**ACKNOWLEDGEMENT OF RECEIPT OF**

**ADDENDUM # 1**

**LISTUGUJ MI'GMAQ GOVERNMENT**
**CONTRACT NO.2 – WATER TREATEMENT PLANT AND WELL HOUSE UPGRADES**

**LISTUGUJ, QC**
**Project #1901412.002**

Please sign **this sheet** to indicate that your company has received this notice and return it by "FAX" to:

Englobe Corp.
Moncton, NB

Attention: Jinette McCormack

FAX: (506) 857-2753

Company Name: _____

Signature: _____

Date: _____

Our File 1901412.002
June 10, 2021

## Part 1 Specifications

1.1 Add Section 40 05 00 – COMMON WORK RESULTS FOR PROCESS INTEGRATION appended to this addendum to the Contract Documents.

1.2 Replace clause 1.16.1, CONSTRUCTION SEQUENCE of section 01 00 01 GENERAL REQUIREMENTS with the following table.

| ITEM | DESCRIPTION | MILESTONE DATE (completed by) |
|---|---|---|
| | Year 2021 | |
| 1 | Award of Contract | July 9th, 2021 |
| 2 | Contractors initial schedule (submitted to Engineer) | July 16th, 2021 |
| 3 | Mobilization to the site | July 23rd, 2021 |
| 4 | Environmental site control | July 23rd, 2021 |
| 5 | Site Stripping completes and commencement of reservoir preloading material | July 23rd, 2021 |
| 6 | Installation of preloading fill | August 20th, 2021 |
| 7 | Shop drawing submittals | August 20th, 2021 |
| 8 | Earthworks and building foundation incl. underground pipes at building | August 27th, 2021 |
| 9 | Installation of site watermain & sewerage piping from building to existing system | September 17th, 2021 |
| 10 | Building structural and architectural | October 1st, 2021 |
| 11 | Backfilling and rough grading | November 12th, 2021 |
| 12 | Mechanical process piping and building plumbing | November 19th, 2021 |
| 13 | Building electrical | December 10th, 2021 |
| 14 | Winter demobilization | December 17th, 2021 |
| | Year 2022 | |
| 15 | End of preloading period (based on 26 weeks) | January 28th, 2022 |
| 16 | Removal of preloading fill and stockpiling for backfill | April 29th, 2022 |
| 17 | Completion of reservoir (by others) | September 2nd, 2022 |
| 18 | Installation of watermain and sewerage piping between building and reservoir | September 16th, 2022 |
| 19 | Backfilling and rough grading | September 23rd, 2022 |
| 20 | SCADA & programming (communications) | September 23rd, 2022 |
| 21 | Substantial completion / testing and commissioning of new system (reservoir leakage testing by others) | October 7th, 2022 |
| 22 | Decommissioning of existing system including all demolition | October 28th, 2022 |
| 23 | Final grading and landscaping | November 11th, 2022 |
| 24 | Cleanup and final demobilization | November 18th, 2022 |

**Part 2** **Tender Opening**

2.1 There is a CHANGE to the date of the tender opening. Tenders will be received until 10:00 am (Eastern Time) 11:00am (Atlantic Time), Friday, June 25th, 2021.

## A SIGNED COPY OF THIS ADDENDUM MUST BE INCLUDED WITH THE TENDER SUBMISSION.

Firm: _____

Authorized Signature: _____

**END OF SECTION**

# ADDENDUM NO.1 APPENDIX

# SECTION 40 05 00 – COMMON WORK RESULTS FOR PROCESS INTEGRATION

## Part 1 General

### 1.1 RELATED REQUIREMENTS

.1 Division 26 sections

### 1.2 REFERENCES

.1 Definitions:

.1 Electrical and electronic terms: unless otherwise specified or indicated, terms used in these specifications, and on drawings, are those defined by IEEE SP1122.

.2 Reference Standards:

.1 Canadian Standards Association (CSA)

.1 CSA C22.1-12, Canadian Electrical Code, Part 1 (22nd Edition), Safety Standard for Electrical Installations.

