

THE REGIONAL MUNICIPALITY OF NIAGARA

Contract No. 2011-T-117 (RN 11-17) Hixon Street Reservoir Water Booster Pumping Station #3 Upgrades ADDENDUM NO. 4

I DIRECTIVE

This addendum shall form an integral part of the plans and specifications for the above project and shall be read in conjunction therewith. This addendum shall, however, take precedence over all requirements of the previously issued drawings and specifications with which it may prove to be at variance, unless otherwise clarified by the Engineer.

This addendum must be signed by the Tenderer in the appropriate space and must be attached to the back of the Form of Tender and placed in the "Second Envelope" for submission at the time of tendering. **Tenders not including this addendum signed as requested shall be rejected as informal.**

II REVISIONS TO SPECIAL INSTRUCTIONS TO BIDDERS

1. **The tender closing date has been extended to February 14, 2012.** Revise Item No.2 Tender Procedure in the Special Instructions to Bidders (on page SIB-3) as follows:
All tenders must be sealed and submitted by the following time and date:
Time: **2:00 p.m. Local Time**
Date: **14 February 2012**
2. Revise Item No.20 Tender Enquiries in the Special Instructions to Bidders (on page SIB-8) as follows:
The deadline for tender enquiries is 08 February 2012 at noon.
3. Add Item No.30 Warranty Period to the Special Instructions to Bidders (on page SIB-10) as follows:
30. Warranty Period
The following warranty period will apply to this contract:
The warranty period shall be on (1) year from the date of Final Completion.

III REVISIONS TO SPECIFICATION AND TENDER DRAWINGS

1. Revise Section 01783 as follows:
Add the following sub-section 1.3.3 to Article 1.3 Binders:

1.3.3 Contractor shall provide an electronic copy (pdf) of the draft O&M Manual and final O&M Manual to the Engineer on a CD (as few as possible) or flash drive.
2. Revise Section 15820 as follows:
Delete the entire sub-section 2.2.2 (of Article 2.2 ELECTRIC UNIT HEATERS) and replace with the following sub-section 2.2.2:

2.2.2 The motor shall be CSA Recognized, totally enclosed with permanently lubricated ball bearings, and designed to resist moisture and corrosion.
3. Revise Section 15810 as follows:
Delete the entire sub-section 2.11.17 (of Article 2.11 LOUVERS) and replace with the

following sub-section 2.11.17:

2.11.17 Stainless steel louvers shall be provided for the Chlorine Room.

4. Revise Section 15810 as follows:

Add the following sub-section 2.14.7 to Article 2.14 MOTORIZED DAMPERS:

2.14.7 Provide stainless steel dampers for Chlorine Room. Associated actuators for stainless steel dampers shall come in a NEMA 4X enclosure.

5. Revise Section 15810 as follows:

Delete the entire sub-section 2.14.3 (of Article 2.14 MOTORIZED DAMPERS) and replace with the following sub-section 2.14.3:

2.14.3 Dampers installed behind exterior louvers, building walls or roof to be of insulated construction. Damper blades are double wall extruded aluminium section with cavity insulation of polyurethane foam and thermal break between walls. Frame cavity to be insulated with 19 mm thick polystyrene foam. Provide continuous weather-stripping around inner frame edge and blades tips to provide a weather tight seal (less than 1 percent leakage). Insulated dampers to be Tamco Series 9000 by T. A. Morrison, VENTEX, Ruskin, Aero United.

6. Revise Section 15810 as follows:

Add the following sub-section 2.11.1.9.5 to Article 2.11 LOUVERS:

2.11.1.9.5 Aero United.

7. Revise Section 15810 as follows:

Add the following sub-section 2.11.2.8.4 to Article 2.11 LOUVERS:

2.11.2.8.4 Aero United.

8. Revise Section 15830 as follows:

Add the following Article 2.3 VARIABLE FREQUENCY DRIVES:

2.3 VARIABLE FREQUENCY DRIVES

- .1 The VFD shall be tested to UL 508C. The appropriate UL label shall be applied. When the VFDs are to be located in Canada, C-UL certifications shall apply. VFD shall be manufactured in ISO 9001, 2000 certified facilities.
- .2 The VFD shall convert incoming fixed frequency three-phase AC power into an adjustable frequency and voltage for controlling the speed of three-phase AC motors. The motor current shall closely approximate a sine wave. Motor voltage shall be varied with frequency to maintain desired motor magnetization current suitable for the driven load and to eliminate the need for motor de-rating.
- .3 The VFD shall include an input full-wave bridge rectifier and maintain a fundamental (displacement) power factor near unity regardless of speed or load.

