



THE CITY OF WINNIPEG

TENDER

TENDER NO. 477-2024

PERIMETER ROAD PUMPING STATION 2024 UPGRADES

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 Perimeter Road Pumping Station 2024 Upgrades

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon Winnipeg time, July 16, 2024.

B2.2 The Contract Administrator or the Manager of Purchasing 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 to conduct a site walkthrough of the Perimeter Road Pumping station located at 6821 Wilkes Avenue on the following dates:

- (a) July 3, 2024, beginning at 1:30 P.M.
- (b) July 5, 2024, beginning at 9:00 A.M.

B3.2 Bidders are required to register for the Site Investigation by contacting the Contract Administrator with the preferred site visit date they plan to attend.

B3.3 The Bidder is advised that they are responsible for providing their own Personal Protective Equipment (PPE) while at the Site including but not limited to CSA approved footwear, hard hat, Hi-vis vest and eye protection. Bidders attending the site visits without proper PPE equipment will not be allowed to participate in the site visits walkthrough.

B3.4 Attendance at one (1) of the Site Investigations is mandatory. Should a Proponents representative not attend at least one (1) of the site investigations, the Proponents Proposal will be determined to be non-responsive and will not be further evaluated.

B3.5 Access to view the Site shall be only under the supervision of an authorized City representative.

B3.6 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.

B3.7 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Bid or their performance of the Work, and shall assume all risk for conditions existing or arising in the course of the Work which have been or could have been determined through such inspection.

B3.8 The Bidder is responsible for determining:

- (a) The requirements and resources for delivery and installation of the pumps, motors, VFD's and associated equipment into the facility. Contractor is responsible for receiving previously procurement pumps, motors & VFDs. The contractor is responsible for transportation of the equipment at site
- (b) The requirements and resources for the upgrades to the automatic utility transfer system including panel retrofit shop drawings and CSA approval of renovated equipment.
- (c) The nature of the surface and subsurface conditions at the Site.
- (d) Location equipment will be installed including space requirements, existing pipe isolation points and access for maintenance.
- (e) all other matters which could in any way affect this Bid, installation or the performance of the equipment.

B4. ENQUIRIES

- B4.1 All enquiries shall be directed to the Contract Administrator identified in D6.1.
- B4.2 If the Bidder finds errors, discrepancies or omissions in the Tender, 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 Tender 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 Tender 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.
- B4.6 Any enquiries concerning submitting through MERX should be addressed to:
MERX Customer Support
Phone: 1-800-964-6379
Email: merx@merx.com

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 Tender 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 Tender, 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.
- B6.3 Addenda will be available on the MERX website at www.merx.com.
- B6.4 The Bidder is responsible for ensuring that they have received all addenda and is advised to check the MERX website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.
- B6.5 The Bidder shall acknowledge receipt of each addendum in Paragraph 10 of Form A: Bid/Proposal. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B6.6 Notwithstanding B4, enquiries related to an Addendum may be directed to the Contract Administrator indicated in D6.

B7. SUBSTITUTES

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

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 their 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 they wish 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 their 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 B18.

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/Proposal;
 - (b) Form B: Prices;
 - (c) Form G1: Bid Bond and Agreement to Bond.
- B8.2 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.
- B8.3 The Bid shall be submitted electronically through MERX at www.merx.com.
- B8.3.1 Bids will **only** be accepted electronically through MERX.
- B8.4 Bidders are advised that inclusion of terms and conditions inconsistent with the Tender document, including the General Conditions, will be evaluated in accordance with B18.1(a).

B9. BID

- B9.1 The Bidder shall complete Form A: Bid/Proposal, making all required entries.
- B9.2 Paragraph 2 of Form A: Bid/Proposal shall be completed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their own name, their 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 their 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/Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Bid.
- B9.4 Paragraph 13 of Form A: Bid/Proposal shall be signed in accordance with the following requirements:
- (a) if the Bidder is a sole proprietor carrying on business in their 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 their duly authorized officer or officers;
 - (d) if the Bidder is carrying on business under a name other than their 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/Proposal should be entered 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.
- B10.1.2 Prices stated on Form B: Prices shall not include any costs which may be incurred by the Contractor with respect to any applicable funding agreement obligations as outlined in D34. Any such costs shall be determined in accordance with D34.
- 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).
- B10.5 The Bidder shall enter the Total Bid Price from Form B: Prices into the Total Bid Price field in MERX.
- B10.5.1 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

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) Power and Mine Supply (Pump & Motor Supplier)
- B11.3 Additional Material:
- (a) Pump and motor information