.2 CAN3-C235-83(R2010), Preferred Voltage Levels for AC Systems, 0 to 50,000 V.

.2 Institute of Electrical and Electronics (IEEE)/National Electrical Safety Code Product Line (NESC)

.1 IEEE SP1122-2000, The Authoritative Dictionary of IEEE Standards Terms, 7th Edition.

### 1.3 ACTION AND INFORMATIONAL SUBMITTALS

.1 Submit in accordance with Section 01 33 00 - Submittal Procedures.

.2 Product Data:

.1 Submit manufacturer's instructions, printed product literature and data sheets and include product characteristics, performance criteria, physical size, finish and limitations.

.2 Submit WHMIS MSDS in accordance with Construction and Hazardous Materials Section.

.3 Shop drawings:

.1 Provide shop drawings: in accordance with Section 01 33 00 - Submittal Procedures.

.1 Provide shop drawings for each type of starter to indicate:

.1 Mounting method and dimensions.

.2 Starter size and type.

.3 Layout and components.

.4 Enclosure types.

.5 Wiring diagram.

.6 Interconnection diagrams.

.4 Certificates:

.1 Provide CSA certified equipment and material.

.2 Where CSA certified equipment or material is not available, submit such equipment and material to authority having jurisdiction for approval by a certified agency of Standard Council of Canada (SCC) before delivery to site.

.3 Submit test results of installed electrical systems and instrumentation.

.4 Permits and fees: in accordance with General Conditions of contract.

.5 Submit certificate of acceptance from authority having jurisdiction upon completion of Work to Consultant.

.5 Manufacturer's Field Reports: submit to Engineer manufacturer's written report, within 3 days of review, verifying compliance of Work of electrical system and instrumentation testing, as described in PART 3 - FIELD QUALITY CONTROL.

## 1.4 CLOSEOUT SUBMITTALS

.1 Submit in accordance with Section 01 78 00 - Closeout Submittals.

.2 In addition to technical data the Electrical Contractor shall also include:

.1 Names, addresses and phone numbers of local supplier for items included in the maintenance manual

.2 Copy of reviewed shop drawings.

.3 Names, addresses and phone numbers of Electrical Sub-contractors.

.4 Inspection certificates and verification reports.

.5 Letter or certificate of warranty.

## 1.5 DELIVERY, STORAGE AND HANDLING

.1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements.

.2 Material Delivery Schedule: Provide consultant with schedule within 2 weeks after award of contract for all long delivery items.

.3 Delivery and Acceptance Requirements: deliver materials to site in original factory packaging, labelled with manufacturer's name and address.

.4 Storage and Handling Requirements:

.1 Store materials indoors, in dry location and in accordance with manufacturer's recommendations in clean, dry, well-ventilated area.

.2 Store and protect materials from damage to finish or material.

.3 Replace defective or damaged materials with new.

## 1.6 ADDENDA AND REVISIONS

.1 All addenda, instructions and revisions issued during the tendering period shall become part of the Contract Documents and shall be included in the Tender, and shall take precedence over the previous instructions.

.2 The Owner and Engineer reserve the right to make revisions to the drawings during the period of construct ion and these shall take precedence over previously issued drawings.

All revisions to the work shall be executed by duly authorized change orders with the amount of addition or deduction to the contract amount approved by the Owner before the execution of any work associated with the revision is undertaken.

**1.7 SUBSTITUTIONS**

.1 It is the intent of these drawings to establish the required quality of materials. Where manufacturer names or catalogue references are used, it is done in order to establish the required quality, style, size or function. Products of other manufacturers will not be permitted after the signing of the contract. The decision as to suitability shall rest with the Engineer.

.2 Should the contractor propose to furnish material and equipment other than those specified, they shall submit a written request for any or all substitutions prior to the tender closing date. Such a request shall be accompanied by a complete description including manufacturer, brand name, catalogue number and technical data for all items. If requested by the Engineer, the contractor shall submit for inspection a sample of the proposed item.

