11				
12				
13				
14				

SECTION 264200 - CATHODIC PROTECTION

PART 1 - GENERAL

1.1 SUMMARY

- A. Related Documents:
 - 1. Drawings and general provisions apply to this Section.
 - 2. Review these documents for coordination with additional requirements and information that apply to work under this Section.
- B. Section Includes:
 - 1. Cathodic protection of piping and components used in piped utility distribution systems.

1.2 REFERENCES

- A. General:
 - 1. The following documents form part of the Specifications to the extent stated. Where differences exist between codes and standards, the one affording the greatest protection shall apply.
 - 2. Unless otherwise noted, the edition of the referenced code or standard that is current at the time of the "date of record" for the Work shall be considered the effective code or standard for the duration of the project.
 - 3. Refer to Division 01 Section "General Requirements" for the list of applicable regulatory requirements.
- B. ASTM International:
 - 1. ASTM A153 Zinc Coating (Hot-Dip) on Iron and Steel Hardware
 - 2. ASTM A 193 Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service
 - 3. ASTM A 194 Carbon and Alloy Steel Nuts and Bolts for High-Pressure and High-Temperature Service
 - 4. ASTM D 149 Dielectric Breakdown Voltage and Dielectric Strength of Solid Electrical Insulating Materials at Commercial Power Frequencies
- C. American Welding Society (AWS)
 - 1. AWSA5.8 Brazing Filler Metal
- D. National Electrical Manufacturers Association (NEMA)
 - 1. NEMA ICS6 Enclosures for Industrial Controls and Systems
 - 2. NEMA WC 5 Thermoplastic-Insulated Wire and Cable for the Transmission and Distribution of Electrical Energy

1.3 SUBMITTALS

- A. Submit under provisions of Division 01 Section "General Requirements" and as required by other sections of the Specifications."
- B. Shop Drawings: The Subcontractor shall submit for approval Shop Drawings prepared in accordance with Division 01 Section "General Requirements" and as required by other sections of the Specifications.
- C. All submittals and shop drawings shall be reviewed and approved by engineer / TCNJ before procurement or fabrication of material and equipment.
- D. Submit procedures and welding log.
- E. Procedures: Proposed procedures for testing exothermic-type welded cable connections.
- F. Welding Log: Maintain a log showing time, date, test result, name of inspector, and other pertinent information for each weld. Submit this log when requested.

1.4 QUALITY ASSURANCE

- A. Products shall be tested, approved and labeled/listed by Underwriters Laboratories, Inc., or by a nationally recognized testing laboratory (NRTL).
- B. Electrical equipment and materials shall be new and within one year of manufacture, complying with the latest codes and standards. No used, re-built, refurbished and/or re-manufactured electrical equipment and materials shall be furnished on this project.
- C. Procedures for making exothermic-type cable welds shall conform to and comply with the welding equipment manufacturer's instructions.

1.5 COORDINATION

- A. Refer to Division 01 Section "General Requirements"

1.6 DELIVERY, STORAGE, AND HANDLING

- A. Deliver materials to site in unopened cartons or bundles as appropriate, clearly identified with manufacturer's name, Underwriter's or other approved label, grade or identifying number.
- B. Store in a clean, dry space. Maintain factory wrapping or provide an additional heavy canvas or heavy plastic cover to protect units from dirt, water, construction debris, and traffic.

1.7 WARRANTY

- A. Manufacturer's Warranty: Warranty period of one year minimum shall start at the date the installation is accepted by TCNJ. Submit five (5) copies of the warranty certificate to TCNJ.

PART 2 - PRODUCTS

2.1 ANODES

- A. Install two (2) or more anodes as determined necessary by the cathodic protection contractor on the steam piping system.
- B. Anodes shall be of high-potential magnesium alloy, made of primary magnesium obtained from sea water or brine, and not from scrap metal. Magnesium anodes shall conform to ASTM B843.
- C. Anodes shall be prepared in packaged form with the anode surround by a quick-wetting backfill and contained in a water permeable cloth sack. Anodes shall be centered by means of spacers in the backfill material. The backfill material shall be composed of gypsum (75%), bentonite (20%), and sodium sulphate (5%).