B12. CONFLICT OF INTEREST AND GOOD FAITH

- B12.1 Further to C3.2, Bidders, by responding to this Tender, declare that no Conflict of Interest currently exists, or is reasonably expected to exist in the future.
- B12.2 Conflict of Interest means any situation or circumstance where a Bidder or employee of the Bidder proposed for the Work has:
- (a) other commitments;
- (b) relationships;
- (c) financial interests; or
- (d) involvement in ongoing litigation;
- that could or would be seen to:
- exercise an improper influence over the objective, unbiased and impartial exercise of the independent judgment of the City with respect to the evaluation of Bids or award of the Contract; or

- compromise, impair or be incompatible with the effective performance of a Bidder's obligations under the Contract;
- (e) has contractual or other obligations to the City that could or would be seen to have been compromised or impaired as a result of their participation in the Tender process or the Work; or
- (f) has knowledge of confidential information (other than confidential information disclosed by the City in the normal course of the Tender process) of strategic and/or material relevance to the Tender process or to the Work that is not available to other bidders and that could or would be seen to give that Bidder an unfair competitive advantage.

B12.3 In connection with their Bid, each entity identified in B12.2 shall:

- (a) avoid any perceived, potential or actual Conflict of Interest in relation to the procurement process and the Work;
- (b) upon discovering any perceived, potential or actual Conflict of Interest at any time during the Tender process, promptly disclose a detailed description of the Conflict of Interest to the City in a written statement to the Contract Administrator; and
- (c) provide the City with the proposed means to avoid or mitigate, to the greatest extent practicable, any perceived, potential or actual Conflict of Interest and shall submit any additional information to the City that the City considers necessary to properly assess the perceived, potential or actual Conflict of Interest.

B12.4 Without limiting B12.3, the City may, in their sole discretion, waive any and all perceived, potential or actual Conflicts of Interest. The City's waiver may be based upon such terms and conditions as the City, in their sole discretion, requires to satisfy itself that the Conflict of Interest has been appropriately avoided or mitigated, including requiring the Bidder to put into place such policies, procedures, measures and other safeguards as may be required by and be acceptable to the City, in their sole discretion, to avoid or mitigate the impact of such Conflict of Interest.

B12.5 Without limiting B12.3, and in addition to all contractual or other rights or rights at law or in equity or legislation that may be available to the City, the City may, in their sole discretion:

- (a) disqualify a Bidder that fails to disclose a perceived, potential or actual Conflict of Interest of the Bidder or any of their employees proposed for the Work;
- (b) require the removal or replacement of any employees proposed for the Work that has a perceived, actual or potential Conflict of Interest that the City, in their sole discretion, determines cannot be avoided or mitigated;
- (c) disqualify a Bidder or employees proposed for the Work that fails to comply with any requirements prescribed by the City pursuant to B12.4 to avoid or mitigate a Conflict of Interest; and
- (d) disqualify a Bidder if the Bidder, or one of their employees proposed for the Work, has a perceived, potential or actual Conflict of Interest that, in the City's sole discretion, cannot be avoided or mitigated, or otherwise resolved.

B12.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B13. QUALIFICATION

B13.1 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.
- B13.2 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, Purchasing Division website <https://www.winnipeg.ca/matmgt/Templates/files/debar.pdf>
- B13.3 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;
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract;
- (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B13.6B13.5 and D8);
- (e) have a Licensed Electrical Contractor and a M-Prime Licensed Mechanical Contractor; and
- (f) have a qualified and experienced programmer familiar with SEL products for the transfer relay as defined in D3.2(l).
- B13.4 Further to B13.3(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) Written confirmation of a safety and health certification meeting SAFE Work Manitoba's SAFE Work Certified Standard (e.g., COR™ and SECOR™) in the form of:
- 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
 - 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
- (b) 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, Purchasing Division website at <http://www.winnipeg.ca/matmgt/>).
- B13.5 WEWPCC Contractor orientation shall be completed prior to commencement of work on site.
- B13.6 Further to B13.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at [Accessibility Training](#) for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B13.7 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.

B13.8 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.

B13.9 The Bidder shall:

- (a) Acknowledge the responsibility as the Contractor to ensure the WWSD meets the commitments that are outlined in the Environmental Management Policy.
- (b) Provide detailed information of all steps that will be taken to ensure that the EMS requirements are met upon request.
- (c) Be aware that the following Acts, Regulations, and By-laws may apply to the work:

Federal:

- a) Canadian Environmental Assessment Act;
- b) Canadian Environmental Protection Act;
- c) Fisheries Act and Regulations;
- d) Pest Control Products Act;
- e) Migratory Bird Convention Act; and
- f) Transportation of Dangerous Goods Act and Regulations.

Provincial:

- a) The Dangerous Goods Handling and Transportation Act;
- b) The Endangered Species Act;
- c) The Environment Act;
- d) The Fire Prevention Act;
- e) The Pesticides and Fertilizers Control Act;
- f) The Manitoba Heritage Resources Act;
- g) The Manitoba Noxious Weeds Act;
- h) The Manitoba Nuisance Act;
- i) The Public Health Act;
- j) The Red River Floodway Act;
- k) The Water Rights Act;
- l) The Workplace Safety and Health Act; and
- m) Applicable associated regulations.