.3 All material not meeting the specifications above shall not be allowed on the project site.

.4 Substitutions affecting the design will not be permitted. Additional costs to any other trade as a result of a change or substitution by this contractor shall the responsibility of this contractor.

.5 The listing of a manufacturer as acceptable does not imply acceptance of all products of that manufacturer and only products meeting the specifications will be accepted.

**1.8 SCOPE OR WORK**

.1 The Electrical Contractor shall furnish all labour, material, tools, appliances and equipment to entirely complete and provide the operation of the electrical systems.

.2 The overall intention is to provide a functioning complete electrical installation in all aspects, and all items reasonably inferable as called for by the drawings and specifications, and by normally accepted good practice, notwithstanding that every item necessarily required may not be particularly mentioned. This Contractor shall fulfill his obligation and not take advantage of any unintentional errors or omissions, should any exist, to the detriment of the Owner's interest. The work shall include but not be limited to:

.1 PLC control panels fabrication, installation and wiring of field devices. PLC, HMI and SCADA programming shall be done by others.

.2 Provide start-up and commissioning assistance for the SCADA system.

.3 Coordination with other trades. See also Mechanical specifications and drawings.

**1.9 ELECTRICAL DRAWINGS**

.1 The electrical drawings which constitute an integral part of this contract shall serve as working drawings. They indicate the general layout of the complete electrical system arrangements of feeders, circuits, outlets, switches, controls, panelboards, service equipment, communications, fire alarm systems, underground duct banks, overhead pole lines, power center, etc.

.2 Field verification of scale dimensions on drawings is directed since actual locations, distances, and levels will be governed by the field conditions.

.3 All discrepancies related to the electrical work shall be promptly brought to the attention of the Engineer for clarification.

**1.10 EXISTING CONDITION AND EXAMINATION OF DRAWINGS**

.1 The Electrical Contractor shall become completely familiar with the drawings and specifications, as well as construction methods of other trades related to the work to avoid possible interferences on the project. Should drastic changes be necessary to resolve such conflicts, this Contractor shall notify the Engineer and secure written approval and agreement on the necessary adjustments before the installation is started.

.2 Before submitting the tender, this Contractor shall visit the site and become familiar with site conditions, availability of storage space and all other factors that might influence the tender submittal.

.3 The contractor shall determine all working conditions and rigidly comply. Conditions that require special consideration include but not limited to: Dust, Noise, Vibration, Water, Working hours, Continuity of power, Access to area of work, Physical protection of Owner's facility and equipment.

.4 No extras will be allowed due to failure to account for site conditions or working conditions.

.5 The exact rough in dimensions and connection points shall be determined from shop drawings and on site measurements.

**1.11 DISCREPANCIES**

.1 Bidders in preparing their tender, finding any errors, omission, or discrepancies in the drawings, specifications or other documents, or having any doubt in the intent or meaning of any part thereof, shall immediately notify the Engineer, who will send written instructions or clarification to all bidders. Where such discrepancies exist and it is evident that this Contractor could not have properly tendered without clarifications and where such clarification was not requested, not extra to the contract will be considered in order to have the installation properly made. The Owner and Engineer will not be responsible for oral instruction.

## Part 2 Products

**2.1 DESIGN REQUIREMENTS**

.1 Operating voltages: to CAN3-C235.

.2 Motors, electric heating, control and distribution devices and equipment to operate satisfactorily at 60 Hz within normal operating limits established by above standard.

.1 Equipment to operate in extreme operating conditions established in above standard without damage to equipment.

.3 Language operating requirements: provide identification nameplates and labels for control items in English and French.

.4 Use one nameplate or label for both languages.

**2.2 MATERIALS AND EQUIPMENT**

.1 Provide material equipment in accordance with Section 01 61 00 - Common Product Requirements.

