



**CITY OF ANN ARBOR, MICHIGAN**  
Public Services Area/Water Treatment  
919 Sunset Road  
Ann Arbor, Michigan 48103

Web: [www.a2gov.org](http://www.a2gov.org) Printed on recycled paper

April 25, 2013

To: All Contract Document Holders

**RE: Addendum to the Contract Documents for the Barton and South Industrial Pump Stations  
Electrical Improvements  
Bid No. ITB-4279**

Attached is a copy of Addendum Number One for the Barton and South Industrial Pump Stations Electrical Improvements Project. This Addendum supersedes and updates the Contract Document information for Bid No. ITB-4279. All Bidders shall acknowledge receipt and acceptance of this Addendum Number One by so indicating on the Invitation to Bid Form located in the existing Contract Documents. Bids submitted without acknowledgment of receipt of this Addendum will be considered informal. If you have any questions regarding the Contract Documents or this Addendum, please contact Glen Wiczorek, PE, Stantec Consulting, Project Manager by email at [glen.wiczorek@stantec.com](mailto:glen.wiczorek@stantec.com).

Sincerely,

A handwritten signature in black ink that reads "Brian Steglitz".

Brian Steglitz, P.E.  
Sr. Utilities Engineer  
City of Ann Arbor Water Treatment Plant

enc.

April 25, 2013

**ADDENDUM NO. 1  
TO  
BID DOCUMENTS  
FOR  
BARTON AND SOUTH INDUSTRIAL PUMP STATIONS  
ELECTRICAL IMPROVEMENTS  
FOR THE  
CITY OF ANN ARBOR, MICHIGAN**

The following changes, additions, and/or deletions shall be made to the Bid Documents for the Barton and South Industrial Pump Stations Electrical Improvements Project for the City of Ann Arbor, Michigan, Bid No. ITB – 4279 on which bids are to be received, on or before, 2:00 P.M. Thursday, May 2, 2013.

The information contained herein shall take precedence over the original documents and all previous addenda, and is appended thereto.

**All Bidders shall acknowledge receipt and acceptance of this Addendum No. 1, including all attachments, by so indicating on page ITB-1 of the Invitation to Bid Form. Bids submitted without acknowledgement of receipt of this addendum will be considered informal.**

Changes in the Bid Documents which are outlined below are referenced to a page or drawing in which they appear conspicuously. The Bidder is to take note in its review of the documents and include these changes as they affect work or details in other areas not specifically referenced here. Changes to the original text are bolded, underlined and italicized.

**DETAILED SPECIFICATIONS**

TABLE OF CONTENTS

**Revise** page TC-4 to include Division 16 – Electrical, “SECTION 16955 – ELECTRICAL EQUIPMENT TESTING AND ADJUSTMENT”.

SPECIFICATION SECTION 16955 – ELECTRICAL EQUIPMENT TESTING AND ADJUSTMENT

**Add** in its entirety Specification Section 16955 pages 1 through 3.

## SPECIFICATION SECTION 17010 – INSTRUMENTATION GENERAL CONDITIONS

**Revise** Paragraph 1.5.K.2, as follows:

2. ~~One~~ **Two** Panel View Plus (SCADA Client/RSView) located in the Barton Drive Pump Station.

## SPECIFICATION SECTION 17330 – SPARE PARTS

**Revise** Paragraph 2.2.A, as follows:

- A. Provide the following spare parts:

| No. | Description   | Qty. |
|-----|---|------|
| 1.  | PLC Power Supply <del>1756-PA75</del> <b>CompactLogix</b>                                 | 1    |
| 2.  | <del>PLC DeviceNet Module 1756-DNB</del> <b>CompactLogix</b>                              | 1    |
| 3.  | PLC <del>Ethernet</del> <b>Analog Out</b> Module <del>1756-ENBT</del> <b>CompactLogix</b> | 1    |
| 4.  | PLC Analog Input Module <del>1756-IA32</del> <b>CompactLogix</b>                          | 1    |
| 5.  | PLC Analog Input Module <del>1756-IA16</del> <b>CompactLogix</b>                          | 1    |
| 6.  | One Pressure Transducer   | 1    |
| 7.  | One Float   | 1    |