Municipal

- a) Neighbourhood Liveability By-law
- b) Pesticide Management By-law
- c) Sewer By-law
- d) Solid Waste By-law
- e) Water By-law
- f) The City of Winnipeg By-Law

B13.10 Have onsite staff that is trained and certified in the handling of the dangerous/hazardous goods, when said dangerous/hazardous goods are being utilized on site for the performance of the work.

B14. BID SECURITY

B14.1 The Bidder shall include in their Bid Submission bid security in the form of a digital 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 Form G1: Bid Bond and Agreement to Bond, available on The City of Winnipeg, Corporate Finance, Purchasing Division website at <https://www.winnipeg.ca/MatMgt/templates/files/Bidsecurity.pdf>.

- B14.2 Bid security shall be submitted in a digital format meeting the following criteria:
- (a) The version submitted by the Bidder must have valid digital signatures and seals;
 - (b) The version submitted by the Bidder must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
 - (c) The version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
 - (d) The verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
 - (e) The results of the verification must provide a clear, immediate and printable indication of pass or fail regarding B14.2(b).
- B14.3 Bonds failing the verification process will not be considered to be valid and the bid shall be determined to be non-responsive in accordance with B18.1(a).
- B14.4 Bonds passing the verification process will be treated as original and authentic.
- B14.4.1 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.
- B14.5 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 formed with the successful Bidder and the contract securities are furnished as provided herein. The bid securities of all other Bidders will be released when a Contract is awarded.
- B14.6 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 Tender.

B15. OPENING OF BIDS AND RELEASE OF INFORMATION

- B15.1 Bids will not be opened publicly.
- B15.2 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 MERX website at www.merx.com.
- B15.3 After award of Contract, the name(s) of the successful Bidder(s) and their Contract amount(s) will be available on the MERX website at www.merx.com.
- B15.4 The Bidder is advised that any information contained in any Bid may be released if required by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law or by City policy or procedures (which may include access by members of City Council).
- B15.4.1 To the extent permitted, the City shall treat as confidential information, those aspects of a Bid Submission identified by the Bidder as such in accordance with and by reference to Part 2, Section 17 or Section 18 or Section 26 of The Freedom of Information and Protection of Privacy Act (Manitoba), as amended.

B16. IRREVOCABLE BID

- B16.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 11 of Form A: Bid/Proposal.
- B16.2 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 formed and the contract securities have been

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/Proposal.

B17. WITHDRAWAL OF BIDS

B17.1 A Bidder may withdraw their Bid without penalty at any time prior to the Submission Deadline.

B18. EVALUATION OF BIDS

B18.1 Award of the Contract shall be based on the following bid evaluation criteria:

- (a) compliance by the Bidder with the requirements of the Tender, or acceptable deviation there from (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B13 (pass/fail);
- (c) the Bidder representative attended at least one (1) site investigation (pass/fail);
- (d) Total Bid Price;
- (e) economic analysis of any approved alternative pursuant to B7.

B18.2 Further to B18.1(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.

B18.3 Further to B18.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in their Bid or in other information required to be submitted, that they are qualified.

B18.4 Further to B18.1(c), the Award Authority shall reject any Bid submitted by a Bidder who has not attended a mandatory site investigation.

B18.5 Further to B18.1(d), the Total Bid Price shall be the sum of the quantities multiplied by the unit prices for each item shown on Form B: Prices.

B18.5.1 Further to B18.1(a), in the event that a unit price is not provided on Form B: Prices, the City may determine the unit price by dividing the Amount (extended price) by the approximate quantity, for the purposes of evaluation and payment.

B18.5.2 Bidders are advised that the calculation indicated in B18.4 will prevail over the Total Bid Price entered in MERX.

B18.6 This Contract will be awarded as a whole.

B19. AWARD OF CONTRACT

B19.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B19.2 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 qualified, and the Bids are determined to be responsive.

B19.2.1 Without limiting the generality of B19.2, 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 their 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.

B19.3 If funding for the Work is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, Bidders are advised that the terms of D34 shall immediately take effect upon confirmation of such funding, regardless of when funding is confirmed.

B19.4 Where an award of Contract is made by the City, the award shall be made to the qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B18.