.2 Material and equipment to be CSA certified. Where CSA certified material and equipment are not available, for approval by a certified agency of Standard Council of Canada (SCC) before delivery to site and submit such approval as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.3 Factory assemble control panels and component assemblies.

**2.3 ELECTRIC MOTORS, EQUIPMENT AND CONTROLS**

.1 Verify installation and co-ordination responsibilities related to motors, equipment and controls, as indicated.

.2 Control wiring conduit: in accordance with Section 26 05 34 – Conduit, Conduit Fastenings and Conduit Fittings. All wiring and connections below 50 V which are related to control systems specified in mechanical sections or as shown on mechanical drawings shall not be the responsibility of this contractor unless otherwise noted.

**2.4 WARNING SIGNS**

.1 Warning Signs: in accordance with requirements from inspection authorities and Consultant.

.2 Decal signs, minimum size 175 x 250 mm.

**2.5 FIELD WIRING**

.1 Analog wiring: #18 AWG twisted shielded stranded wiring in conduit.

.2 Digital wiring: #16 AWG TEW wiring in conduit.

**2.6 WIRING TERMINATIONS**

.1 Ensure lugs, terminals, screws used for termination of wiring are suitable for either copper or aluminum conductors.

**2.7 SCADA INTEGRATION**

.1 SCADA integration will be provided by the Engineer. The Contractor will be responsible for providing start-up assistance as required by the Engineer and verify all I/O connection points along with all instrumentation loops.

**2.8 CONTROL PANELS**

.1 Provide a CSA approved control panel (Main) and their components to control and monitor the water treatment system, pumps and related sensors, and interface to the HMI display.

.2 Provide a CSA approved Remote PLC control panel and their components to control and monitor 2 well pumps and related sensors, and interface to the HMI display.

.3 Refer to the attached "PLC I/O Sheet" for the list of required I/O's.

.4 This specification gives the performance requirements only and the supplier is responsible for detailed design and layout of control panels and instrumentation in order to provide a complete system.

.5 The main control panel (located in the Water Treatment Plant) shall contain the following components, but not limited to:

.1 The control panel enclosure shall be a NEMA type 12 painted steel enclosure with inner panel with hinged door and ¼ turn latches. Enclosure shall be sized to fit all components with a minimum of 20% future spare capacity as specified and to ensure all minimum clearances are maintained for heat dissipation of power supply, PLC, UPS and other components.

.2 Properly sized TVSS.

.3 Non switching type Uninterruptible Power Supply (UPS) for a backup power supply.

.4 Service LED strip light with automatic door switch.

.5 Industrial panel mount 24 volt DC switched mode power supply.

.6 Programmable Logic Controller (PLC) to provide control and monitoring c/w all associated terminal blocks. Provision shall be made for 20% spare I/O for each I/O type (DI, DO, AI, AO).

.1 Allen Bradley Micro 850 (2080-LC50-48QWB)

.2 Input Module, Digital, 32 Point, 12/24VDC, Sink/Source , IEC (2085-IQ32T)

.3 Plug-In Module: 2-ch V/I Analog Output 0-10V, 0-20mA (non-isolated) (2080-OF2)

.4 16 Channel High-Density Analog Input (2085sc-IF16V)

.5 Input Module, Analog, Voltage/Current, 8 Channels, Bipolar, +-10V, 0-20mA (2085-IF8)

.6 Expansion I/O End Caps / Terminator (2085-ECR)

.7 Refer to the attached "PLC I/O Sheet" for the list of required I/O's.

.8 A 10 inch C-More (EA9-T10WCL) HMI (Human Machine Interface) mounted on the main PLC panel door.

.9 Control relays, plastic wiring duct and other accessories as required.

.10 Terminal blocks for the termination of all external wiring.

.11 Unmanaged 8 ports industrial Ethernet switch to connect, HMI, Scada, PLC and Remote PLC connection.