## QUESTIONS AND ANSWERS

- Q: Spare Parts listed for the I & C PLC System are for a Control Logix PLC platform. The specified PLC platform is for Compact Logix. Please clarify?
- A: **All spare parts shall be Compact Logix.**
- Q: On drawing I-600 the legend for the wire/cable types (i.e. Hardwire, Cu & Fiber) are all solid, there is no delineation between the types. So looking at the one line control system overview on the same drawing, for example between the Motor Controls and the PLC, there is no way to tell what wire/cable is what. Please clarify?
- A: **Please refer to drawing I-100 and the control conduit schedule.**
- Q: Is the intent Calibration and Configuration that ALL existing instrumentation devices be re-configured and re-calibrated as part as the complete Loop Check and Instrument testing in Spec 17800?
- A: **Yes.**
- Q: It appears the intent of Section 17800 and 17810 is that the I & C integrator provides the complete services to ALL the existing equipment as if we were to furnish it brand new, from installation to calibration to certification. Is this the intent?
- A: **Yes.**

- Q: In the event the existing field equipment becomes damaged, re-installed in error or becomes unstable or inoperable what is the intent based upon the contract requirements?
- A: **All field instruments are currently operable. Contractor shall verify condition prior to disconnecting and report to the Owner. If an existing field device fails, the Owner will require a detailed report why it failed. If failure is the result of the Contractors activities, the replacement shall be the Contractor's responsibility.**
- Q: Per specification Section 17010-1.5-K2 & 3 One PanelView Plus is required for each pump station, however per specification Section 17015-1.1-D4a & b One HMI Industrial Touch Screen Computer w/ RSVIEW is required for each pump station. Drawing I-600 only shows one OIT per station and drawing I-100 (Barton) calls for a PanelView HMI. Please clarify if a PanelView Plus or an HMI Industrial Touch Screen Computer or both are required for each pump station.
- A: **Please provide per the table in specification Section 17126, page 2, 3.1E. A total of three (3) PanelView Plus (touch screen computers) will be provided, two (2) at Barton, and one (1) at South Industrial. Drawing I-600 also shows a total of three (3) OIT's PanelView Plus (touch screen computers).**
- Q: In the prebid meeting a question was ask if the FAT was going to be witnessed. Is there a specific section within the documents requiring the owner and/or architect to witness the FAT test?
- A: **The FAT will be witnessed by Owner/Engineer.**
- Q: What is the condition of the floor in the crawl space at Barton Pump Station.
- A: **It is dirt and generally wet due to high ground water.**
- Q: Will dewatering be required in the crawl space at Barton?
- A: **Yes. There are drain pipes that handle some drainage, but under wet weather there can be accumulated water. Contractor to provide submersible trash pump for localized dewatering.**
- Q: Are all conduits to be ceiling mounted in the crawl space?
- A: **Yes.**
- Q: Please clarify the materials of construction for the conduit and equipment hangers.
- A: **All conduit and equipment hanger above grade level, lower level and below grade level in the crawl space shall be 304 stainless steel epoxy set anchors, hangers, and related hardware.**
- Q: Does the 38" dia. eastern cottonwood south east of the new pre-engineered storage building require tree protection fencing?
- A: **Yes, provide around the drip edge/critical root zone of the tree and per the City of Ann Arbor Standards.**
- Q: On drawing I-100, Please clarify conduits C54 and C55. Is C55 actually a 2" conduit with 3-#14s or should it match C54 with 30#14s? Or is it actually only 3-#14s and should be a 3/4"?
- A: **Conduit C34 is a 1 1/4" w/ 30 - #14 and #14 Gnd.**

