



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 824-2015

OLIVE WASTEWATER PUMPING STATION UPGRADES

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 OLIVE WASTEWATER PUMPING STATION UPGRADES

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, October 16, 2015.

B2.2 Bids determined by the Manager of Materials to have been received later than the Submission Deadline will not be accepted and will be returned upon request.

B2.3 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available at the Site at 10:00 am on October 2, 2015 to provide Bidders access to the Site.

B3.2 The Bidder is advised that they must contact the Contract Administrator at least 24 hours prior to the site visit in order to confirm attendance.

B3.3 The Bidder is further advised that they are responsible for providing their own safety equipment for the site visit. At a minimum, hard hat, safety boots and safety glasses.

B3.4 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D5.1.

B4.2 If the Bidder finds errors, discrepancies or omissions in the Bid Opportunity, or is unsure of the meaning or intent of any provision therein, the Bidder shall notify the Contract Administrator of the error, discrepancy or omission, or request a clarification as to the meaning or intent of the provision at least five (5) Business Days prior to the Submission Deadline.

B4.3 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B4.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Bid Opportunity will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B4.5 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B4 unless that response or interpretation is provided by the Contract Administrator in writing.

B5. CONFIDENTIALITY

B5.1 Information provided to a Bidder by the City or acquired by a Bidder by way of further enquiries or through investigation is confidential. Such information shall not be used or disclosed in any way without the prior written authorization of the Contract Administrator. The use and disclosure of the confidential information shall not apply to information which:

(a) was known to the Bidder before receipt hereof; or

- (b) becomes publicly known other than through the Bidder; or
- (c) is disclosed pursuant to the requirements of a governmental authority or judicial order.

B5.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B6. ADDENDA

B6.1 The Contract Administrator may, at any time prior to the Submission Deadline, issue addenda correcting errors, discrepancies or omissions in the Bid Opportunity, or clarifying the meaning or intent of any provision therein.

B6.2 The Contract Administrator will issue each addendum at least two (2) Business Days prior to the Submission Deadline, or provide at least two (2) Business Days by extending the Submission Deadline.

B6.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>

B6.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B6.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

B7.1 The Work is based on the Plant, Materials and methods specified in the Bid Opportunity.

B7.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least five (5) Business Days prior to the Submission Deadline.

B7.4 The Bidder shall ensure that any and all requests for approval of a substitute:

- (a) provide sufficient information and details to enable the Contract Administrator to determine the acceptability of the Plant, Material or method as either an approved equal or alternative;
- (b) identify any and all changes required in the applicable Work, and all changes to any other Work, which would become necessary to accommodate the substitute;
- (c) identify any anticipated cost or time savings that may be associated with the substitute;
- (d) certify that, in the case of a request for approval as an approved equal, the substitute will fully perform the functions called for by the general design, be of equal or superior substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance;
- (e) certify that, in the case of a request for approval as an approved alternative, the substitute will adequately perform the functions called for by the general design, be similar in substance to that specified, is suited to the same use and capable of performing the same function as that specified and can be incorporated into the Work, strictly in accordance with the proposed work schedule and the dates specified in the Supplemental Conditions for Substantial Performance and Total Performance.

- B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.
- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B17.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
 - (c) Bid Security
 - (i) Form G1: Bid Bond and Agreement to Bond, or
Form G2: Irrevocable Standby Letter of Credit and Undertaking, or
a certified cheque or draft;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid shall be submitted enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address.
- B8.4.1 Samples or other components of the Bid which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid.
- B8.5 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.6 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B17.1(a).
- B8.7 Bids submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B8.8 Bids shall be submitted to:
The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B9. BID

B9.1 The Bidder shall complete Form A: Bid, making all required entries.

B9.2 Paragraph 2 of Form A: Bid shall be completed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;
- (b) if the Bidder is a partnership, the full name of the partnership shall be inserted;
- (c) if the Bidder is a corporation, the full name of the corporation shall be inserted;
- (d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B9.2.1 If a Bid is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B9.2.

B9.3 In Paragraph 3 of Form A: Bid, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.

B9.4 Paragraph 12 of Form A: Bid shall be signed in accordance with the following requirements:

- (a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;
- (b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;
- (c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;
- (d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B9.4.1 The name and official capacity of all individuals signing Form A: Bid should be printed below such signatures.

B9.5 If a Bid is submitted jointly by two or more persons, the word "Bidder" shall mean each and all such persons, and the undertakings, covenants and obligations of such joint Bidders in the Bid and the Contract, when awarded, shall be both joint and several.

B10. PRICES

B10.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B10.1.1 Notwithstanding C12.2.3(c), prices on Form B: Prices shall not include the Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.

B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.

B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.

B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

B11.2 The Persons are:

(a) N/A

B11.3 Additional Material:

(a) N/A

B12. QUALIFICATION

B12.1 The Bidder shall:

- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
- (b) be financially capable of carrying out the terms of the Contract; and
- (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.

B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>

B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);

B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractor has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:

- (a) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
- (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition

Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or

- (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).

B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. BID SECURITY

B13.1 The Bidder shall provide bid security in the form of:

- (a) a bid bond, in the amount of at least ten percent (10%) of the Total Bid Price, and agreement to bond of a company registered to conduct the business of a surety in Manitoba, in the form included in the Bid Submission (Form G1: Bid Bond and Agreement to Bond); or
- (b) an irrevocable standby letter of credit, in the amount of at least ten percent (10%) of the Total Bid Price, and undertaking issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form included in the Bid Submission (Form G2: Irrevocable Standby Letter of Credit and Undertaking); or
- (c) a certified cheque or draft payable to "The City of Winnipeg", in the amount of at least fifty percent (50%) of the Total Bid Price, drawn on a bank or other financial institution registered to conduct business in Manitoba.

B13.1.1 If the Bidder submits alternative bids, the bid security shall be in the amount of the specified percentage of the highest Total Bid Price submitted.

B13.1.2 All signatures on bid securities shall be original.

B13.1.3 The Bidder shall sign the Bid Bond.

B13.1.4 The Surety shall sign and affix its corporate seal on the Bid Bond and the Agreement to Bond.

B13.2 The bid security of the successful Bidder and the next two lowest evaluated responsive and responsible Bidders will be released by the City when a Contract for the Work has been duly executed by the successful Bidder and the performance security furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.

B13.2.1 Where the bid security provided by the successful Bidder is in the form of a certified cheque or draft pursuant to B13.1(c), it will be deposited and retained by the City as the performance security and no further submission is required.

B13.2.2 The City will not pay any interest on certified cheques or drafts furnished as bid security or subsequently retained as performance security.

B13.3 The bid securities of all Bidders will be released by the City as soon as practicable following notification by the Contract Administrator to the Bidders that no award of Contract will be made pursuant to the Bid Opportunity.

B14. OPENING OF BIDS AND RELEASE OF INFORMATION

B14.1 Bids will be opened publicly, after the Submission Deadline has elapsed, in the office of the Corporate Finance Department, Materials Management Division, or in such other office as may be designated by the Manager of Materials.

B14.1.1 Bidders or their representatives may attend.

B14.2 Following the Submission Deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>

B14.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/default.stm>

B14.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B15. IRREVOCABLE BID

B15.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid.

B15.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work until a Contract for the Work has been duly executed and the performance security furnished as herein provided, but any Bid shall be deemed to have lapsed unless accepted within the time period specified in Paragraph 11 of Form A: Bid.

B16. WITHDRAWAL OF BIDS

B16.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B16.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.

B16.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid, and only such person, has authority to give notice of withdrawal.

B16.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

- (a) retain the Bid until after the Submission Deadline has elapsed;
- (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 12 of Form A: Bid; and
- (c) if the notice has been given by any one of the persons specified in B16.1.3(b), declare the Bid withdrawn.

B16.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B15.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law, including the right to retain the Bidder's bid security.

B17. EVALUATION OF BIDS

- B17.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity, or acceptable deviation there from (pass/fail);
 - (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
 - (c) Total Bid Price;
 - (d) economic analysis of any approved alternative pursuant to B7.
- B17.2 Further to B17.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.
- B17.3 Further to B17.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.
- B17.4 Further to B17.1(c), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.
- B17.4.1 Further to B17.1(a), in the event that a unit price is not provided on Form B: Prices, the City will determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B18. AWARD OF CONTRACT

- B18.1 The City will give notice of the award of the Contract or will give notice that no award will be made.
- B18.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.
- B18.2.1 Without limiting the generality of B18.2, the City will have no obligation to award a Contract where:
- (a) the prices exceed the available City funds for the Work;
 - (b) the prices are materially in excess of the prices received for similar work in the past;
 - (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
 - (d) only one Bid is received; or
 - (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.
- B18.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B17.
- B18.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2006 12 15) are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for Construction* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Bid Opportunity to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for Construction*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for Construction*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the installation of wastewater pumping units in the Olive Wastewater Pumping Station, installation of a by-pass pumping "tee" connection on the existing forcemain, complete with manhole (MH) assembly, and associated modifications and upgrades to the ventilation, electrical and automation components.

D2.2 The major components of the Work are as follows:

- (a) Installation of a by-pass pumping "tee" connection on the existing forcemain, complete with a manhole (MH) assembly;
- (b) Installation of temporary flow control and by-pass pumping;
- (c) Replacement of two (2) existing wastewater sewage pumps and motors in the "dry-pit" section of the station with three (3) new pumping units, motors, and driveshafts;
- (d) Replacement of process piping within the wastewater station including all valves and fittings as shown on drawings;
- (e) Installation of three (3) flow meters (one for each individual pumping unit) and associated instrumentation;
- (f) Installation of all new process piping, including piping through the open flow flume in the comminutor chamber;
- (g) Installation of a sump pump with discharge piping and fittings in the comminutor chamber;
- (h) Coordination with Manitoba Hydro to upgrade the electrical service to the station. This also includes providing temporary 600V power to the site to power temporary electrical equipment including but not limited to the bypass pumps.
- (i) Removal of the existing 600V and 120/240V electrical distribution within the station;
- (j) Installation of an MCC (motor control centre) complete with three soft starters for the pumps;
- (k) Installation of new 600V and 120/208V distribution, receptacles and lighting.
- (l) Installation of new emergency lighting system.
- (m) Electrical testing of new equipment.
- (n) Supply, installation, and commissioning of a new automation control for pumps. This also includes programming the programmable controller and verifying signaling between the station and the remote SCADA system.
- (o) Replacement of the HVAC system;
- (p) Structural and architectural improvements to the existing building;
- (q) Installation of motor room and pump room hoisting/craning devices complete with monorails; and
- (r) Replacement of the hydraulic gate valve into the station.
- (s) Modification of the existing wet well level sight glass. This includes the installation of a 2nd level transmitter, replacing the existing manifold on the existing level transmitter with a block-and-bleed manifold, extending the height of the sight glass, and venting the sight glass to the wet well manhole.