.6 The Remote PLC control panel (located in the Well Station) shall contain the following components, but not limited to:

.1 The control panel enclosure shall be a NEMA type 12 painted steel enclosure with inner panel with hinged door and ¼ turn latches. Enclosure shall be sized to fit all components with a minimum of 20% future spare capacity as specified and to ensure all minimum clearances are maintained for heat dissipation of power supply, PLC, UPS and other components.

.2 Properly sized TVSS.

.3 Non switching type Uninterruptible Power Supply (UPS) for a backup power supply.

.4 Service LED strip light with automatic door switch.

.5 Industrial panel mount 24 volt DC switched mode power supply.

.6 PLC to provide control and monitoring c/w all associated terminal blocks. Provision shall be made for 20% spare I/O for each I/O type (DI, DO, AI, AO).

.1 Allen Bradley Micro 850 (2080-LC50-48QWB)

.2 Input Module, Analog, Voltage/Current, 8 Channels, Bipolar, +-10V, 0-20mA (2085-IF8)

.3 Plug-In Module: 2-ch V/I Analog Output 0-10V, 0-20mA (non-isolated) (2080-OF2)

.7 Refer to the attached "PLC I/O Sheet" for the list of required I/O's.

.8 A 10 inch C-More (EA9-T10WCL) HMI (Human Machine Interface) mounted on the main PLC panel door.

.9 Control relays, plastic wiring duct and other accessories as required.

.10 Terminal blocks for the termination of all external wiring.

.11 Unmanaged 4 ports industrial Ethernet switch to connect, HMI, PLC and Remote PLC connection.

.7 Dedicated, identified terminal blocks shall be supplied for analogue inputs, analog outputs and power distribution.

.8 Each digital output shall be interfaced to an isolation relay.

.9 All of the I/O's (even if not used) shall be terminated to a terminal block (or relays for digital I/O's).

.10 Dedicated circuit breaker for Digital inputs, Digital Outputs, Analog Inputs, Analog Outputs.

.11 Dedicated breaker for each instrument in the panel (some instruments can be combined to the same breaker)

.12 Service receptacle with a dedicated breaker.

.13 Each rows of terminal blocks shall have a minimum of 2" cable management duct and shall be sized accordingly to suite number of cables.

.14 The analogue I/O terminal shall include the following:

.1 Blade type terminals for positive and negative signals to allow testing.

.2 Ground terminal or shield wiring.

.3 A separation plate between each I/O.

.15 16 AWG stranded wire minimum shall be used for signal circuit and minimum 14 AWG stranded for power distribution.

.16 Color coded wiring or each I/O type (Digital Input, Digital Output, Analogue Input, Analog Output).

.17 Provide an industrial, panel mount 24 volt DC switched mode power supply with rated output power of 240 watts to supply the 24 volt DC required. Power supply shall be Allen-Bradley Bulletin 1606-XLS or equivalent.

.18 Provide a hardwired surge filter rated at 5 amps for the 120V supply. Surge filter shall be Eaton type AEGIS-HW or equivalent.

.19 Provide an industrial, line interactive Uninterruptible Power Supply (UPS) and with hardwired input and output terminals for both panels. UPS shall have a battery run time of 10 minutes at full load. Connect the alarm output relays to the PLC to indicate when the UPS is on battery and low battery.

.20 Pilot devices shall be NEMA rated 30mm, panel mount, LED illumination type with type 4/4X/13 degree of protection.

.21 Control Panel shall be certified to meet CAN/CSA C22.2 No. 14-10.

.22 The Control Panel manufacturer's representative shall provide training and user manuals at the site for the Owner's personnel on the operation and maintenance of the equipment.

## Part 3 Execution

### 3.1 INSTALLATION

.1 Do complete installation in accordance with CSA C22.1 except where specified otherwise.

.2 The I/O devices for the SCADA system are as indicated on the drawings.

.3 The control of the station, PLC and HMI programming will be by the Engineer.

### 3.2 NAMEPLATES AND LABELS

.1 Ensure manufacturer's nameplates, CSA labels and identification nameplates are visible and legible after equipment is installed.