B19.4.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of their Bid upon written request to the Contract Administrator.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

- C0.1 The *General Conditions for Construction* (Revision 2020 01 31) 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, Purchasing Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender 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. FORM OF CONTRACT DOCUMENTS

D2.1 Notwithstanding C4.1(c) and C4.4, the Contract Documents will be provided to the Contractor electronically and there will be no requirement for execution and return to the City by the Contractor. Accordingly, the provisions under C4.4(a) and C4.4(b) are no longer applicable.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist generally of the Pump 1 and Pump 2 replacement (pump, motor, VFD) including monitoring, protection and controls. Headingley electrical distribution upgrades and electronic transfer switch replacement. Additional demolition, supply, installation, and commissioning of equipment as indicated in the contract documents.

D3.2 The major components of the Work are as follows:

- (a) Supply, installation, and commissioning of all electrical equipment required for the upgrades as indicated in the contract documents. Installation of pumping system for Pump 1 and Pump 2. Major equipment (pumps, motors, VFDs) has been pre-procured and shall be delivered to site for installation by the contractor. For more information see pump procurement Tender 879-2023 previously posted on MERX.
- (b) Miscellaneous structural, architectural, and mechanical upgrades.
- (c) Coordination with Manitoba Hydro for connection of the utility service upgrade.
- (d) Installation of a new CSTE;
- (e) Development of a detailed changeover strategy for the pumps and electrical equipment for review and approval by the contract administrator and City representatives.
- (f) Supply and installation of instrumentation and controls;
- (g) Supply and installation of a split air conditioner in the electrical room;
- (h) Provision of concrete housekeeping pad and pump supports
- (i) Pipe modification to accommodate new pumps;
- (j) Completion of minor structural repairs to accommodate the Work as required;
- (k) Demolition and removal of existing equipment to be replaced;
- (l) Supply, installation and programming of the SEL-700BT utility transfer relay.
 - (a) Supply and programming shall be by Schweitzer Engineering Laboratories Engineering Services or approved equivalent.
 - (i) **Contact:** Ken Hamilton
 - (ii) **Email:** khamilton@pro-techpower.com
 - (iii) **Phone:** 431-374-7266
- (m) Commissioning, training, and provision of O&M manuals.
- (n) Coordination with Pump & Motor Supplier for offloading, installation, field testing, commissioning, and training.
- (o) Refer to the drawing set and complete specification for additional details

D3.3 The following shall apply to the Services:

- (a) City of Winnipeg Green Building Policy: New City-Owned Buildings and major additions;
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=5989>
- (b) Universal Design Policy
<http://clkapps.winnipeg.ca/DMIS/DocExt/ViewDoc.asp?DocumentTypeId=2&DocId=3604>

D4. SITE INVESTIGATION DUE DILIGENCE AND RISK

D4.1 Notwithstanding C3.1, the Contractor acknowledges that the site investigation reports and other site information included in this Tender have been provided to it and may be relied upon by the Contractor to the extent that the Contractor uses Good Industry Practice in interpreting such report(s) and site information and carries out the Work in accordance with Good Industry Practice based upon such report(s) and the information contained in them and such other site information. In the event that a site condition related to:

- (a) the location of any utility which can be determined from the records or other information available at the offices of any public authority or person, including a municipal corporation and any board or commission thereof, having jurisdiction or control over the utility;
- (b) the Site conditions, including but not limited to subsurface hazardous materials or other concealed physical conditions;
- (c) the location, nature, quality or quantity of the materials to be removed or to be employed in the performance of the Work;
- (d) the nature, quality or quantity of the Plant needed to perform the Work;
- (e) all matters concerning access to the Site, power supplies, location of existing services, utilities or materials necessary for the completion of the Work; and
- (f) all other matters which could in any way affect the performance of the Work;

that could not have been “properly inferable”, “readily apparent” and readily discoverable” using Good Industry Practice by the Contractor, results in additional Work which is a direct result of this newly discovered site condition, such additional Work will be considered by the City under Changes in Work.

D5. DEFINITIONS

D5.1 When used in this Tender:

- (a) “**ANSI**” means American National Standards Institute;
- (b) “**Commissioning**” means a process by which equipment, a facility or a plant is tested to verify if it functions according to design and functional requirements;
- (c) “**C.P.M.**” means critical path method;
- (d) “**CSA**” means Canadian Standards Association;
- (e) “**CWO**” means Change Work Order;
- (f) “**DCS**” means Distributed Control System;
- (g) “**HI**” means Hydraulic Institute;
- (h) “**HVAC**” means Heating, Ventilation, and Air Conditioning;
- (i) “**I/O**” means Input / Output;
- (j) “**MCC**” means Motor Control Centre;
- (k) “**O&M**” means Operations & Maintenance;
- (l) “**PRPS**” means Perimeter Road Pumping Station;
- (m) “**PLC**” means Programmable Logic Controller
- (n) “**PCN**” means Product Change Notification;