- Q: At the South Industrial Pump Station, the Control Panel is being relocated to accommodate the installation of the new MCC, which will be partially installed in the location of the existing Control Panel. Note 2 on Contract Drawing ED-201 states that the Contractor shall install a junction box on the wall for termination of control device. It is assumed that these are points currently terminated within the Control Panel. Also, we assume that the junction box is to be installed high on the wall in the basement under the location of the Control Panel, because the conduits from the junctions box to the new Control Panel are shown installed in the basement and the wires to the existing Control Panel are all coming from either below or within the existing MCC. Please confirm.
- A: **Confirmed.**
- Q: Contract Drawing E-602 shows new wiring from the MCC to the new Generator Control Panel and from the Generator Control Panel to the Generator. Please specify the size of the conduit and the conductors.
- A: **Please refer to the Power Conduit Schedule, conduit numbers P4 and P14.**
- Q: On Contract Drawing I-100 please specify the wiring requirements for the Remote Display.
- A: **Please refer to the Controls Conduit Schedule, conduit numbers C57 and C58.**
- Q: Sheet E-602, Barton Pump Station, Electrical Single Line Diagram, how is the Breaker Control powered?
- A: **The control panel will be internal to the switchboards and will have power provided to it by the switchboard manufacturer.**
- Q: Sheets E-103 and E-106, please confirm that the dashed line raceways are to be installed in the crawl space.
- A: **Confirmed.**
- Q: Sheet ED-201, South Industrial, reference the line from the existing generator transfer switch to the generator what does "MLO" stand for?
- A: **"Main Lugs Only", no over current protection device.**
- Q: Sheet E-602, South Industrial, and Note No. 1, does the existing generator have some sort of thermal protect?
- A: **No, only a field stator breaker. The existing generator does not have a main breaker or shunt trip device.**

**END OF ADDENDUM**

|               |   |   |
|---------------|---|---|
| Section 15110 | Process Valves and Accessories .....    | 3 |
| Section 15250 | Mechanical Insulation .....             | 5 |
| Section 15400 | Plumbing and Drainage .....             | 9 |
| Section 15440 | Plumbing Fixtures and Specialties ..... | 3 |
| Section 15441 | Sump Pumps .....                        | 4 |
| Section 15621 | Gas Fired Unit Heaters .....            | 2 |
| Section 15861 | Fans.....                               | 3 |
| Section 15890 | Ductwork.....                           | 6 |
| Section 15910 | Ductwork Accessories .....              | 6 |
| Section 15990 | Mechanical Testing and Balancing .....  | 7 |

**Division 16 – Electrical**

|                      |  |          |
|----------------------|--|----------|
| Section 16010        | Electrical System General Requirements .....                   | 5        |
| Section 16013        | Standby Generator .....  | 6        |
| Section 16030        | Equipment Installation .....                                   | 3        |
| Section 16111        | Metallic Conduit and Fittings.....                             | 4        |
| Section 16112        | Plastic Conduit and Fittings .....                             | 3        |
| Section 16121        | Low Voltage Copper Wire and Cable.....                         | 5        |
| Section 16123        | Primary Wiring – 15KV Nominal .....                            | 9        |
| Section 16130        | Boxes.....   | 3        |
| Section 16136        | Cleaning Underground Conduits.....                             | 3        |
| Section 16140        | Wiring Devices.....  | 3        |
| Section 16150        | Snap Switches .....  | 2        |
| Section 16190        | Supports and Fasteners.....                                    | 3        |
| Section 16195        | Identification.....  | 2        |
| Section 16200        | Lighting System .....  | 7        |
| Section 16211        | Digital Panel Meters.....                                      | 2        |
| Section 16221        | Electric Motors .....  | 5        |
| Section 16271        | Medium Voltage Transformers.....                               | 7        |
| Section 16416        | Fuses .....  | 3        |
| Section 16425        | Switchboards .....   | 7        |
| Section 16440        | Disconnect Switches.....                                       | 3        |
| Section 16450        | Grounding .....  | 3        |
| Section 16461        | Dry-Type Transformers.....                                     | 3        |
| Section 16470        | Panelboards.....   | 4        |
| Section 16475        | Molded Case Circuit Breakers .....                             | 3        |
| Section 16481        | Motor Starters .....   | 3        |
| Section 16482        | Solid State Motor Controllers (Soft Starts) .....              | 5        |
| Section 16483        | Motor Control Centers .....                                    | 4        |
| Section 16485        | Enclosed Contactors.....                                       | 2        |
| Section 16700        | Telecommunications Structured Cabling Systems.....             | 8        |
| <b>Section 16955</b> | <b><i>Electrical Equipment Testing and Adjustment.....</i></b> | <b>3</b> |

## SECTION 16955

### ELECTRICAL EQUIPMENT TESTING AND ADJUSTMENT

#### **PART 1 - GENERAL**

##### **1.1 SECTION INCLUDES**

- A. Section specifies electrical equipment testing and adjustment on medium voltage switchgear bus, air switches, meter cabinet, transformer oil, feeders greater than 100A, dry and dry transformers.