D3. EXTRA WORK ALLOWANCE

D3.1 Description:

- (a) The extra work allowance is intended to address additional upgrade work authorized by the Contract Administrator that may be required due to uncertainties involved in working in an older facility, some areas of which will not be visible until project work is underway.
- (b) The City reserves the right to delete any or all of the Cash Allowance from the Contract if the Work intended to be covered by the Cash Allowance is not required, or if the Works intended are found to be more extensive than the provisional Cash Allowance.

D3.2 Method of Measurement and Basis of Payment

- (a) Cost of repairs shall be evaluated by the methods outlined in C7.4 and a Change Order prepared by the Contract Administrator. Cost of the Change Order will be paid on the Progress Estimate and deducted from the Cash allowance. If the valuation of the authorized work exceeds the Value of the Cash Allowance, the Contract Value will be adjusted by the shortfall.

D4. DEFINITIONS

D4.1 When used in this Bid Opportunity:

- (a) "**MCC**" means Motor Control Centre;
- (b) "**RTU**" means Remote Terminal Unit;
- (c) "**PLC**" means Programmable Logic Controller;
- (d) "**MH**" means Manhole;
- (e) "**PDWF**" means Peak Dry Weather Flow;
- (f) "**ASTM**" means American Society for Testing and Materials;
- (g) "**AWWA**" means American Water Works Association.

D5. CONTRACT ADMINISTRATOR

D5.1 The Contract Administrator is SNC-Lavalin Inc., represented by:

Ian Parkinson, P.Eng.
Manager, Water Treatment

Telephone No. 204 786-8080 ext 274

Facsimile No. 204 786-7934

Email: ian.parkinson@snclavalin.com

D5.2 At the pre-construction meeting, Mr. Parkinson will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5.3 Bids Submissions must be submitted to the address in B8.8.

D6. CONTRACTOR'S SUPERVISOR

D6.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D7. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D7.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

- D7.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D7.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;
- (a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;
 - (b) the Contract, all deliverables produced or developed; and
 - (c) any statement of fact or opinion regarding any aspect of the Contract.
- D7.4 A Contractor who violates any provision of D7 may be determined to be in breach of Contract.

D8. NOTICES

- D8.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D8.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D8.3, D8.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D5.1.
- D8.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg
Chief Financial Officer
Facsimile No.: 204 949-1174
- D8.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204 947-9155
- D8.5 Bids Submissions must be submitted to the address in B8.8**

D9. FURNISHING OF DOCUMENTS

- D9.1 Upon award of the Contract, the Contractor will be provided with five (5) complete sets of the Bid Opportunity. If the Contractor requires additional sets of the Bid Opportunity, they will be supplied to him/her at cost.

SUBMISSIONS

D10. AUTHORITY TO CARRY ON BUSINESS

- D10.1 The Contractor shall be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba, or if the Contractor does not carry on business in Manitoba, in the jurisdiction where the Contractor does carry on business, throughout the term of the Contract, and shall provide the Contract Administrator with evidence thereof upon request.

D11. SAFE WORK PLAN

- D11.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D11.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgmt/Safety/default.stm>
- D11.3 Notwithstanding B12.4 at any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require an updated COR Certificate or Annual Letter of good Standing. A Contractor, who fails to provide a satisfactory COR Certificate or Annual Letter of good Standing, will not be permitted to continue to perform any Work.

D12. INSURANCE

- D12.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence.
 - (c) all risks course of construction insurance in the amount of one hundred percent (100%) of the total Contract Price, written in the name of the Contractor and The City of Winnipeg, at all times during the performance of the Work and until the date of Total Performance.
- D12.2 Deductibles shall be borne by the Contractor.
- D12.3 The Contractor shall provide the City Solicitor with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D12.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D13. PERFORMANCE SECURITY

- D13.1 The Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or

- (c) a certified cheque or draft payable to “The City of Winnipeg”, drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D13.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

D13.2 The Contractor shall provide the City Solicitor with the required performance security within seven (7) Calendar Days of notification of the award of the Contract by way of letter of intent and prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D14. DETAILED PRICES

D14.1 The Contractor shall provide the Contract Administrator with a detailed price breakdown (Form I: Detailed Prices) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D14.2 The Contractor shall state a price for each item or sub-item of the Work identified on Form I: Detailed Prices. The detailed prices must be consistent with the price(s) provided in the Contractor’s Bid.

D15. SUBCONTRACTOR LIST

D15.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D16. EQUIPMENT LIST

D16.1 The Contractor shall provide the Contract Administrator with a complete list of the equipment which the Contractor proposes to utilize (Form K: Equipment List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D17. DETAILED WORK SCHEDULE

D17.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D17.2 The detailed work schedule shall consist of the following:

- (a) a critical path method (C.P.M.) schedule for the Work;
- (b) a Gantt chart for the Work based on the C.P.M. schedule;

all acceptable to the Contract Administrator.

D17.3 Further to D17.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

D17.4 Further to D17.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

SCHEDULE OF WORK

D18. COMMENCEMENT

D18.1 The Contractor shall not commence any Work until he/she is in receipt of a letter of intent from the Award Authority authorizing the commencement of the Work.

D18.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D10;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D11;
 - (iv) evidence of the insurance specified in D12;
 - (v) the performance security specified in D13;
 - (vi) the detailed prices specified in D14;
 - (vii) the Subcontractor list specified in D15;
 - (viii) the equipment list specified in D16; and
 - (ix) the detailed work schedule specified in D17.
- (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.

D18.3 The Contractor shall commence the Work on the Site within seven (7) Calendar Days of receipt of the letter of intent.

D18.4 The City intends to award this Contract by Oct 30, 2015.

D18.4.1 If the actual date of award is later than the intended date, the dates specified for Commencement, Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D19. CRITICAL STAGES

D19.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) All piping, fittings, valves, electrical distribution, etc., must be put into active service by March 1, 2016.
- (b) Two (2) new pumping units and motors must be put into active service by March 1, 2016.

D20. SUBSTANTIAL PERFORMANCE

D20.1 The Contractor shall achieve Substantial Performance by April 4th, 2016.

D20.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D20.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D21. TOTAL PERFORMANCE

D21.1 The Contractor shall achieve Total Performance by June 30th, 2016.

D21.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.

D21.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D22. LIQUIDATED DAMAGES

D22.1 If the Contractor fails to achieve Critical Stages, Substantial Performance or Total Performance in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:

- (a) Critical Stages – one thousand five hundred dollars (\$1500);
- (b) Substantial Performance – one thousand dollars (\$1000);
- (c) Total Performance – three hundred dollars (\$300).

D22.2 The amounts specified for liquidated damages in D22.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages, Substantial Performance or Total Performance by the days fixed herein for same.

D22.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D23. SCHEDULED MAINTENANCE

D23.1 The Contractor shall perform the following scheduled maintenance in the manner and within the time periods required by the Specifications:

- (a) Landscape Maintenance as specified in CW 3510 of the City of Winnipeg's Standard Construction Specifications

D23.2 Determination of Substantial Performance and Total Performance shall be exclusive of scheduled maintenance identified herein. All scheduled maintenance shall be completed prior to the expiration of the warranty period. Where the scheduled maintenance cannot be completed during the warranty period, the warranty period shall be extended for such period of time as it takes the Contractor to complete the scheduled maintenance.

CONTROL OF WORK

D24. JOB MEETINGS

D24.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.

D24.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D25. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

D25.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

D26. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

D26.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

MEASUREMENT AND PAYMENT

D27. INVOICES

D27.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed :

The City of Winnipeg
Corporate Finance - Accounts Payable
4th Floor, Administration Building, 510 Main Street
Winnipeg MB R3B 1B9

Facsimile No.: 204 949-0864

Email: CityWpgAP@winnipeg.ca

D27.2 Invoices must clearly indicate, as a minimum:

- (a) the City's purchase order number;
- (b) date of delivery;
- (c) delivery address;
- (d) type and quantity of work performed;
- (e) the amount payable with GST and MRST shown as separate amounts; and
- (f) the Contractor's GST registration number.

D27.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D27.4 Bids Submissions must be submitted to the address in B8.8

D28. PAYMENT

D28.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D29. WARRANTY

D29.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D13)

KNOW ALL MEN BY THESE PRESENTS THAT

_____ ,
(hereinafter called the "Principal"), and

_____ ,
(hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), in the sum of

_____ dollars (\$_____)

of lawful money of Canada to be paid to the Obligee, or its successors or assigns, for the payment of which sum the Principal and the Surety bind themselves, their heirs, executors, administrators, successors and assigns, jointly and severally, firmly by these presents.

WHEREAS the Principal has entered into a written contract with the Obligee for

BID OPPORTUNITY NO. 824-2015

OLIVE WASTEWATER PUMPING STATION UPGRADES

which is by reference made part hereof and is hereinafter referred to as the "Contract".

NOW THEREFORE the condition of the above obligation is such that if the Principal shall:

- (a) carry out and perform the Contract and every part thereof in the manner and within the times set forth in the Contract and in accordance with the terms and conditions specified in the Contract;
- (b) perform the Work in a good, proper, workmanlike manner;
- (c) make all the payments whether to the Obligee or to others as therein provided;
- (d) in every other respect comply with the conditions and perform the covenants contained in the Contract; and
- (e) indemnify and save harmless the Obligee against and from all loss, costs, damages, claims, and demands of every description as set forth in the Contract, and from all penalties, assessments, claims, actions for loss, damages or compensation whether arising under "The Workers Compensation Act", or any other Act or otherwise arising out of or in any way connected with the performance or non-performance of the Contract or any part thereof during the term of the Contract and the warranty period provided for therein;

THEN THIS OBLIGATION SHALL BE VOID, but otherwise shall remain in full force and effect. The Surety shall not, however, be liable for a greater sum than the sum specified above.