- (o) “**Professional Engineer**” means an engineer registered in the Province of Manitoba;
- (p) “**Record Documents (Drawings)**” means documents (drawings) that are prepared and engineer sealed by the reviewing professional after verifying in detail the actual conditions of the completed Project;
- (q) “**RFI**” means Request for Information;
- (r) “**SCADA**” means Supervisory Control and Data Acquisition;
- (s) “**Standardized Goods**” or “**Standardised Equipment**” means the respective goods that have been standardized by the City.
- (t) “**Standardized Vendors**” means a Contractor or Supplier of Standardized Goods.
- (u) “**Supply Chain Disruption**” means an inability by the Contractor to obtain goods or services from third parties necessary to perform the Work of the Contract within the schedule specified therein, despite the Contractor making all reasonable commercial efforts to procure same. Contractors are advised that increased costs do not, in and of themselves, amount to a Supply Chain Disruption;
- (v) “**VFD**” means Variable Frequency Drive; and
- (w) “**WEWPCC**” means West End Sewage Treatment Plant.

D6. CONTRACT ADMINISTRATOR

D6.1 The Contract Administrator is MPE, a division of Englobe, represented by:

Mark Baker, P.Eng.
Winnipeg Region Manager

Telephone No. 204-688-3805

Email Address mbaker@mpe.ca

D6.2 At the pre-construction meeting, Mark Baker will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D7. CONTRACTOR'S SUPERVISOR

D7.1 At the pre-construction meeting, the Contractor shall identify their designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D8. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D8.1 The Accessibility for Manitobans Act (AMA) imposes obligations on The City of Winnipeg to provide accessible customer service to all persons in accordance with the Customer Service Standard Regulation (“CSSR”) to ensure inclusive access and participation for all people who live, work or visit Winnipeg regardless of their abilities.

D8.1.1 The Contractor agrees to comply with the accessible customer service obligations under the CSSR and further agrees that when providing the Goods or Services or otherwise acting on the City of Winnipeg’s behalf, shall comply with all obligations under the AMA applicable to public sector bodies.

D8.1.2 The accessible customer service obligations include, but are not limited to:

- (a) providing barrier-free access to goods and services;
- (b) providing reasonable accommodations;
- (c) reasonably accommodating assistive devices, support persons, and support animals;
- (d) providing accessibility features e.g. ramps, wide aisles, accessible washrooms, power doors and elevators;
- (e) inform the public when accessibility features are not available;

- (f) providing a mechanism or process for receiving and responding to public feedback on the accessibility of all goods and services; and
- (g) providing adequate training of staff and documentation of same.

D9. UNFAIR LABOUR PRACTICES

- D9.1 Further to C3.2, the Contractor declares that in bidding for the Work and in entering into this Contract, the Contractor and any proposed Subcontractor(s) conduct their respective business in accordance with established international codes embodied in United Nations Universal Declaration of Human Rights (UDHR) <https://www.un.org/en/about-us/universal-declaration-of-human-rights> International Labour Organization (ILO) [https://www.ilo.org/global/lang--en/index.htm](https://www.ilo.org/global/lang-en/index.htm) conventions as ratified by Canada.
- D9.2 The City of Winnipeg is committed and requires its Contractors and their Subcontractors, to be committed to upholding and promoting international human and labour rights, including fundamental principles and rights at work covered by ILO eight (8) fundamental conventions and the United Nations Universal Declaration of Human Rights which includes child and forced labour.
- D9.3 Upon request from the Contract Administrator, the Contractor shall provide disclosure of the sources (by company and country) of the raw materials used in the Work and a description of the manufacturing environment or processes (labour unions, minimum wages, safety, etc.).
- D9.4 Failure to provide the evidence required under D9.3, may be determined to be an event of default in accordance with C18.
- D9.5 In the event that the City, in its sole discretion, determines the Contractor to have violated the requirements of this section, it will be considered a fundamental breach of the Contract and the Contractor shall pay to the City a sum specified by the Contract Administrator in writing ("Unfair Labour Practice Penalty"). Such a violation shall also be considered an Event of Default, and shall entitle the City to pursue all other remedies it is entitled to in connection with same pursuant to the Contract.
- D9.5.1 The Unfair Labour Practice Penalty shall be such a sum as determined appropriate by the City, having due regard to the gravity of the Contractor's violation of the above requirements, any cost of obtaining replacement goods/ services or rectification of the breach, and the impact upon the City's reputation in the eyes of the public as a result of same.
- D9.5.2 The Contractor shall pay the Unfair Labour Practice Penalty to the City within thirty (30) Calendar Days of receiving a demand for same in accordance with D9.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D9.5.3 The obligations and rights conveyed by this clause survive the expiry or termination of this Contract, and may be exercised by the City following the performance of the Work, should the City determine, that a violation by the Contractor of the above clauses has occurred following same. In no instance shall the Unfair Labour Practice Penalty exceed the total of twice the Contract value.