### 3.3 CONDUIT AND CABLE INSTALLATION

.1 Install conduit and sleeves prior to pouring of concrete.

.1 Sleeves through concrete: schedule 40 steel pipe sized for free passage of conduit, and protruding 50 mm.

.2 If plastic sleeves are used in fire rated walls or floors, remove before conduit installation.

.3 Install cables, conduits and fittings embedded or plastered over, close to building structure so furring can be kept to minimum.

### 3.4 CO-ORDINATION OF PROTECTIVE DEVICES

.1 Ensure circuit protective devices such as overcurrent trips, relays and fuses are installed to required values and settings.

## 3.5 CO-ORDINATION WITH OTHERS

.1 Electrical contractor shall co-ordinate the installation of equipment to minimize inconvenience to Owner and other sub-contractors.

.2 Work by other contractors will be done concurrently with work in this contract. This contractor shall schedule and arrange the work and store materials in co-operation so as to avoid interference with others.

## 3.6 FIELD QUALITY CONTROL

.1 Qualifications: Electrical work to be carried out by qualified, licensed electricians who hold valid Master Electrical Contractor license or apprentices in accordance with authorities having jurisdiction and as per the conditions of Provincial Act respecting manpower vocational training and qualification.

.1 Employees registered in provincial apprentices program: permitted, under direct supervision of qualified licensed electrician to perform specific task.

.2 Permitted activities: determined based on the training level attained and demonstration of ability to perform specific duties

.2 Health and Safety Requirements: Complete construction in accordance with occupational health and safety regulations.

.3 Conduct following tests in accordance with Section 01 45 00 - Quality Control.

.1 Motors, heaters and associated control equipment including sequenced operation of systems where applicable.

.4 Carry out tests in presence of Consultant.

.5 Provide instruments, meters, equipment and personnel required to conduct tests during and at conclusion of project.

.6 Manufacturer's Field Services:

.1 Obtain written report from manufacturer verifying compliance of Work, in handling, installing, applying, protecting and cleaning of product and submit Manufacturer's Field Reports as described in PART 1 - ACTION AND INFORMATIONAL SUBMITTALS.

.2 Provide manufacturer's field services consisting of product use recommendations and periodic site visits for inspection of product installation in accordance with manufacturer's instructions.

## 3.7 SYSTEM STARTUP

.1 Instruct Consultant and operating personnel in operation, care and maintenance of systems, system equipment and components.

.2 Arrange and pay for services of manufacturer's factory service engineer to supervise start-up of installation, check, adjust, balance and calibrate components and instruct operating personnel.

.3 Provide these services for such period, and for as many visits as necessary to put equipment in operation and ensure that operating personnel are conversant with aspects of its care and operation.

## 3.8 CLEANING

.1 Progress Cleaning: clean in accordance with Section 01 74 11 - Cleaning.

.1 Leave Work area clean at end of each day.

.2 Final Cleaning: upon completion remove surplus materials, rubbish, tools and equipment in accordance with Section 01 74 11 - Cleaning.

.3 Waste Management: separate waste materials for reuse or recycling in accordance with Section 01 74 21 - Construction/Demolition Waste Management and Disposal.

.1 Remove recycling containers and bins from site and dispose of materials at appropriate facility.

## 3.9 RECORD DRAWINGS

.1 Refer to Section 01 78 00 – Closeout Submittals.

.2 Two sets of white prints shall be maintained for the exclusive purpose of recording deviations from that shown on the contract drawings. One set shall be kept up to date at all times. At the completion of the project the information shall be transferred to the second set of drawings and to a set of reproducible CAD drawings. Both sets shall be turned over to the Owner.

## 3.10 GUARANTEE

.1 Guarantee material and workmanship to be free from defect for a period of one (1) year or longer where specified otherwise, after issuing of the certificate of substantial completion.

.2 Make good, at the Owner’s convenience, all defects covered by this guarantee without additional cost to the Owner.

**END OF SECTION**