AND IT IS HEREBY DECLARED AND AGREED that the Surety shall be liable as Principal, and that nothing of any kind or matter whatsoever that will not discharge the Principal shall operate as a discharge or release of liability of the Surety, any law or usage relating to the liability of Sureties to the contrary notwithstanding.

IN WITNESS WHEREOF the Principal and Surety have signed and sealed this bond the

_____ day of _____, 20____ .

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

By: _____ (Seal)
(Attorney-in-Fact)

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D13)

(Date)

The City of Winnipeg
Legal Services Department
185 King Street, 3rd Floor
Winnipeg MB R3B 1J1

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 824-2015
OLIVE WASTEWATER PUMPING STATION UPGRADES

Pursuant to the request of and for the account of our customer,

(Name of Contractor)

(Address of Contractor)

WE HEREBY ESTABLISH in your favour our irrevocable Standby Letter of Credit for a sum not exceeding in the aggregate

_____ Canadian dollars.

This Standby Letter of Credit may be drawn on by you at any time and from time to time upon written demand for payment made upon us by you. It is understood that we are obligated under this Standby Letter of Credit for the payment of monies only and we hereby agree that we shall honour your demand for payment without inquiring whether you have a right as between yourself and our customer to make such demand and without recognizing any claim of our customer or objection by the customer to payment by us.

The amount of this Standby Letter of Credit may be reduced from time to time only by amounts drawn upon it by you or by formal notice in writing given to us by you if you desire such reduction or are willing that it be made.

Partial drawings are permitted.

We engage with you that all demands for payment made within the terms and currency of this Standby Letter of Credit will be duly honoured if presented to us at:

(Address)

and we confirm and hereby undertake to ensure that all demands for payment will be duly honoured by us.

All demands for payment shall specifically state that they are drawn under this Standby Letter of Credit.

Subject to the condition hereinafter set forth, this Standby Letter of Credit will expire on

(Date)

It is a condition of this Standby Letter of Credit that it shall be deemed to be automatically extended from year to year without amendment from the present or any future expiry date, unless at least 30 days prior to the present or any future expiry date, we notify you in writing that we elect not to consider this Standby Letter of Credit to be renewable for any additional period.

This Standby Letter of Credit may not be revoked or amended without your prior written approval.

This credit is subject to the Uniform Customs and Practice for Documentary Credit (2007 Revision), International Chamber of Commerce Publication Number 600.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 *The City of Winnipeg Standard Construction Specifications* in its entirety, whether or not specifically listed on Form B: Prices, shall apply to the Work.

E1.2.1 *The City of Winnipeg Standard Construction Specifications* is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Spec/Default.stm> .

E1.2.2 The version in effect three (3) Business Days before the Submission Deadline shall apply.

E1.2.3 Further to C2.4(d), Specifications included in the Bid Opportunity shall govern over *The City of Winnipeg Standard Construction Specifications*.

E1.3 The following are applicable to the Work:

Specification No. Specification Title

Division 01 – General Requirements

013300	Submittal Procedures
014500	Quality Control
015100	Temporary Utilities
015200	Construction Facilities
016100	Common Product Requirements
071303	Execution Requirements
017411	Cleaning
017800	Closeout Submittals

Division 03 – Concrete

030510	Cast-In-Place Concrete
032000	Concrete Reinforcing

Division 04 – Masonry

040499	Masonry for Minor Works
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Division 05 – Metals

055000	Metal Fabrications
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Division 07 – Insulation, Sheeting, and Closure

072113	Board Insulation
076100	Sheet Metal Roofing
079210	Joint Sealing

Division 09 – Finishes

099123	Painting
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Division 10 – Fire Suppression

104420 Fire Extinguishers

Division 22 – Plumbing

221010 Plumbing Pumps
224201 Plumbing Specialties

Division 23 – Heating, Ventilation, and Air Conditioning (HVAC)

230500 Common Work Results for HVAC
230554 Mechanical Identification
230593 Testing, Adjusting, and Balancing For HVAC
230713 Duct Insulation
230933 Electric and Electronic Control System for HVAC
233114 Metal Ducts – Low Pressure to 500 Pa
233300 Air Duct Accessories
233315 Dampers - Operating
233400 HVAC Fans
233713 Louvers
235501 Duct Heaters
238240 Unit Heaters – Electric

Division 26 – Electrical

260501 Common Work Results - Electrical
260521 Wires And Cables (0-1000 V)
260528 Grounding – Secondary
260529 Hangers And Supports for Electrical Systems
260531 Splitters, Junction, Pull Boxes and Cabinets
260532 Outlet Boxes, Conduit Boxes and Fittings
260534 Conduits, Conduit Fastenings and Conduit Fittings
260805 Acceptance Testing
261217 Dry Type Transformers Up To 600 V Primary
262417 Panelboards Breaker Type
262419 Motor Control Centres
262726 Wiring Devices
262821 Moulded Case Circuit Breakers
262910 Motor Starters to 600 V
265000 Lighting
265201 Unit Equipment for Emergency Lighting

Division 27 – Communication

273000 Voice Communications

Division 40 – Automation

409001 Field Pushbuttons, Switches, and Indicators
409100 Automation - Process Measurement Devices
409200 Automation - Primary Control Devices
409443 Programmable Logic Controllers
409513 Control Panels
409990 Maintenance and Support

Division 41 – Material Processing and Handling Equipment

412223 Hoists

<u>City Drawing No.</u>	<u>Drawing Name/Title</u>
1-0169L-D0001	Cover Sheet
1-0169L-A0001	Panel Layout, Control Panel CP-L81
1-0169L-A0002	Power Distribution, Control Panel CP-L81
1-0169L-A0003-001	RTU I/O Wiring Diagram, Control Panel CP-L81, Discrete Inputs 10001-10016
1-0169L-A0003-002	RTU I/O Wiring Diagram, Control Panel CP-L81, Discrete Inputs 10017-10032
1-0169L-A0003-003	RTU I/O Wiring Diagram, Control Panel CP-L81, Discrete Inputs 10041-10048
1-0169L-A0003-004	RTU I/O Wiring Diagram, Control Panel CP-L81, Discrete Inputs 10057-10072
1-0169L-A0004	RTU I/O Wiring Diagram, Control Panel CP-L81, Discrete Outputs 00001-00016
1-0169L-A0005-001	RTU I/O Wiring Diagram, Control Panel CP-L81, Analog Inputs 30001-30008
1-0169L-A0005-002	RTU I/O Wiring Diagram, Control Panel CP-L81, Analog Inputs 30009-30013
1-0169L-A0006	RTU I/O Wiring Diagram, Control Panel CP-L81, Analog Outputs 40001-40004
1-0169L-A0007	Control Schematic, Control Panel CP-L81, Pump Control
1-0169L-A0008	Annunciator Panel, Lamp Layout
1-0169L-A0009	Loop Diagram, Comminutor Chamber Flood Switch, LSH-L481
1-0169L-A0010	Loop Diagram, Wet Well Level Transmitter "A", LIT-L500-A
1-0169L-A0011	Loop Diagram, Wet Well Level Transmitter "B", LIT-L500-B
1-0169L-A0012	Loop Diagram, Wet Well High Level Switches, LSH-L500, LSHH-L500
1-0169L-A0014	Loop Diagram, Pump Room Flood Switch, LSH-L523
1-0169L-A0015	Loop Diagram, P-L01 Flow Meter, FIT-L011
1-0169L-A0016	Loop Diagram, P-L02 Flow Meter, FIT-L021
1-0169L-A0017	Loop Diagram, P-L03 Flow Meter, FIT-L031
1-0169L-A0018	Loop Diagram, TVSS, XS-L712
1-0169L-A0019	Loop Diagram, 600 Volt Power Status, ESL-L711
1-0169L-A0020	Loop Diagram, Air Filter Plugged Switch, PDSH-L610
1-0169L-A0022	Junction Box Layout, JBA-L500-1
1-0169L-A0023	Connection Diagram, CSO Termination Panel
1-0169L-A0024	Network Diagram
1-0169L-B0001	Plans & Elevations, Building Modifications
1-0169L-E0001	Single Line Diagram, Existing
1-0169L-E0002	Single Line Diagram
1-0169L-E0003	Grounding Installation Details
1-0169L-E0004	Hazardous Location Plan
1-0169L-E0005	Electrical and Lighting Plan Layout, Main Floor, Demolition
1-0169L-E0006	Electrical and Lighting Plan Layout, Main Floor, New Work
1-0169L-E0007	Electrical and Lighting Plan Layout, Lower Level 1 – Comminutor Motor Room
1-0169L-E0008	Electrical and Lighting Plan Layout, Lower Level 2 – Motor and Comminutor Room
1-0169L-E0009	Electrical and Lighting Plan Layout, Lower Level 3 – Pump Room
1-0169L-E0010	Electrical Schedules
1-0169L-E0011	MCC Elevation and Details, MCC-L71
1-0169L-E0012	Motor Starter Schematic, MS-L01, Wastewater Lift Pump
1-0169L-E0013	Connection Diagram, MS-L01, Wastewater Lift Pump
1-0169L-E0014	Motor Starter Schematic, MS-L02, Wastewater Lift Pump
1-0169L-E0015	Connection Diagram, MS-L02, Wastewater Lift Pump
1-0169L-E0016	Motor Starter Schematic, MS-L03, Wastewater Lift Pump
1-0169L-E0017	Connection Diagram, MS-L03, Wastewater Lift Pump
1-0169L-M0001	HVAC Plan and Sections
1-0169L-M0002	Plans, Piping Arrangement
1-0169L-M0003	Elevations, Piping Arrangement
1-0169L-M0004	Elevations, Piping Arrangement
1-0169L-P0001-001	Process & Instrumentation Diagram, Wastewater Pumping
1-0169L-P0001-002	Process & Instrumentation Diagram, Wastewater Pumping
1-0169L-P0002	Process & Instrumentation Diagram, HVAC and Misc
1-0169L-S0001	Plans, Structural Modifications
1-0169L-S0002	Elevations, Structural Modifications
1-0169L-S0003	Elevations, Structural Modifications
1-0169L-S0004	Plan, Elevations & General Notes, Guardrail Assembly