D10. FURNISHING OF DOCUMENTS

- D10.1 Upon award of the Contract, the Contractor will be provided with 'issued for construction' Contract Documents electronically, including Drawings in PDF format only.

SUBMISSIONS

D11. AUTHORITY TO CARRY ON BUSINESS

D11.1 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.

D12. SAFE WORK PLAN

D12.1 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 Documents, if applicable.

D12.2 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, Purchasing Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D12.3 Notwithstanding B13.4 at any time during the term of the Contract, the City may, at their 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.

D13. INSURANCE

D13.1 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, including testing and commissioning, 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.
- (d) Property insurance for all mobile offices, portable toilets, equipment and machinery

D13.2 Deductibles shall be borne by the Contractor.

D13.3 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba

D13.4 The Contractor shall ensure that any subcontractors hired in connection with the work provide evidence of comparable insurance as outlined in section D13.1(a) and D13.1(b). In addition, all subcontractors must provide evidence of acceptable workers compensation.

D13.5 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 Documents, as applicable.

D13.6 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.

D14. CONTRACT SECURITY

D14.1 The Contractor shall provide and maintain the performance bond and the labour and material payment bond 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; and
- (b) a labour and material payment bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H2: Labour and Material Payment Bond), in an amount equal to fifty percent (50%) of the Contract Price.

D14.1.1 Where the contract security is a performance bond, it may be submitted in hard copy or digital format. If submitted in digital format the contract security must meet the following criteria:

- (a) the version submitted by the Contractor must have valid digital signatures and seals;
- (b) the version submitted by the Contractor must be verifiable by the City with respect to the totality and wholeness of the bond form, including: the content; all digital signatures and digital seals; with the surety company, or an approved verification service provider of the surety company.
- (c) the version submitted must be viewable, printable and storable in standard electronic file formats compatible with the City, and in a single file. Allowable formats include pdf.
- (d) the verification may be conducted by the City immediately or at any time during the life of the bond and at the discretion of the City with no requirement for passwords or fees.
- (e) the results of the verification must provide a clear, immediate and printable indication of pass or fail regarding D14.1(b).

D14.1.2 Digital bonds failing the verification process will not be considered to be valid and may be determined to be an event of default in accordance with C18.1. If a digital bond fails the verification process, the Contractor may provide a replacement bond (in hard copy or digital format) within seven (7) Calendar Days of the City's request or within such greater period of time as the City in their discretion, exercised reasonably, allows.

D14.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D14.2 The Contractor shall provide the Contract Administrator identified in D6 with the required performance and labour and material payment bonds within seven (7) Calendar Days of notification of the award of the Contract by way of an award letter 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 Documents, if applicable.

D14.3 The Contractor shall, as soon as practicable after entering into a contract with a Subcontractor:

- (a) give the Subcontractor written notice of the existence of the labour and material payment bond in D14.1(b); and
- (b) post a notice of the bond and/or a copy of that bond in a conspicuous location at the Site of the Work.

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 Documents, if applicable.

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 Documents, if applicable.

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 Documents if applicable.

(a) WEWPCC contractor orientation shall be completed prior to commencement of work on site

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;
- (c) a daily manpower schedule for the Work;

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.

(a) Include the following tasks in the schedule;

- Commencement;
- Demolition and pump removal work for each pump individually including motors and starters,
- Pump base construction and pipework modifications for each pump individually,
- VFD installation work for each pump individually,
- Pumps and pump motors installation work for each pump individually,
- Demolition of existing Headingly utility transformers by Hydro,
- Installation of new Headingly utility transformer by Hydro,
- Headingly utility service changeover,
- Programming and testing of bus transfer relay,
- Demolition of existing automatic utility switching controls,
- Installation of new automatic utility switching controls,
- Building mechanical work,
- Training,
- Site restoration and cleanup,
- Operation and Maintenance manual and record drawings submission;
- Commissioning;
- Substantial performance;
- Total performance.

- (b) Schedule shall be in Gantt chart format, identifying the critical path.
- (c) Microsoft Project or similar scheduling software shall be used to create the schedule.
- (d) Contractor shall update the project schedule as details become available and as requested by the Contract Administrator.

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.

D17.5 Further to D17.2(c), the daily manpower schedule shall list the daily number of individuals on the Site for each trade.

SCHEDULE OF WORK

D18. COMMENCEMENT

D18.1 The Contractor shall not commence any Work until they are in receipt of an award letter 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:
 - evidence of authority to carry on business specified in D11;
 - evidence of the workers compensation coverage specified in C6.15;
 - the Safe Work Plan specified in D12;
 - evidence of the insurance specified in D13;
 - the contract security specified in B14;
 - the Subcontractor list specified in D15;
 - the equipment list specified in D16;
 - the detailed work schedule specified in D17;
 - the direct deposit application form specified in D30 and;
 - WEWPCC operations review and approval of site work hours, work scheduled and effected equipment notification.
- (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) Working Days of receipt of the award letter.