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- .4 The VFD shall have a dual 5% impedance DC link reactor on the positive and negative rails of the DC bus to minimize power line harmonics and protect the VFD from power line transients. The chokes shall be non-saturating. Swinging chokes that do not provide full harmonic filtering throughout the entire load range are not acceptable. VFDs with saturating (non-linear) DC link reactors shall require an additional 3% AC line reactor to provide acceptable harmonic performance at full load, where harmonic performance is most critical.
- .5 The VFD's full load output current rating shall meet or exceed NEC Table 430-150. The VFD shall be able to provide full rated output current continuously, 110% of rated current for 60 seconds and 120% of rated torque for up to 0.5 second while starting.
- .6 Output power circuit switching shall be able to be accomplished without interlocks or damage to the VFD.
- .7 All VFDs shall contain integral EMI filters to attenuate radio frequency interference conducted to the AC power line.
- .8 Provide an integral door mounted disconnect switch with all VFD's.
- .9 A minimum of Class 20 I²t electronic motor overload protection for single motor applications shall be provided. Overload protection shall automatically compensate for changes in motor speed.
- .10 Protection against input transients, loss of AC line phase, output short circuit, output ground fault, over voltage, under voltage, VFD over temperature and motor over temperature. The VFD shall display all faults in plain language. Codes are not acceptable.
- .11 Protect VFD from input phase loss. The VFD should be able to protect itself from damage and indicate the phase loss condition. During an input phase loss condition, the VFD shall be able to be programmed to either trip off while displaying an alarm, issue a warning while running at reduced output capacity, or issue a warning while running at full commanded speed. This function is independent of which input power phase is lost.
- .12 Hand, Off and Auto keys shall be provided to start and stop the VFD and determine the source of the speed reference. It shall be possible to either disable these keys or password protect them from undesired operation.
- .13 Standard Control and Monitoring Inputs and Outputs
 - .1 Four dedicated, programmable digital inputs shall be provided for interfacing with the systems control and safety interlock circuitry.
 - .2 Two terminals shall be programmable to act as either a digital output or additional digital inputs.
 - .3 Two programmable relay outputs, Form C 208 V AC, 2 A, shall be provided for remote indication of VFD status.
 - .4 Two programmable analog inputs shall be provided that can be either direct-or-reverse acting.

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- .5 One programmable analog current output (0/4 to 20 mA) shall be provided for indication of VFD status. This output shall be programmable to show the reference or feedback signal supplied to the VFD and for VFD output frequency, current and power. It shall be possible to scale the minimum and maximum values of this output.
- .14 The VFD shall include a standard EIA-485 communications port and capabilities to be connected to the following serial communication protocols at no additional cost and without a need to install any additional hardware or software in the VFD: Johnson Controls Metasys N2 and Modbus RTU
- .15 The manufacturer shall provide start-up commissioning of the VFD and its optional circuits by a factory certified service technician who is experienced in start-up and repair services. Sales personnel and other agents who are not factory certified shall not be acceptable as commissioning agents. Start-up services shall include checking for verification of proper operation and installation for the VFD, its options and its interface wiring to the building automation system.
- .16 Harmonic filtering: The VFD supplier shall, with the aid of the buyer's detailed electrical power single line diagram showing all impedances in the power path to the VFDs, perform an analysis to initially demonstrate the supplied equipment will meet the IEEE recommendations after installation. If, as a result of the analysis, it is determined that additional filter equipment is required to meet the IEEE recommendations, then the cost of such equipment shall be included in the drive supplier quotation.
- .17 The complete VFD shall be warranted by the manufacturer for a period of 18 months from date of shipment. The warranty shall include parts, labor, travel costs and living expenses incurred by the manufacturer to provide factory authorized on-site service. The warranty shall be provided by the VFD manufacturer and not a third party. A written warranty statement shall be provided with the submittals.
- .18 Approved manufacturers: ABB, Danfoss.

IV QUESTIONS

- Q1: Please clarify the intent with regard to the \$20,000 amount for Operations and Maintenance Data Section 1783. Is this the amount to be retained by the Region until this item is completed or is the Region paying this month for this item?
- A1: *\$20,000 is an allowance for completing the Operations and Maintenance Data, i.e., The Region will pay \$20,000 for the completion of the final Operations and Maintenance Data.*
- Q2: Would a precast stair be acceptable for the exterior stair at Hixon Street?
- A2: *No alternatives will be considered during the tendering stage.*
- Q3: Can you please advise distance of this insertion magmeter from valves per drawing P01.