1-0169L-S0005	Plans and General Notes, Hatch Covers
1-0169L-S0006	Elevation and Details, Monorails
1-0169L-S0007	Plans, Elevations and Details, Pipe Support and Opening Cover
1-0169L-S0008	Comminutor Inlet Structural Modifications, Plan and Elevations
1-0169L-S0009	Plan and Elevation, Manhole Structure

Reference Drawings

403	St. James interceptor, Ainslie Comm. & Pumping Sta.
403-A	St. James interceptor, Ainslie Comm. & Pumping Sta., Reinforcing Details
403-B	St. James interceptor, Ainslie Comm. & Pumping Sta., Superstructure & Misc. Details
1-0169-A-A0202-001	CSO Outfall Monitoring, Olive Street, 3D Isometric Plan
1-0169-A-A0202-002	CSO Outfall Monitoring, Olive Street, 3D Isometric Plan
1-0169-A-A0203	CSO Outfall Monitoring, Olive Street, Termination Panel Layout, Instrument List, Cable List
1-0169-A-A0204	CSO Outfall Monitoring, Olive Street, Electrical Room Layout, Loop Wiring Diagrams

GENERAL REQUIREMENTS

E2. HAZARDOUS MATERIALS

- E2.1 If asbestos or other hazardous materials are encountered during the Work of the Contract, the Contractor shall stop all work and notify the Contract Administrator immediately. Removal of hazardous materials shall be dealt with by the City and the Contractor shall await further instruction by the Contract Administrator.

E3. SPECIFIC REQUIREMENTS

- E3.1 The Contractor shall provide all materials, fabrications, finishes, temporary installation, documentation, shop drawings, means and methods necessary to fully install all of the new works identified on the contract drawings in a safe manner, fit-for-purpose intended. The description of work provided herein is intended to be a general description of work activities, and is not intended to be an exhaustive listing of all tasks necessary to complete the scope of installations given on the drawings or specifications.
- E3.2 Exercise care where cutting holes in existing concrete elements so as not to damage existing reinforcing.
- (a) For reinforced concrete floors, locate existing reinforcing utilizing a reinforcing bar locator and mark out on the surface of the concrete prior to cutting.
- (i) Mark the location of the proposed hole and all adjacent rebar.
- (ii) Obtain approval from the Contract Administrator prior to cutting.
- E3.3 The Contractor shall exercise care where installing anchors into existing concrete elements so as not to damage existing reinforcing. All anchors shall be installed utilizing carbide tip drill bits. The existing reinforcing shall be located utilizing a reinforcing bar locator and marked out on the surface of the concrete. The drill holes shall be advanced to the required depth for installation of anchors. Should reinforcement be encountered while drilling, terminate the hole and reposition to clear the reinforcement. Do not use core bits that can easily intercept and damage/cut the reinforcing during drilling.
- E3.4 The Contractor shall abide by the Arc Flash PPE requirements of CSA-Z462, Workplace Electrical Safety, and the arc flash labels on existing facility equipment.
- E3.5 Wire nuts
- (a) Wire nuts are not permitted in conduit bodies; and

- (b) Wire nuts are permitted in junction boxes for lighting and receptacle wiring only. Wire nuts are not permitted for automation wiring.

E3.6 All conduit routes shall be approved by the Contract Administrator prior to installation of new conduit.

E4. SURVEYING

E4.1 There are surveying requirements within the Work. All surveying requirements are the responsibility of the Contractor, and will be paid for by the Contractor.

- (a) The Contractor shall provide all survey and layout work necessary to accurately layout and position the new construction to the lines and elevations shown on the drawings. There will be no field survey resources provided by the City or the Contract Administrator at any time to assist with the construction or layout activities. Elevations and dimensions as shown on the current project drawings are considered accurate and should be followed for the field work. The Contract Administrator, at their sole discretion, may undertake a confirmatory survey of the Contractor's work if considered necessary as construction progresses.

E5. EQUIPMENT SUPPLIED BY OTHERS

E5.1 The City will supply the following equipment:

E5.1.1 Olive Wastewater Pumping Station:

- (a) Three (3) 154 l/s (2440 USgpm) dry-pit pumping units complete with pump supports, for installation as indicated in the Specifications and Drawings.
- (b) Three (3) 40 hp pump motors and driveshaft assemblies, for installation as indicated in the Specifications and Drawings.
- (c) One (1) 20 inch gate valve, for installation as indicated in the Specifications and Drawings.
- (d) Three (3) 12 inch gate valves, for installation as indicated in the Specifications and Drawings.
- (e) Three (3) 8 inch gate valves, for installation as indicated in the Specifications and Drawings.
- (f) Three (3) 8 inch check valves, for installation as indicated in the Specifications and Drawings.
- (g) One (1) cellular modem for installation into control panel CP-L81.

E5.1.2 The Contractor will receive a minimum of 2 days notice prior to delivery of items. Any special equipment required to receive these items is the responsibility of the Contractor and is considered incidental to the Contract Work and shall be done at the Contractor's expense.

E5.1.3 Inspection of the installed pumping units will be performed by a qualified technical representative from the manufacturer of the pumping units. The cost of the initial inspection will be paid for by the City.

E5.1.4 Inspection of the installed magnetic flowmeters and transmitters will be performed by a qualified technical representative from the manufacturer. The cost of the initial inspection will be paid for by the Contractor.

E5.1.5 Provide the Contract Administrator with seven (7) days notice of when pumps will be installed to allow for arrangements to be made with the pump supplier for initial start-up inspection.

E5.1.6 The Contract Administrator will supply arc flash stickers for the electrical equipment.

E6. EQUIPMENT AND MATERIALS

- E6.1 The Contractor shall supply all equipment and materials necessary to execute the work, except for the equipment and material listed in E5 and as shown on the Drawings to be re-used.
- E6.2 Existing equipment and materials may be re-used only as specifically indicated in these specifications, as shown on the Drawings or as approved by the Contract Administrator.

E7. SECURITY

- E7.1 The Contractor is responsible for all material and equipment stored on the site, including equipment and material listed in E5 once that material has been received by the Contractor.
- E7.2 Provide a chain-link fence around the construction site and lock after working hours. Supply five (5) copies of the key to the City.
- E7.3 The Contractor is responsible for ensuring the security of the pumping station.
- E7.4 Provide and pay for responsible security personnel to guard the site and contents of site after working hours whenever:
- (a) The pumping station or any associated piece of equipment is not locked and fully secure; or
 - (b) Temporary bypass pumping is active.
- E7.5 Costs for security shall be considered incidental to the Contract Work and shall be done at the Contractor's expense.

E8. SALVAGE

- E8.1 All salvaged equipment and materials as determined by the Contract Administrator shall remain property of the City unless specifically noted otherwise. The Contractor shall deliver salvaged equipment and materials to the City of Winnipeg's "Y Yard" outdoor storage compound located at the North East corner of the intersection of Dugald Road and Van Bellegham Avenue, Winnipeg, Manitoba.
- E8.2 The Contractor shall notify the Contract Administrator at least 48 hours prior to delivery of salvaged equipment to allow for arrangements to be made to receive the salvaged equipment. All deliveries shall be made between 8:00 am and 3:30 pm on Business days.
- E8.3 The Contractor shall remove and haul all rejected salvage from the site and legally dispose of it.
- E8.4 Removal and delivery of salvageable and non-salvageable equipment and material shall be considered incidental to the Contract Work and no additional payment will be made for such Work.

E9. DANGEROUS WORK CONDITIONS

- E9.1 Further to clause C 6.26 of the General Conditions, the Contractor shall be aware that underground chambers, manholes, and sewers are considered a confined space and shall follow the "Guidelines for confined Entry Work" as published by the Manitoba Workplace Safety and Health Division.
- E9.2 The Contractor shall be aware of the potential hazards that can be encountered in underground chambers, manholes and sewers such as explosive gases, toxic gases and oxygen deficiency. The Contractor's Safe Work Plan should address these issues.
- E9.3 The air in a confined space must be tested before entry and continuously during the time that personnel are inside the space. Equipment for continuous monitoring of gases must be explosion-proof and equipped with a visible and audible alarm. The principal tests are for

oxygen deficiency, explosion range and toxic gases. Testing equipment must be calibrated in accordance with manufacturer's specifications.

(a) The Contractor is responsible for all testing requirements.

E9.4 The Contractor shall ventilate all confined spaces including underground chambers, tunnels, pipes and shafts as required and approved by the Manitoba Workplace Safety and Health Act (the "Act"). If no ventilation is supplied, a worker must wear a respirator or supplied air to enter the confined space.

E9.5 Workers must wear a respirator or supplied air at all times when entering an underground chamber, manhole or sewer where live sewage is present.

E9.6 The Contractor shall provide a photo-ionization detector (PID) and toxic gas detector on site at all times to monitor potential hydrocarbon vapours and hydrogen sulphide in the confined spaces. The gas detector and safety equipment conforming to the Act shall be made available to the Contract Administrator for his use during inspections.

E9.7 The Contract Administrator may issue a stop work order to the Contractor if the above guidelines are not being followed. The Contractor shall not resume operations until the Contract Administrator is satisfied the Contractor is following the appropriate procedures. The Contractor shall have no claim for extra time or costs due to the stop work order for not following these safety guidelines.

E10. WATERWAY BY-LAW

E10.1 The Contractor shall note that all Works within 107 metres (350 feet) of a riverbank are within the jurisdiction of the Waterway By-Law. The City of Winnipeg, Water and Waste Department, will apply and pay for any Waterway Permits for the project, as required. The Contractor shall adhere to restrictions imposed on the permit.

E10.2 Under no circumstances will stockpiling of any material be permitted within 107 metres of a riverbank or dike.

(a) The Contractor is responsible for removing excavated materials from the Site immediately.

(b) The Contractor is responsible for utilizing and placing any backfill brought to the Site immediately.