D18.4 The City intends to award this Contract by August 30th, 2024.

D19. WORK BY OTHERS

D19.1 Further to C6.25, the Contractor's attention is directed to the fact that other Contractors, the personnel of Utilities and the staff of the City may be working within the project limit, approach roadway, adjacent roadways or right-of-way. The activities of these agencies may coincide with the Contractors execution of Work and it will be the Contractor's responsibility to cooperate to the fullest extent with other personnel working in the area, and such cooperation is an obligation of the Contractor under the terms of Contract.

D19.2 Work by others on or near the Site will include but not necessarily be limited to:

- (a) Power and Mine Supply
 - (i) Supply and deliver two (2) pumps complete with motors, pump and motor mounting brackets, power and control cabling, pump suction elbows, supports, flanged suction and discharge piping connections, extended drive shafts,

supports and guards, couplings, vibration and temperature monitoring instruments as well as operations and maintenance manuals.

- (ii) Supply and deliver tools and spare parts.
- (iii) Provide in-person factory acceptance testing.
- (iv) Provide on-site installation inspections and assist with commissioning activities.
- (v) Training for all of the equipment supplied under the Tender No. 879-2023 contract for both Operations and Maintenance City of Winnipeg staff.
- (vi) Provide five Operations and Maintenance Manuals for each pump.
- (vii) Attend a warranty site visit and correct any deficiencies.

(b) Celco Controls

- (i) Supply and deliver two VFDs
- (ii) Supply and deliver of spare parts.
- (iii) Programming of VFDs and Motor Protection Relays.
- (iv) Provide in-person factory acceptance testing.
- (v) Provide two (2) days on-site VFD support and assist with commissioning activities.
- (vi) Training of VFD's for both Operations and Maintenance City of Winnipeg staff.
- (vii) Attend a warranty site visit and correct any deficiencies.

D19.2.1 The bidder is responsible for offloading and transporting of all project equipment at site supplied by others.

D19.2.2 The bidder is responsible for incorporation of project equipment supplied by others into the projects Operational and Maintenance manuals per section E22.

D19.3 Further to D19.1 the Contractor shall cooperate and coordinate all activities with all parties performing required Work by Others identified in D19.1 and accommodate the necessary area on Site required for the Work by Others to complete the Work.

D20. WORKING DAYS

D20.1 Further to C1.1(tt), the Contract Administrator's determination of whether or not atmospheric and Site conditions are such that a Working Day is deemed to have elapsed may be based at one time on one type of work while at another time a Working Day may be based on another type of work. When more than one type of major work is involved, the quantity of equipment that must be able to work in order to meet the requirements of a Working Day may vary considerably from that specified in the General Conditions.

D20.2 In the event that incidental work is behind schedule which, in the opinion of the Contract Administrator, should have been or could have been carried out by the Contractor in conjunction with or immediately following work of a major type, the City hereby reserves the right to charge Working Days on the incidental work until such time as it is up to schedule.

D20.3 When the major type of work involves restoration of the site to the condition it was prior to rainfall, Working Days shall not be charged.

D20.4 The Contract Administrator will furnish the Contractor with a daily record for each major type of work showing various information concerning the equipment, the time it worked, could have worked and Working Days charged. This report is to be signed each day by an authorized representative of the Contractor.

D21. CRITICAL STAGES

D21.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:

- (a) Pump substantial Performance. New Station pumps and pump motors (including all related components such as drive shafts, cabling, conduits, controls, VFDs, etc.) must be installed, commissioned and operational by March 1, 2025;
 - Pumps and motors are expected to be delivered to site by January 10th, 2025
 - VFDs are expected to be delivered to site by November 1st, 2024
- (b) Pump Total Performance by the City planned for April 1, 2025;
- (c) Project Substantial Performance by May 22, 2025; and
- (d) Project Total Performance by June 19, 2025.

D22. SUBSTANTIAL PERFORMANCE

- D22.1 The Contractor shall achieve Pump Substantial Performance by March 1, 2025.
- D22.2 The Contractor shall achieve Project Substantial Performance by May 22, 2025.
- D22.3 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 reinspected.
- D22.4 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.
- D22.5 Substantial Performance requires shop drawings, commissioning forms, draft manuals and red line drawings to be completed with the Contract Administrator approval provided.
- (a) The following items are required to qualify for Pump Substantial Performance:
 - (i) New pumps in service (including automatic seal water operation) along with new controls and starters functioning;
 - (ii) New pump and motor protection relays in service including lockouts, block starts, warnings, and all new DCS hardware and software monitoring points.
 - (b) The following items are required to qualify for Project Substantial Performance in addition to pump substantial performance:
 - (i) New automatic utility transfer system in service including new DCS hardware and software monitoring points.
 - (ii) HVAC systems installed and operational. Controllers are functional.