2.2 TEST STATION

- A. Stations shall be of the flush-curb-box type and shall be the standard product of a recognized manufacturer. Test stations shall be complete with an insulated terminal block having the required number of terminals. The test station shall be provided with a lockable cover and shall have an embossed legend, "C.P. Test." A minimum of one (1) test station shall be provided for the new steam piping. A minimum of six (6) terminals shall be provided in each test station. A minimum of two (2) leads are required to the metallic pipe from each test station. Other conductors shall be provided for each anode, other foreign pipe, and reference cells as required.
- B. Test station shall be outdoor type conforming to UL 514A.

2.3 TERMINAL BLOCKS

- A. Type: Heavy-duty, channel-mounted type, insulated for 600V, and sized for connecting 6 AWG cables.
- B. Number of circuits for each block shall be as shown on the drawings, and connectors shall be tubular-clamp type.
- C. Terminal blocks shall be Buchanan Products Inc. "0223" with two "0230" end-pieces mounted on a channel, Squared Co. "Class 9080, Type D-8" with two end-pieces mounted on channel "1828-C22," or equal.

2.4 CONDUCTORS AND CABLES

- A. All cables for bonds, jumpers, and test cables in mechanical-utility valve boxes, and directly buried underground shall be single-conductor stranded copper, type CP cathodic protection cable, with high-molecular-weight polyethylene combined insulation and jacket in accordance with NEMA WC 5.

2.5 COATING AND WRAPPING MATERIAL

- A. Mastic and tape shall be compatible in all respects.
- B. Pipeline Mastic: Protecto-Wrap Co. "CA-160 Mastic," Tapecoat Co. "TC Mastic," or equal.
- C. Pipeline Tape: Tape shall have 6-mil (0.15-mm) polyethylene backing with approximately 30 mil (0.75-mm) butyl-base mastic adhesive; Polyken "930-35," Protecto-Wrap Co. "310," or equal.

2.6 BRAZING MATERIAL

- A. Copper-Alloy Pipe: Brazing alloy Bag-7 in accordance with AWSA5.8; Handy and Harmon Braze "560," ASARCO "56," or equal.
- B. Copper Tubing: Brazing alloy BCuP-5 in accordance with AWSA5.8; Handy and Harmon "Sil-Fox," ASARCO "1180," or equal.

2.7 WELDING MATERIAL

- A. Exothermic welding shall use Erico Products, Inc. "Cadweld" system, Continental Industries, Inc. "Thermoweld" system, or equal.
- B. Welders, Cartridges, and Accessories for Horizontal Steel Surfaces:
 - 1. Conductors: 6 AWG stranded conductors welded to piping with Cadweld "HA", Thermoweld "HS-I," or equal connections, sized for 2 AWG stranded conductors.
 - 2. Use adapter sleeves to adapt to the 6 AWG stranded conductors.
 - 3. Welders (molds), adapters, and cartridges shall be as follows:

SURFACE	CADWELD WELDER NO.
Flat 16 inches (400mm) & Larger pipe	CAHAA-IV
1 inches to 3-1/2 inches (25 to 90mm) pipe	CAHAA-IVA
4 inches to 8 inches (100 to 200mm) pipe	CAHAA-IVB
10 inches to 14 inches (250 to 350mm) pipe	CAHAA-IVC
Cartridge size	CA-32
Adapter sleeve	CAB-112

SURFACE	THERMOWELD WELDER NO.
8 inches (200mm) or larger pipe or flat	M-112
4 inches to 6 inches (100 to 150mm) pipe	M-115
2 inches to 3 inches (50 to 75mm) pipe	M-114
1 inches to 1-1/2 inches (25 to 40mm) pipe	M-113
Cartridge size	32
Adapter sleeve	A-202

PART 3 - EXECUTION

3.1 SURFACE PREPARATION

- A. Install test station, conduit, bond cables, jumper cables, and appurtenances as shown on drawings.
- B. Prepare steel surfaces in accordance with the welding equipment manufacturer's instructions. The surface shall be bright-clean and dry, and free of pores, pits, cracks, coating, and like items.
 - 1. Use only ceramic-base grinding wheels or discs to prepare surfaces for welding.
 - 2. Do not use resin-impregnated grinding wheels at any time.
- C. Weld immediately after grinding to prevent formation of light-oxide coating that can affect the weld.