E11. PROTECTION OF EXISTING TREES

E11.1 Do not remove existing trees and take the following precautionary steps to avoid damage from construction activities to existing boulevard trees within the limits of the construction area.

E11.1.1 Do not stockpile materials and soil or park vehicles and equipment on boulevards within 2 metres of trees.

E11.1.2 Strap mature tree trunks with 25 x 150 x 2400 wood planks. Smaller trees shall be similarly protected using appropriately sized wood planks.

E11.1.3 Excavations shall be carried out in a manner to minimize damage to existing root systems. Where roots must be cut to facilitate an excavation they shall be neatly pruned at the face of the excavation.

E11.1.4 Work on site shall be carried out in a manner to minimize damage to existing tree branches. Where damage to tree branches does occur, the Contractor shall neatly prune the damaged branch.

E11.1.5 American elm trees shall not be pruned between April 1st and August 1st and Siberian elm trees between April 1st and July 1st of any year under provisions of The Dutch Elm Disease Act.

E11.2 All damage to existing trees due to construction activities shall be repaired to the requirements and satisfaction of the City of Winnipeg, Parks and Recreation Department, Forestry Branch at the Contractor's expense.

E11.3 Costs for protection of trees shall be considered incidental to the Contract Work and shall be done at the Contractor's expense.

E12. TEMPORARY USE OF CITY EQUIPMENT

E12.1 City facilities, systems and equipment shall not be used during construction without the Contract Administrator's written permission. The Contract Administrator reserves the right to withdraw said permission if, in his opinion, proper care and maintenance are not provided.

E13. EXISTING PUMP STATION OPERATION DURING CONSTRUCTION

E13.1 The facility related to the Work is critical to the transport of wastewater for the City of Winnipeg. Under no condition shall the station pumping be shut down without prior permission from the Contract Administrator.

E13.2 The Contractor is advised that the existing Olive Wastewater Pumping Station will be allowed to be taken out of operation only after the Contractor's schedule of activities, including provisions for temporary by-pass pumping operations, to complete the Work, is approved by the Contract Administrator. The Contractor shall plan his construction activities to allow for the minimum amount of disruption time to normal operating status of the stations.

E13.3 The Contractor shall cooperate with and provide full access at all times for City personnel to carry out maintenance and operational duties.

- (a) No additional payments will be made for providing access to City forces on the site or any potential affect City crews might have on the Contractor's work.

E14. TEMPORARY SHUTDOWN OF THE PUMPING STATION

E14.1 Temporary shutdown of the wastewater pumping station will only be allowed for the installation of the forcemain by-pass.

- (a) The installation of the forcemain by-pass must take place at a time determined by the Contract Administrator.

E14.2 Prepare and submit shutdown plans a minimum of 48 hours prior to the proposed shutdown.

E14.3 All gate operation and other control relating to the wastewater process will be by the City.

E14.4 The Contractor shall monitor the upstream system at all times to ensure the stored level of wastewater will not exceed the critical basement elevation indicated on the Drawings.

E14.5 Subject to unforeseen flow conditions, 4 hours of allowable shutdown time may be available during the night.

E14.6 Schedule work activities requiring station shutdown to be done at night, if required by the Contract Administrator, when flow amounts are generally reduced, to maximize the amount of shutdown time available and reduce the risks associated with station shutdown.

E14.7 Water and Waste Department, Collection System personnel will be available to provide assistance to the Contractor for temporary shutdown of the wastewater pumping station to facilitate completion of the Work.

E14.8 There will be no charge to temporarily shutdown the wastewater pumping station to facilitate completion of the Work.

E14.9 If an unreasonable number of station shutdowns are required to complete the Work due to the Contractor's method of operation, a fee of \$300.00 per hour for Collection System personnel may be charged to the Contractor and deducted from future Progress Payments.

E15. EXCAVATION

E15.1 Remove existing surface installations as shown on the project drawings, as required to allow the excavation work to proceed without damage to existing installations. For installations that are to be reinstalled after completion of the work, store all materials in a secure location, away from the work area.

E15.2 All excavation work to be in accordance with CW 2030.

E15.3 Remove excavated materials from the site immediately. Excavated material shall not be stockpiled on-site unless it will be used as backfill the same day it is excavated.

E15.4 Place bedding and fill in accordance with CW 2030.

E15.5 Hydrovac excavation is required for the removal of material in the vicinity of existing forcemain.

E15.6 All working areas below grade shall be kept adequately and securely supported during and after excavation until the shoring and bracing is in place to prevent loss of ground and injury to any person from falling or caving material.

E16. PUMP START UP

E16.1 New pumps supplied by the City and installed by the Contractor shall not be started up by the Contractor without approval from the Contract Administrator. The Contractor shall provide the Contract Administrator his proposed schedule for each pump start up at least one week in advance in order to allow time for the Contract Administrator to make arrangements with the pump supplier to be present for the start up.

E16.2 If any new pumping equipment (pump, pump controller, motor or drive shaft) fails to operate or perform properly and has to be removed for service as determined by the Contract Administrator, the Contractor shall remove the equipment that fails at no cost to the City and make arrangements with the pump supplier to have the equipment taken to the supplier's shop.

E16.3 The City shall be responsible for the re-installation of the pumping equipment once it has been repaired or replaced.

E16.4 The pumping equipment supplier and contact for this Contract is:

Power and Mine Supply Company Ltd
4 – 75 Meridian Drive
Winnipeg, Manitoba
Attention: Matt Gillies, P.Eng.
Telephone: (204) 694-9300

E17. WET WEATHER FLOWS IN EXISTING SEWER

E17.1 In the event the flow in the sewer system is expected to exceed the amount indicated for PDWF due to wet weather runoff, the Contract Administrator may suspend work activities that require temporary by-pass pumping and temporary shutdown of the wastewater pumping station. Suspension of these activities will continue until the high flow diminishes in the sewer system.

E17.2 In the opinion of the Contract Administrator, if suspension of work activities that require temporary by-pass pumping and temporary shutdown of the wastewater pumping station cause a delay in completion of the Work through no fault of the Contractor, the completion date of the Work will be adjusted accordingly.

E17.3 There shall be no claim for additional costs or time due to Station shut-downs from high wet weather flows.

E18. WORK PLAN

E18.1 The Contractor is required to develop and submit a detailed work plan to the City for review. The work plan is to include:

- (a) The proposed construction sequence to be followed including all methods to be employed to ensure that no damage occurs to existing structures or adjacent properties within or adjacent to an excavation.
- (b) Detailed design and installation drawings for the excavation shoring system that is to be used for construction.
- (c) A description of all proposed methods of construction to be implemented.
- (d) Specialized equipment that may be used.
- (e) Any design revisions proposed to accommodate the Contractor's proposed method of construction.
- (f) Water control methods to be utilized during construction, including the Contractor's proposed method for draw down and depressurization of the groundwater till pressures in the area of the excavation and any required surface runoff control measures.
- (g) The Contractor shall respond to any concerns that may be raised by the Contract Administrator's review of the Contractor's construction methods submission.

E18.2 Do not install any electrical or automation equipment within the pumping station until the exposed sewage within the comminutor chamber is enclosed in pipework.

E19. MOBILIZATION AND DEMOBILIZATION

E19.1 Description

E19.1.1 Mobilization and demobilization will include but not be limited to start-up costs, equipment set-up and removal, storage facilities set-up and removal and site cleanup.

E19.2 Measurement and Payment

E19.2.1 A maximum of 50% of Form B, item 1 or 5% of the Total Bid Price, whichever is less, may be submitted for progress payment upon mobilization. The remaining amount will be paid out upon demobilization.

E19.2.2 The Contractor is eligible for payment of mobilization services when the Contract Administrator is satisfied that:

- (a) The Contractor has met all the Commencement requirements specified in D18.
- (b) The contractor has mobilized equipment and initiated work on Site.

E19.2.3 The Contractor is eligible for payment of demobilization services when the Contract Administrator is satisfied that:

- (a) The Contractor has achieved Substantial Performance;
- (b) the Contractor has demobilized; and
- (c) the Contractor has restored and cleaned up the site.

E20. LANDSCAPING

E20.1 Description

E20.1.1 This specification shall cover surface restoration and associated items of Work for existing surfaces disturbed by construction activities.

E20.2 Construction Methods

E20.2.1 Restoration of all existing surface areas disturbed by construction activities including but not limited to; excavation for new MH assembly, operation of construction equipment, placement of field office or equipment trailer, snow clearing and where construction materials were stockpiled, shall be restored as follows:

- (a) Grassed areas: sodding using imported topsoil in accordance with CW 3510.
- (b) Gravel surfaces: in accordance with CW 3150.
- (c) Asphalt surfaces: match existing base course and asphalt thickness or provide a minimum of 150 millimetres of base course and 75 millimetres of Type 1A Asphaltic concrete whichever is greater, in accordance with CW 3410.
- (d) Pavement slabs in accordance with CW 3310.
- (e) Interlocking pavement stones: CW 3330.

E20.3 Measurement and Payment

E20.3.1 Payment will be based on Form B, Item 2, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E21. FORCEMAIN BYPASS PUMPING CONNECTION COMPLETE WITH MANHOLE ASSEMBLY

E21.1 Description

E21.1.1 A Tee-junction shall be installed in the Forcemain to allow by-pass operations to take place for the duration of the upgrades. This Tee-junction shall be housed in a standard COW manhole detail.

E21.2 Materials

E21.2.1 The following items shall be procured by the Contractor and are shown in Drawing 1-0169L-S0009:

- (a) One (1) Twenty (20") inch gate valve complete with valve stem extension.
 - (i) The Contractor is responsible for verifying the length of valve stem extension required.
- (b) One (1) Twenty (20") inch run x Twelve (12") inch branch, ductile iron tee.
- (c) Twenty (20") inch ductile iron pipe – cut to length.
- (d) Two (2) Twenty (20") inch steel transition couplings.
- (e) Precast manhole as per City of Winnipeg Standard Detail SD-010.