##### **1.2 QUALITY ASSURANCE**

- A. National Electrical Testing Association (NETA) membership is required for firm performing tests.

##### **1.3 SUBMITTALS**

- A. Submit two bound copies of test reports certified by testing technician and approved representative authorized to witness tests. Comply with the provisions and requirements of Section 01330, Submittal Procedures

#### **PART 2 - PRODUCTS (Not Applicable)**

#### **PART 3 - EXECUTION**

##### **3.1 PREVENTATIVE MAINTENANCE AND ACCEPTANCE**

- A. General: NFPA 70B. Institute and maintain following precautions during preventive maintenance requiring applications of potentials above 30 volts:
  - 1. Erect barricades around testing areas and post warning signs.
  - 2. Station watchmen to ensure unauthorized persons do not approach energized conductors and components.
  - 3. Maintain telephone or voice radio contact between potential injection point and energized remote locations.
- B. Inspect and test in accordance with the current revision of the NETA specifications for location and equipment:
  - 1. Barton Pump Station
    - a. 2 – Primary Transformers
    - b. 2 – 5/15kV Air Switches
    - c. 2 – Metering Cabinet
    - d. 2 – Switchboards

2. South Industrial Pump Station
  - a. 1 – Motor Control Cover
  - b. 2 – Generator Controller/Breaker

C. Air Switches: Medium-Voltage, Metal Enclosed

Visual and Mechanical Inspection and Testing will include the following:

1. Inspect for physical and mechanical condition.
2. Check for proper anchorage and required area clearances.
3. Verify that fuse sizes and types correspond to drawings.
4. Perform mechanical operation tests in accordance with manufacturer's instructions.
5. Check blade alignment and arc interrupter operation.
6. Verify that expulsion-limiting devices are in place on all holders having expulsion-type elements.
7. Check each fuse holder for adequate mechanical support for each fuse.
8. Test all electrical and mechanical interlock systems for proper operation and sequencing.
9. Verify proper phase-barrier materials and installation.
10. Check switch blade clearances with manufacturers published data.
11. Inspect all indicating devices for proper operation.
12. Perform insulation-resistance tests.
13. Perform contact-resistance test.

D. Transformers: Dry Type

Visual and Mechanical Inspection and Testing will include the following:

1. Clean and Inspect for physical damage, cracked insulators, tightness of connections, defective wiring, and general mechanical and electrical conditions.
2. Verify proper auxiliary device operation such as fans and indicators.
3. Check tightness of bolted connections and/or cable connections, if accessible.
4. Perform specific inspections and mechanical tests as recommended by manufacturer.
5. Make a close examination for shipping brackets or fixtures that may not have been removed during original installation. Insure resilient mounts are free.



6. Verify proper core grounding.
7. Verify proper equipment grounding.
8. Thoroughly clean unit prior to testing.
9. Verify that the tap-changer is set at specified ratio.
10. Perform insulation-resistance tests, winding-to-winding and windings-to ground.
11. Perform a turns-ratio test between windings at as-found tap setting.
12. Perform tests and adjustments for fans, controls, and alarm functions.
13. Verify proper secondary voltage phase-to phase and phase-to-neutral after energization and prior to loading.

E. Transformers: Liquid Filled

Visual and Mechanical Inspection and Testing will include the following:

1. Clean and inspect for physical damage, cracked bushings, leaks, tightness, connections and general mechanical and electrical conditions.
2. Verify proper auxiliary device operation such as fans and indicators.
3. Check tightness of bolted connections and/or cable connections.
4. Verify proper liquid level in all tanks and bushings.
5. Perform specific inspections and mechanical tests as recommended by manufacturer.
6. Verify proper equipment grounding.
7. Perform insulation-resistance tests, winding-to-winding and windings-to-ground.
8. Perform a turns-ratio test between windings at designated tap position.
9. Perform tests and adjustments on fan and pump controls and alarm functions.

- F. Electrical testing and adjustment will be performed during the course of normal business hours 7:00 a.m. to 3:30 p.m., Monday through Friday and non-City of Ann Arbor Holidays. All preventative testing will be scheduled a minimum of two (2) weeks before the electrical testing and adjustment.

END OF SECTION