3.2 CABLE PREPARATION

- A. Before the cable weld is made, cut-back wrapping and/or coating approximately 4 inches (100mm) all around the weld, and feather the edge of the wrapping and coating.
- B. Prepare cable for welding in accordance with the welding equipment manufacturer's instructions. The copper cable shall be bright-clean and dry.
- C. Clean oil-filled or greasy cable with a solvent (rapid-drying safety solvents that leave no residue are preferred). For extreme cases, dip cable ends into molten solder (this effectively cooks out all grease and oil).
- D. Do not use corroded cable.
- E. Use a quick-drying solvent, alcohol, or a hand torch to dry any wet cable (wet cable can cause molten metal to be blown out of the mold).
- F. Use a cable cutter to prevent deforming cable ends. Bent and out-of-round cable will hold mold open, causing leaks.
- G. Before cutting ends of insulated cable with a hacksaw, first remove the insulation, as the hacksaw blade tends to coat the ends of the cable with insulating material.

3.3 WELDING PROCEDURE

- A. Comply with and conform to the welding equipment manufacturer's instructions for making exothermic-type cable welds.

3.4 PROTECTION OF WELDED CABLE CONNECTIONS

- A. Protect all underground welded cable connections as shown on the drawings and as described herein.
- B. After completing the cable weld, clean the area around the weld, and back at least 4inches (100mm) all around, of all coating, scale, dirt, oil, grease, and like items, and wash with an approved solvent.
- C. Treat all galvanized surfaces with metal conditioner recommended by the manufacturer of the mastic coating specified.
- D. Completely coat the exposed area on the cable weld, and completely cover the welded connection itself with a pipeline mastic at least 1/8-inch (3mm) thick over the top of the highest point on the weld.
- E. Mastic coating thickness shall be at least 80 mil (2mm) except over top of cable weld.
- F. Cover the mastic and all areas on the wrapping and/or coating at least 4-inches (100mm) all around the cable weld with two layers of 4-inch (100mm) or 6inch (150mm) wide conformable pipeline tape, each layer at least half-lapped.

3.5 REPAIR

- A. Repair all damage to wrappings and/or coatings on underground piping in accordance with manufacturer requirements.

3.6 FIELD QUALITY CONTROL

- A. Tests shall be made in the presence of the TCNJ construction manager.
- B. The Subcontractor shall submit to the Project Manager five (5) copies of test results, certified in writing, witnessed, signed and dated, immediately upon completion of work for review and acceptance by TCNJ. An unsatisfactory condition revealed by these test results, or unsatisfactory methods of tests and/or testing apparatus and instruments, shall be brought to the attention of the Project Manager and Design Professional. Corrections by the Subcontractor shall be validated by re-tests to the satisfaction of the Project Manager and Design Professional.
- C. The Project Manager reserves the right to require that the Subcontractor perform and repeat tests that are deemed necessary to complete or check the tests or the certified records of the Subcontractor at any time during the course of the work. The Subcontractor shall correct unsatisfactory portion of his work that is revealed by the tests or that may be due to progressive deterioration during this period, unless the item in question was a direct specification.
- D. Do not cover mastic and tape coating of cable welds with backfill until inspected by TCNJ.
- E. Test exothermic-type welded cable connections for bonding and strength by means of a "sharp hammer blow," using a 16-ounce (450-g) hammer. Do not cover cable welds with mastic and tape until tests have been reviewed and approved by TCNJ.