E21.3 Scope of Work

- (a) Survey and locate all existing services and limits of proposed manhole excavation relative to existing structures. The contractor shall provide all survey and layout work necessary to accurately layout and position the new construction. The Contractor should complete a Geotechnical survey to ensure that the excavation is suitable for the manhole assembly. The Contract Administrator, at their sole discretion, may undertake a confirmatory survey of the Contractor's work if considered necessary.
- (b) Design, supply and install shoring system necessary for opening the new excavation to the required depth and dimensions necessary to install the new manhole assembly.
- (c) All excavations within 1.5 m of the force mains to be soft dig, either hydro excavated or by hand, as necessary to avoid potentially damaging the existing operational force mains.
- (d) The Contractor shall hot tap the forcemain in order to install the new by-pass "tee" junction.

- (e) Any service interruption will conform to Section E13 and E14.

E21.4 Specifications

E21.4.1 Backfill

- (a) Place and compact backfill material as indicated on the Drawings in accordance with CW2030. Do not place backfill material in a frozen state. Supply heating and hoarding in accordance with CW2160 if required to ensure material does not freeze before compaction is complete.

E21.4.2 Excavation Security Fence

- (a) Further to Clause 3.1 of CW 1130, completely cover the excavation and provide a security fence to completely surround the excavation when unattended in accordance with the following:
- (i) Security fence shall be chain link fence or approved equal, a minimum 1.80 metres high with metal support posts embedded far enough into the ground and spaced close enough together so the fence will not sag or collapse.
 - (ii) Attach fencing securely to posts.
 - (iii) Secure the gate or end of the fencing to a post with chain and a padlock.
 - (iv) Provide alternate security fence proposal to Contract Administrator for approval.

E21.5 Measurement and Payment

E21.5.1 Payment will be based on Form B, Item 3, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E22. FLOW CONTROL AND TEMPORARY BY-PASS PUMPING

E22.1 Description

E22.1.1 This specification covers flow control in existing sewers and temporary by-pass pumping of flow during installation of the wastewater pumping units and station modifications for each of the Baltimore and Ash Wastewater Pumping Stations.

E22.2 Materials

E22.2.1 Inflatable Rubber Sewer Plugs

- (a) Made of rubber, capable of remaining in place when inflated to the pressure required to withstand the expected sewer levels.
- (b) Provided with an inflation/deflation hose, monitoring pressure valve, removal rope or cable and safety chain, all of sufficient length to reach ground elevation for monitoring and removal.
- (c) Sewer Plugs must be installed in pairs at a minimum for redundancy.

E22.2.2 Temporary By-Pass Pumping Equipment

- (a) Non-clog, submersible pumping units, each sized to meet or exceed the required capacity. Complete with all required piping, fittings, floats and pump controls suitable for temporary installation in a sewer manhole.
- (b) Due to space restrictions, self-priming, non-submersible pumps of similar capacities can be considered.
- (c) Allowable sound level at property line is 55 dba.
- (d) Provide model and capacity curves to the Contract Administrator for approval.

- (e) Power supply to be suitably sized for pumping equipment complete with all required controls. Fuel to be in lockable, tamperproof container, approved by Contract Administrator.

E22.2.3 Fittings and Appurtenances

- (a) Fittings, couplings and appurtenances to be used for repairs to existing forcemains and sewers to be approved products for underground use in the City of Winnipeg.
- (b) Robar coupling to be used to connect by-pass pump discharge to the new tee-junction in the forcemain by-pass manhole.

E22.2.4 Bedding and Backfill

- (a) Bedding and initial backfill material to be sand in accordance with CW 2030.
- (b) Backfill excavations in pavement areas to be Class 3 in accordance with Clause 3.8.3 of CW 2030. Backfill in excavations in boulevard areas to be Class 5 in accordance with Clause 3.8.3 of CW 2030.

E22.3 Construction Methods

E22.3.1 General

- (a) Maintain level of sewage in existing sewers below the critical basement elevation shown on the Drawings at all times. The City will provide a mark at a convenient location for reference.
- (b) Allowable shutdown times shown on the drawings are approximate and the Contractor must monitor the upstream system at all times to ensure the stored level of wastewater does not exceed the critical basement elevation.
- (c) Provide a flow control plan to the Contract Administrator for review before construction starts.
- (d) Diversion of wastewater flow directly or indirectly to the environment, Land Drainage Sewers or Storm Relief Sewers will not be allowed.

E22.3.2 Expected Wastewater Flow to the Olive Wastewater Pumping Station

- (a) The expected peak dry weather flow (PDWF) to the Olive Wastewater Pumping Station will be provided to the Contractor.
- (b) The Critical Basement elevation will be provided to the Contractor.
- (c) Combined sewers can receive flow of an undetermined amount from watermain breaks, snow melt, rain and other unforeseen sources. The Contractor will be responsible to monitor the flow in the sewer and adjust or halt work activities accordingly due to unforeseen flow above the amount identified for PDWF.

E22.3.3 Inflatable Sewer Plugs

- (a) Only inflatable rubber sewer plugs shall be used to plug sewers.
- (b) Clean sewer pipe as required to properly install inflatable sewer plug(s) in accordance with the manufacturer's instructions to isolate the installation location. There must be a second plug installed at every point of isolation for redundancy. Installation of inflatable sewer plugs to be approved by the Contract Administrator before construction starts.
- (c) Secure inflatable sewer plugs at or near the ground surface.
- (d) Continuously monitor air pressure while sewer plug is in place and have proper inflation equipment available at all times.
- (e) Inflatable sewer plugs will be installed to ensure forcemain isolation during shutdown of the forcemains as required during construction.

E22.3.4 Temporary By-Pass Pumping

- (a) For by-pass pumping operations, provide a minimum of two submersible pumps at all times, each with a capacity equal to or greater than the listed PDWF for that station.

Both pumps are to be installed and available for operation. A replacement pump with the required capacity shall be immediately provided if one of the two original pumps has to be removed from the site for repairs.

- (i) A combination of smaller sized pumps may be used concurrently if the total discharge flow of the pumps meets the PDWF volumes identified in E27.3.2 and providing replacement pumps are available on-site to maintain the PDWF volume.
- (b) Installation locations of the temporary by-pass pumps must be approved by the Contract Administrator prior to installation.
- (c) Provide detailed information for pumping equipment to be used including pump capacity and dimensions, depth of submergence, pump controls and installation details to the Contract Administrator for review before construction starts.
- (d) Power supply to be approved by the Contract Administrator before set-up. Locate the power supply where it will not adversely affect local residences. Location to be approved by the Contract Administrator before construction starts.
- (e) Provide suitable traffic ramps approved by the Contract Administrator if the by-pass pumping discharge pipe and power supply cables are laid across vehicle or pedestrian traffic areas.
- (f) Provide a check valve on the by-pass pumping discharge pipe to prevent cycling when the pumping station is activated.
- (g) The Contractor is advised that the pumping station will remain in service while the work is being completed, except for planned temporary shutdowns as described in E14. The Contractor shall cooperate and coordinate with the City to allow full access at all times for City staff to carry out maintenance and operational duties.
- (h) Arrange construction activities and schedule to be able to remove temporary inflatable sewer plug(s) and restore pumping station operation at the end of by-pass pumping operations.
- (i) If a temporary pump in use fails, it must be replaced immediately with the standby pump and if the flow level in the sewer rises to the mark established by the Contract Administrator, the inflatable sewer plug shall be deflated and flow allowed to go the pumping station or additional temporary pumping must be provided.
- (j) The Contractor shall ensure temporary by-pass pumping equipment and materials will be properly insulated and heated, if required, to be protected from freezing and to maintain proper functioning during cold weather.
- (k) Temporary by-pass pumping equipment and materials shall remain on-site until station construction is completed as described in these Specifications and to the satisfaction of the Contract Administrator.

E22.3.5 Responsibility

- (a) The Contractor will take full responsibility for the temporary bypass pumping, including high water events.
- (b) The Contractor will provide a 24-hour contact person who can address any issues with the bypass pumping.
- (c) The Contractor is responsible for the Station upon mobilization.

E22.4 Measurement and Payment

E22.4.1 Flow control and temporary by- pass pumping will be measured on a unit basis and paid for at the Contract Unit Price for "Flow Control and Temporary By-Pass Pumping" as shown in Form B: Prices, Item 4, installed in accordance with this specification, accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E23. STRUCTURAL AND ARCHITECTURAL IMPROVEMENTS

E23.1 Replacement of Building Facia

- E23.1.1 Demolish and dispose of existing building facia on all four (4) sides of the building.
- E23.1.2 Repair or replace damaged wooden sub-facia where needed, including north-east corner.
- E23.1.3 Install new prefinished aluminum facia, in manufacturer's standard white colour.

E23.2 Replacement of Building Siding

- E23.2.1 Remove existing vinyl siding on both gable ends, and install new prefinished vinyl siding. Profile and colour to be chosen by the owner.

E23.3 Roof Replacement

- E23.3.1 Demolish and dispose of existing roof shingles; ensure all nails and staples are removed and prepare surface for new metal roofing.
- E23.3.2 Install new prefinished metal "screw-down" roof panels, clw matching trims, closures, sealants, and colour matched fasteners. Profile to be Behlen Industries AWR or equivalent. Minimum 0.455mm thick (26Ga). Colour to be selected from manufacturer's standard colour range, 8000 series or better paint system. Install to provide a weather-tight assembly.

E23.4 Mechanical Openings

- E23.4.1 Remove existing louvers on east wall of building.
- E23.4.2 Frame out new mechanical rough openings on east and south walls of building as indicated on the mechanical and structural drawings, and infill existing openings or portions of openings no longer needed.
- E23.4.3 Repair brick-work to match existing brick size, finish, and paint to match existing per 040499.
- E23.4.4 Close off existing Comminutor Chamber cast-iron vent (northeast corner). Exterior grill is to be removed, the pipe opening closed off with expanding spray-foam (leaving room for plywood), install 12mm to 19mm thick plywood plug painted black, and re-install grill. End of pipe in Comminutor Chamber is to be left as-is.