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- A3: *The space available for the insertion meter (i.e., between valves on the reservoir outlet) is 900 mm.*
- Q4: We are unaware of a supplier for a 675 liter septic holding tank. Generally the size starts at 2700 liters. Would you have a manufacturer for this small of a tank?
- A4: *Septic holding tank shall be a 1200 mm precast manhole with monolithic base approximately 2000 mm deep with flat cap, water tight cover and S.S. vent pipe. Manhole to be manufactured in accordance with OPSD 701.031. 38mm pipe to exterior holding tank to be insulated above 1200 mm in depth. This pipe will have a positive slope to the tank.*
- Q6: Re Addendum No.3, Q7: Generally inserts are cast into the slab with a lifting eye screwed into the insert. Please confirm that we are to supply one lifting eye per insert.
- A6: *Provide lifting eye bolts complete with cast-in inserts for all equipment with net weights in excess of 600 kg but not more than 1000 kg as stated in specification 05500.*
- Q7: Re Addendum No.3, Q26: Will we be required to hydroseed the area where the excess excavated material is dumped. If so what sort of area are we to allow. Will this material be spread or piled? If we are to hydroseed we need to be able to determine an area for pricing. Please clarify intent.
- A7: *Hydroseed is required for excess excavated material. Excess excavation will be spread to match the existing grade as directed by the Engineer. For pricing purposes, assume 50m².*
- Q9: Please clarify tie-in point for new primary service as location is not shown on drawings?
- A9: *See Clarifications regarding hydro below*
- Q10: Re: 11240, 2.1.6.3: Please note that de-aeration valves are part of the pump liquid end and should not be supplied loose unless required as spares. Please clarify.
- A10: *Division 11, Section 11240, sub-section 2.1.6 refers to spares parts to be provided.*
- Q11: Will the existing power line be relocated before construction/shoring installation.
- A11: *See Clarifications regarding hydro below.*

V

CLARIFICATIONS

1. Currently the existing transformers on the dead-end hydro pole (L8048) on Hixon street are providing two 600V power supplies to the site - one is underground to existing BPS#2 and one is via overhead to existing BPS#3. Since the existing 600V overhead power line

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is owned by the Region, it shall be relocated or modified by the Contractor prior to construction work. It is suggested to cut the overhead conductors from the existing BPS#3 building back to the middle pole near the facility fence (L8047), connect it with a Teck cable and then run the temporary 600V power underground to BPS#3. This temporary power supply and two poles inside the facility shall be removed after construction and commissioning of new BPS#3 by the Contractor. The Contractor shall coordinate with Hydro - NPEI for the de-energizing and energizing of transformers at the street pole (L8048). This will cause a short term power interruption to the entire site.


2. The Existing 200A 600V power supply (underground from Hixon Street – L8048) to the existing BPS#2 building shall be disconnected by the Contractor and removed and BPS#2 shall be powered by the new 300KVA transformer. A set of 4C-#3/0 conductors in a 51mm conduit shall be installed by the Contractor from the proposed pad mounted transformer secondary to the existing BPS#2 power panel (main breaker). There will be 3 sets of 4c-#3/0 cables connected on the power transformer secondary – 1 set for existing BPS#2 and 2 sets for new BPS#3. The existing hydro metering at BPS #2 is to be retained. Contractor shall install a 200Amp 600Vac, 3 pole fusible lockable disconnect switch ahead of the BPS#2 hydro meter according to NPEI's standards for the 200Amp metering service. The Contractor will coordinate with hydro as required.
3. Hydro – NPEI will deliver the transformer and drop on the proposed pad of the concrete vault. NPEI will provide and install the primary conductors, and demolish the existing pole mounted transformers to reform the service pole.
4. Maintenance Holdback: 5% of the Final Contract Value shall be withheld for one (1) year from the date of Final Completion.
5. Tenders not including this addendum signed as requested shall be rejected as informal.

END OF ADDENDUM NO. 4

NO. OF PAGES: 6

Attachments: None.

Date Issued: FEBRUARY 2, 2012

Signature: 
Project Manager

THE TENDERER SHALL ADJUST HIS BID PRICE ACCORDING TO THE CHANGES SPECIFIED IN THIS ADDENDUM.

Name of Company: _____

Tenderer's Signature: _____

Date: _____