3.7 ACCEPTANCE

- A. Final acceptance shall depend upon the satisfactory test results as performed in accordance with the manufacturer's instructions and these specifications.

END OF SECTION 264200

**PRICES FOR SINGLE BID (LUMP SUM): Base Bid, Alternate Proposals, and Unit Prices
FORM OF PROPOSAL**

To: **The College of New Jersey**

for: Construction of Steam Piping and IT Conduit Replacement

Date _____

A. BID:

1. **Base:** We, _____, the Undersigned, in accordance with the published advertisement inviting proposals, will furnish all labor, material, equipment and services necessary for the complete construction, as defined in the advertisement, specimen contract, specifications, addendums/clarifications/bulletins, drawings, and proposal, for the Contract amount indicated below for the **above noted project** in strict accordance with the Contract Documents and Addenda thereto for the total sum of:

_____ Dollars \$ _____
(words)

General Construction (Single overall Prime Contract)

2. Add Alternate

Alternate No. 1 – Add:

Non-destructive inspection of all field welds shall utilize X-ray method for verifications. Contractor shall hire the services of a testing company that is trained and certified in x-ray inspection. Contractor shall provide written reports to TCNJ detailing the results and any recommendations for joints that did not pass inspection.

_____ Dollars \$ _____

Note: Failure to provide Add/Deduct Alternate may result in rejection of bid.

3. CHECK LIST FOR BIDDERS:

A check list has been provided in these specifications for the use in completing this proposal. Bidders are encouraged to reference said list to minimize the opportunity for errors by the bidder.

A. UNIT PRICES: We, the Undersigned, agree, if awarded the Contract to perform additional work or delete work at the Unit Prices set forth below or at a negotiated unit price (Unit Prices are for work that is in addition to or is deleted from the base bid work):

No Unit Prices are requested for this bid.

C. **AGREEMENT:** We, the Undersigned, agree, if awarded the Contract, to execute an agreement for the above stated work and compensation on the Standard Form of Agreement Between Owner and Contractor.

D. **SURETY:** We, the Undersigned, agree, if awarded the Contract, to execute and deliver to the Owner, prior to the signing of the Contract, the Performance and Payment Bonds as required.

- Contractor shall provide a Maintenance Bond at job completion for a period of one year for 100% of the final contract price.

E. **BID SECURITY:** The attached bid security is to become the Property of the Owner in the event that the Contract and bond are not executed within the time set forth, as liquidated damages for the delay and additional expense

(including the difference between the price provided with said bond and the next lowest responsive bidder) to the Owner caused thereby.

Certified Check \$ _____
Bid Bond \$ _____

F. STATEMENT:

1. We, the Undersigned, acting through its authorized officers and intending to be legally bound, agree that this bid proposal shall constitute an offer by the Undersigned to enter into a Contract with the acts and things therein provided, which offer shall be irrevocable for sixty (60) calendar days from the date of opening hereof and that the Owner may accept this offer at any time during said period by notifying the Undersigned of the acceptance of said offer.

2. We, the Undersigned, acknowledge receipt of the following Addenda/Clarifications:

Addenda Number	Dated
_____	_____
_____	_____
_____	_____

The undersigned further agrees to comply with the requirements as to conditions of employment, wage rates, and hours of labor set forth in the Contract Documents.

Dated _____

Firm Name _____ Phone Number: _____

Address _____

**If a corporation, give the State of Incorporation, using the phrase:

"A corporation organized under the laws of _____."

If a partnership, give names of the partners, using also the phrase:

"Co-partners trading and doing business under the firm name and style of _____."

If an individual using a trade name, give individual name, also using the phrase:

"An individual doing business under the firm name and style of _____."

Dated: _____

STATE OF _____

SS.

COUNTY OF _____

_____ being duly sworn say that the several matters stated in this proposal are in all respects true, and that no member of the State or employee of the College are interested in any way in this proposal.

Sworn and subscribed before me _____

Bidder signs above line

this _____ day of _____ 20____

Print Name

and

Title