E23.5 Interior Architectural Works

- E23.5.1 Remove all existing expanded-foam insulation throughout all levels on all walls. Replace main floor and first floor below grade with new Roxul RHT-80 mineral fiber insulation as indicated on drawings and in section 072113. Cover with plywood as indicated on drawings, prime and paint white. Floors below the first floor below grade need not be insulated or reinsulated.
- E23.5.2 Clean and repaint all walls and ceilings on all levels. NOTE: existing paint is of unknown vintage and main contain lead. Existing paint shall be tested for lead content and if found to be positive, appropriate measures must taken for removal and disposal in accordance with Manitoba Regulations. Floors are to be cleaned, paint removed, and left unpainted. If any damaged or unsound concrete is uncovered during wall, ceiling, or floor cleaning notify the Contract Administrator.
- E23.5.3 Existing staircases and handrails are to be cleaned and painted with Safety Yellow wear-resistant paint. Paint used must be compatible with existing zinc-rich coating. Refer to 099123.
- E23.5.4 Install new guardrail and new handrail at main floor staircase opening as indicated on drawings. Ref 055000.
- E23.5.5 Remove and dispose of existing wood staircase covers, wood covers above Comminutor Chamber, and grating covers above all lifting well openings.

- E23.5.6 Remove insulation from and clean existing aluminum covers which will be remaining. Any glue residue must be removed. Ensure underside reinforcing angles are secure.
- E23.5.7 Install new stainless steel covers on all lifting well floor openings, Comminutor Chamber openings, and pipe opening in Motor Room. Staircase openings will not be recovered.
- E23.5.8 Remove existing wood cover and install new stainless steel cover above sump opening in Motor Room. Install new stainless steel cover on sump pit in Pump Room. This cover to have perforations to allow water drainage into sump pit.

E23.6 Interior Structural Works

- E23.6.1 Remove existing lifting hooks above motors and pumps and install two new monorail beams per drawings.
- E23.6.2 Install new steel HSS pipe support frame in Motor Room as per drawings.
- E23.6.3 Enlarge existing rectangular pipe opening in Motor Room floor to extents shown on drawings. Ensure any rebar ends that become exposed during sawcutting are protected with an epoxy paint or shall be chipped back, cutback, and grouted. Use caution to not overcut corners.
- E23.6.4 Install new concrete pump support base, and modify existing pump bases as need for new pump support frames as indicated on drawings. Ref 030510 and 032000.
- E23.6.5 Install new pipe support thrust block in pump room as indicated on drawings. Ref 030510 and 032000.
- E23.6.6 Cut out concrete in Comminutor Chamber to allow installation of new sewer pipeline, and infill existing Comminutor spirals with reinforcing and concrete. Cutout and form new sump pit in Comminutor Chamber. Any rebar exposed during cutting shall be protected with epoxy paint or shall be chipped back, cutback, and grouted. Ref 030510 and 032000.
- E23.6.7 Infill all small (less than 9" in size) abandoned floor openings by roughing existing concrete and filling with non-shrinking grout.
- E23.6.8 Re-core existing 10" +/- diameter mechanical pipe opening through main floor in southeast corner to allow room for new replacement 14" diameter pipe.

E23.7 Measurement and Payment

- E23.7.1 Payment will based on Form B, Item 5, as accepted and measured by the Contract Administrator.
 - (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E24. WET WELL AND COMMINUTOR CLEAN OUT

- E24.1 The Contractor shall be responsible for the clean out of the Wet Well and Comminutor Chamber. Clean out shall be done by mechanical or manual methods and shall remove grit, tallow and other build-ups to the satisfaction of the Contract Administrator.
- E24.2 The current level of accumulation in the Wet Well is not known. Higher levels of accumulation, above that anticipated by the Contractor will not be eligible for additional payments.
- E24.3 The Contractor shall also ensure that all construction material and debris are removed from the well and chamber after completing the works and prior to startup and commissioning of the new pumps.
- E24.4 The Contractor shall be responsible to maintain a clean Wet Well and Comminutor Chamber in the station during construction.

- E24.5 Schedule upstream work that may produce debris prior to Wet Well and Comminutor Chamber cleanout.
- E24.6 Provide evidence of the Wet Well clean out in the form of photographs, or other suitable means, acceptable to the Contract Administrator.
- E24.7 Under no circumstances will the City pay for more than one clean out of the Wet Well and Comminutor Chamber. In the event that the areas are not clean at the end of the associated mechanical work, the Contractor is responsible for bearing the cost of re-cleaning.
- E24.8 Measurement and Payment
- E24.8.1 Payment will be based on Form B, Item 6, as accepted and measured by the Contract Administrator.
- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E25. PROCESS MECHANICAL WORK

E25.1 Description

- E25.1.1 This Specification covers the piping, equipment, materials and structural modifications to the existing Olive Wastewater Pumping Station.
- E25.1.2 The Contractor shall remove the existing pumping units, motors, piping, equipment and materials as required and install new pumping units, piping, equipment and materials as shown on the drawings or as indicated by the Contract Administrator.
- E25.1.3 Mechanical drawings indicate general layout only. The Contractor is responsible for confirming all dimensions prior to manufacture of piping.
- E25.1.4 All equipment and material shall be supplied by the Contractor except as listed in E5.

E25.2 Materials

E25.2.1 Pumping Units

- (a) Three (3) pumps shall be supplied by the City as indicated in E5.

E25.2.2 Pump Motors

- (a) Three (3) pump motors complete with driveshaft assemblies shall be supplied by the City as indicated in E5.

E25.2.3 Gate Valves

- (a) Three (3) 8" gate valves for the discharge side of the pump shall be supplied by the City as indicated in E5.
- (b) Three (3) 12" gate valves for the suction side of the pump complete with valve extension stems and floor stands shall be supplied by the City as indicated in E5.
- (c) One (1) 20" gate valve for the inlet to the pumping station complete with valve extension stem and floor stand shall be supplied by the City as indicated in E5.

E25.2.4 Discharge Check Valves

- (a) Three (3) 8" check valves shall be supplied by the City as indicated in E5.

E25.2.5 Piping and Fittings

- (a) All piping shall be Class 52 ductile iron or ASTM Carbon steel Schedule 80 thickness.
- (b) Cast Iron fittings shall conform to AWWA C110.
- (c) Fabricated fittings shall conform to ASTM A53 carbon steel grade B, Schedule 800 wall thickness.

- (d) Steel fittings shall be ASTM A234 grade B carbon steel, Schedule 80 wall thickness. Dimensions shall be to ANSI B16.9.
- (e) All welded steel flanges shall be in conformance with AWWA C207, Class B.
- (f) In order to maintain the required build schedule, schedule 10 304L stainless steel can be substituted with the agreement of the Contract Administrator.
- (g) Submit shop drawings in accordance with Section 01 33 00.

E25.2.6 Large Diameter Flanges and Adaptor Flanges

- (a) Thread-on flanges for Ductile Iron Pipe: AWWA C115 or ASME B16.1.
- (b) Adaptor flanges: Ductile Iron, Grade 65-45-12, conforming to the current ASTM Standard A536 for Ductile Iron Castings. Bolt holes shall be drilled in accordance with AWWA C115 or ASME B16.1.
- (c) Clamping screws on adaptor flanges shall be zinc-plated, heat treated steel with a minimum tensile strength of 28 MPa.
- (d) Submit shop drawings in accordance with Section 01 33 00.

E25.2.7 Dismantling Joints

- (a) Use Dresser style 131 dismantling joint with tie rods or equivalent.
- (b) Materials:
 - (i) Spool Piece: Steel – AISI C1010-C1015
 - (ii) Flange Adapter: Steel – AISI C1010-C1015
 - (iii) Tie Rods: Steel – ASTM A193 Grade B7
 - (iv) Nuts: ASTM A194 Grade 2H
 - (v) Gasket: Grade 27 BUNA S
 - (vi) Coatings: Fusion Bonded Epoxy
- (c) Size: 8"

E25.2.8 Air Release Valve

E25.2.9 Sump Pumps

- (a) As per Section 22 10 10.

E25.2.10 Miscellaneous Metal Fabrications

- (a) As per Section 05 50 00.

E25.2.11 Pipe Supports and Hangers

- (a) Pipe supports and hangers to be as shown on the Drawings and in accordance with Section 05 50 00.

E25.2.12 Backflow Preventer

- (a) As per Section 22 42 01.

E25.2.13 Fasteners

- (a) Flange nuts and bolts shall be ASTM A276, Type 316 stainless steel sized to requirements of flange. Thread-on bolts to extend past nut a minimum of 6 millimetres.
- (b) Anchors shall be Kwik-bolt or Rawl Stud ASTM A276, Type 316 stainless steel. Embedment depth and size, where not shown on the Drawings, to be as required for load being carried or resisted.

E25.2.14 Gaskets

- (a) Flange gaskets shall be full faced rubberized cloth gaskets, 3mm in thickness.

- (b) Rubber gaskets for adaptor flanges shall conform to AWWA C111, Standard for Rubber-gasket Joints for Cast Iron and Ductile Iron Pressure Pipe and Fittings.

E25.2.15 Cast-in-Place Concrete

- (a) Concrete to be in accordance with CW 2160 and CSA A23.1.
- (b) Concrete mix design shall be in accordance with performance alternative and shall have the following properties:
 - (i) Class of exposure: S-1
 - (ii) Minimum compressive strength at 28 days: 35 MPa
 - (iii) Maximum slump: 80mm (\pm 20mm)
 - (iv) Air Content: 5% – 8%
 - (v) Maximum Water/Cement Ratio: 0.40
- (c) Lean-Mix concrete design for proportioning of fine aggregate, coarse aggregate, cement, and water shall be as follows:
 - (i) Cement: Type 50
 - (ii) Minimum compressive strength at 28 days: 15 MPa
 - (iii) Slump: 80mm
 - (iv) Air Content: nil
 - (v) Maximum Water/Cement Ratio: 0.49

E25.2.16 Grout

- (a) Grout to be S.P.I. Rapid Repair Grout, Sika Grout 218 or an approved equal as per B7.

E25.2.17 Bonding Agent

- (a) Bonding agent to be Acryl-Stix or approved equal as per B7.

E25.2.18 Paint

- (a) As per Section 09 91 23.

E25.3 Construction Methods

E25.3.1 General

- (a) Install the new station piping and pumping equipment as indicated in this specification and shown on the Drawings. Make no changes, revisions or substitutions to the layout without obtaining written approval from the Contractor Administrator.
- (b) Be aware of and contend with the wastewater in the existing forcemain when preparing to make the required piping modifications.
- (c) Prior to pumping unit installation, provide a portable sewage pump and discharge hose to remove remaining wastewater in the wet well. The wastewater shall be directed to the upstream manhole or to a sewage hauler for disposal.

E25.3.2 Flow Control and Temporary By-Pass Pumping

- (a) Provide flow control measures and temporary by-pass pumping in accordance with E22 of this Specification.

E25.3.3 Locating Ground Services

- (a) The contractor shall be responsible for locating all services.
- (b) Costs for locating the services shall be considered to incidental to the Contract Work.

E25.3.4 Construction Sequence

- (a) See Section E18.

E25.3.5 Existing Pump Level Controls and Alarms

- (a) Maintain and protect existing pump controls and float type alarms, located in the wet well or in the other areas of the Station, during the execution of the work until all the new equipment is ready for installation.

E25.3.6 Pumping Units and Piping Installation

- (a) The existing pumping station contains two (2) pumps complete with motors and drive shafts and related piping. These pumps will be replaced with three (3) pumps complete with motors and drive shafts and related piping.
- (b) Remove all existing piping as indicated in the Specifications and on the Drawings and replace with new piping.
- (c) The Contractor will provide the installation plan to the Contract Administrator at least seven (7) days prior to commencement for approval.
- (d) After new pumps and piping have been installed; all pipes and pipe welds shall be cleaned and prepared for application of primer and paint in accordance with Section 09 91 23.

E25.3.7 Concrete Work

- (a) Make neat openings in walls and floor slabs using concrete coring and cutting equipment and methods.
- (b) Fill openings left in concrete after removal of piping or other equipment with watertight, non-shrink grout. Finish new surfaces flush with the existing surface and match the surrounding surface texture. Primer and paint shall be applied in accordance with Section 09 91 23 if the surrounding surfaces have a paint finish.
- (c) Mix and apply grout in accordance with the manufacturer's instructions.
- (d) Mix and apply bonding agent in accordance with the manufacturer's instructions.
- (e) Neatly grout any concrete surface that has been broken and had the aggregate exposed with a smooth finish similar in texture to that of the surrounding concrete.
- (f) Apply concrete bonding agents between new concrete or grout and existing concrete surfaces. Remove all loose, pitted and scaled concrete and apply bonding agent in accordance with the manufacturer's instructions.
- (g) De-scale exposed reinforcing steel and have all rust removed before applying grout.

E25.3.8 Miscellaneous Metal Fabrications

- (a) As per Section 05 50 00.

E25.3.9 Paint

- (a) As per Section 09 91 23.

E25.3.10 Cleanup

- (a) Cleanup construction debris and materials inside the Station, including the wet-well at the end of each day and before pumping station operation is restored.

E25.4 Measurement and Payment

E25.4.1 Payment will be based on Form B, Item 7, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E26. SIGHT GLASS MODIFICATIONS

E26.1 Description

E26.1.1 The current sight glass to view the level of the wet well is located on the east wall of the pump room. The current sight glass has become discoloured and is not tall enough to effectively show the level of the wet well.

E26.2 Scope of Work

- (a) Remove existing sight glass.
- (b) Replace the sight glass with a new sight glass that extends above the wet well.
- (c) Attach a breather line to the sight glass at a location above the wet well.
- (d) Route the breather line into the motor room using an existing opening between the pump room and the motor room.
- (e) Drill a hole through the wall of the motor room into the manhole at the south east corner of the lift station.
- (f) Route the breather line to exhaust into the manhole at the south east corner of the lift station.
- (g) Replace the existing manifold on the existing Rosemount level transmitter (LIT-L500-A) with a block and bleed manifold to facilitate cleaning.
- (h) Install a 2nd level transmitter (LIT-L500-B) on the sight glass piping, complete with block and bleed manifold.

E26.3 Materials

- (a) Sight Glass – Transparent HDPE two (2") inch pipe
- (b) Breather Line – PE ¾" inch pipe

E26.4 Construction Methods

- (a) The top cap of the sight glass must be removable for periodic cleaning.

E26.5 Measurement and Payment

E26.5.1 Payment will be based on Form B, Item 8, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E27. HVAC WORK

E27.1 Scope of Work

- (a) Provide new ventilation and heating system including, but not limited to the following:
 - (i) Demolition of the existing supply fan and associated ductwork in the superstructure.
 - (ii) Supply and installation of new supply fan and filter section. See Section 23 34 00.
 - (iii) Supply and installation of mixing section with dampers and controls. See Section 23 09 33.
 - (iv) Supply and installation of new, insulated ductwork. See Section 23 07 13 and Section 23 31 14.
 - (v) Supply and installation of new outdoor air and exhaust openings complete with new louvers. See Section 23 37 13.
 - (vi) Supply and installation of new electric unit heater. See Section 23 82 40.
- (b) Supply and installation fire extinguishers as shown on the drawings. See Section 10 44 20.

E27.2 Measurement and Payment

E27.2.1 Payment will be based on Form B, Item 9, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E28. HOISTS AND MONORAILS

E28.1 Scope of Work

- (a) Supply and install two 1000 kg rated hoists as per Section 41 22 23, one in the Motor Room, and one in the Pump Room.

E28.2 Measurement and Payment

E28.2.1 Payment will based on Form B, Item 10, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E29. ELECTRICAL WORK

E29.1 Demolish existing customer-owned electrical service and electrical distribution equipment.

E29.2 Supply and install temporary electrical provisions as required to complete the work as specified.

E29.3 Coordinate with Manitoba Hydro to perform a service upgrade, which also includes providing temporary power to the temporary electrical provisions and bypass pumping units.

E29.4 Remove the following existing equipment:

- (a) Service weatherhead and mast, and customer-owned service cabling,
- (b) Service entrance main fusible disconnect switch,
- (c) Splitter,
- (d) Motor soft starters and associated disconnect switches,
- (e) 600:120/240V transformer and 120/240V panelboard, and associated disconnect switch,
- (f) Lighting,
- (g) Switches,
- (h) Receptacles,
- (i) Pull boxes,
- (j) Telephone cabling,
- (k) Conduit, junction boxes, wiring, and any other component of the existing electrical distribution within the station.

E29.5 Design, supply, install, and connect:

- (a) Temporary generator connection enclosure, JB-L72.

E29.6 Supply and install:

- (a) Service weatherhead, mast, conduit, and required accessories,
- (b) Light fixtures,
- (c) Switches,
- (d) Receptacles,
- (e) Pull boxes,
- (f) Field junction boxes,

- (g) Conduit, and
- (h) Telephone cabling.

E29.7 Supply, install, connect, and test the following:

- (a) 600V motor control centre, MCC-L71.
- (b) 600-120/208V transformer, XFMR-L73.
- (c) 120/208V panelboard, PNL-L73,
- (d) Emergency lighting systems,
- (e) Grounding rods, ground wells, and associated conductors.

E29.8 Install arc flash labels supplied by the Contract Administrator.

E29.9 Measurement and Payment

E29.9.1 Payment will be based on Form B, Item 11, as accepted and measured by the Contract Administrator.

- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E30. AUTOMATION WORK

E30.1 Supply, install, test, and commission the complete automation system as per the drawings and specifications,

E30.2 Remove the following existing equipment:

- (a) Control panel, and turn over to the City.
- (b) Comminutor chamber flood switches,
- (c) Pump room station flood switch, and
- (d) Wet well high level switches.

E30.3 Relocate the following existing equipment:

- (a) Combined Sewer Overflow (CSO) Termination Panel and associated Junction Boxes and cabling.

E30.4 Supply, install, connect, and test the following:

- (a) Qty 1, Comminutor chamber flood switch (LSH-L481),
- (b) Qty 2, Wet well high level switches (LSH-L500, LSHH-L500),
- (c) Qty 3, Electromagnetic flowmeters (FE/FIT-L011, FE/FIT-L021, FE/FIT-L031),
- (d) Control panel, CP-L81.

E30.5 Program and commission the PLC in control panel CP-L81.

- (a) The Functional Requirements Specification will be provided to the Contractor at a later date.

E30.6 Connect and test signaling between the existing, City-owned, Combined Sewer Overflow (CSO) panel and the new control panel, as per the drawings.

E30.7 Contractor to maintain and use existing displaced pressure cell system used for wet well level measurement (LT-L500-A).

E30.8 Measurement and Payment

- E30.8.1 Payment will be based on Form B, Item 12, as accepted and measured by the Contract Administrator.
- (a) A maximum of 95% may be submitted for progress payments prior to the total completion of the associated services, including the provision of as-built drawing mark-ups and O&M manuals.

E31. ADDITIONAL WORK

- E31.1 Additional work may be necessitated due to unforeseen circumstances that may arise during the course of the project due to:
- (a) Additions to the scope of Work by the Contract Administrator, beyond that defined herein.
- (b) Other issues that occur on site, which require significant Contractor time to address.
- E31.2 Additional services will not be initiated for:
- (a) Reasons of lack of performance or errors in execution.
- (b) Scheduling changes initiated by the City, where at least 24 hours notice is given prior to the Contractor's scheduled time to be on site.
- E31.3 Should it be determined that additional material or services are required, the Contract Administrator shall approve the work, prior to commencement of the additional work.
- E31.4 The Contract Administrator may also request a written quotation for the additional work. For any work, where a written quotation is provided, and subsequently authorized, the valuation of the work shall be as per the quotation, regardless of the actual cost to the Contractor.
- (a) Quotations shall indicate the labour hours and base cost of material, as well as mark-up factors.
- (b) Rates and Mark-up factors shall correspond to Form B, unless specifically authorized by the Contract Administrator.
- E31.5 Measurement and Payment
- E31.5.1 Additional material will be reimbursed by the actual base cost of the material, multiplied by a mark-up factor of 1.15, as indicated on Form B: Item 13.
- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material. In the event that a Subcontractor(s) is/are supplying the material, the Contractor is responsible for coordinating the split of the 1.15 mark-up between the Contractor and the Subcontractor(s).
- E31.5.2 Additional labour will be reimbursed at the rate specified on Form B. The rate will not be adjusted for Subcontractors or individuals with specialized skills, without specific approval of the Contract Administrator.