D23. TOTAL PERFORMANCE

- D23.1 The Contractor shall achieve Pump Total Performance April 1, 2025
- D23.2 The Contractor shall achieve Project Total Performance by June 19, 2025
- D23.3 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 reinspected.
- D23.4 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.
- D23.5 Pump Total Performance requires the following items are required to qualify for Total Performance:

- (a) Pump and VFD shop drawings, red line drawings, commissioning reports, operational and maintenance manuals (O&M's), and training. Pump operational and maintenance total performance documents are for operational and maintenance requirements to be integrated into the final project O&M's.
- (b) The pumps must have been operational and in service for a minimum of one (1) month.

D23.6 Project Total Performance the following items are required to qualify for Total Performance:

- (a) All construction work has been completed including any deficiencies addressed;
- (b) Contractor has removed trailer(s) along with equipment from site;
- (c) Building cleanup has been completed;
- (d) All temporary fencing has been removed;
- (e) Site has been restored to original condition and made safe for the public and;
- (f) Operational and Maintenance manuals completed to the requirements detailed in section E22, red line drawings, commissioning reports, training and all other close out documents must be submitted, reviewed and approved.

D24. LIQUIDATED DAMAGES

D24.1 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 following the days fixed herein for same during which such failure continues:

- (a) Pump Substantial Performance – two thousand five hundred dollars (\$2,500);
- (b) Pump Total Performance – five hundred dollars (\$500);
- (c) Project Substantial Performance – five hundred dollars (\$500) and;
- (d) Project Total Performance – two hundred and fifty dollars (\$250).

D24.2 The amounts specified for liquidated damages in D24.1 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.

D24.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D25. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

D25.1 The City acknowledges that the schedule for this Contract may be impacted by Supply Chain Disruption. Commencement and progress of the Work shall be performed by the Contractor with due consideration to the delivery requirements and schedule identified in the Contract, in close consultation with the Contract Administrator.

D25.2 If the Contractor is delayed in the performance of the Work by reason of Supply Chain Disruption, the Work schedule may be adjusted by a period of time equal to the time lost due to such delay and costs related to such delay will be determined as identified herein.

D25.3 A minimum of seven (7) Calendar Days prior to the commencement of Work, the Contractor shall declare whether a Supply Chain Disruption will affect the start date. The Contractor shall provide sufficient evidence that the delay is directly related to a Supply Chain Disruption, including but not limited to evidence related to availability ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.

D25.4 For any delay related to supply chain disruption and identified after Work has commenced, the Contractor shall within seven (7) Calendar Days of becoming aware of the anticipated delay declare the additional delay and shall provide sufficient evidence as indicated in D25.3. Failure to provide this notice will result in no additional time delays being considered by the City.

- D25.5 The Work schedule, including the durations identified in D21 to D23 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator. No additional payment will be made for adjustment of schedules except where seasonal work, not previously identified in the Contract, is carried over to the following construction season.
- D25.6 Where Work not previously identified is being carried over solely as a result of delays related to Supply Chain Disruption, as confirmed by the Contract Administrator, the cost of temporary works to maintain the Work in a safe manner until Work recommences, will be considered by the Contract Administrator. Where the Work is carried over only partially due to Supply Chain Disruption, a partial consideration of the cost of temporary works will be considered by the Contract Administrator.
- D25.7 Any time or cost implications as a result of Supply Chain Disruption and in accordance with the above, as confirmed by the Contract Administrator, shall be documented in accordance with C7.

CONTROL OF WORK

D26. JOB MEETINGS

- D26.1 Regular weekly or bi-weekly job meetings as determined by the contract administrator 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.
- D26.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever they deem it necessary.

D27. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D27.1 Further to C6.26, 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).

D28. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) – QUALIFICATIONS

- D28.1 Further to B13.4, 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 their sole discretion and acting reasonably, require updated proof of compliance, as set out in B13.4.

MEASUREMENT AND PAYMENT

D29. INVOICES

- D29.1 Further to C12, the Contractor shall submit monthly invoices for work performed. Invoices shall be submitted to the Contract Administrator identified in D6.
- D29.2 Invoices must clearly indicate, as a minimum:
- (a) the City's purchase order number;
 - (b) the City's project number and title: 'S-1251 – PERIMETER ROAD PUMPING STATION 2024 UPGRADES';
 - (c) the City project representative's name;
 - (d) date of delivery;

- (e) delivery address;
- (f) type and quantity of work performed;
- (g) the amount payable with GST and MRST shown as separate amounts; and
- (h) the Contractor's GST registration number.

D29.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D30. PAYMENT

D30.1 Further to C12, the City shall make payments to the Contractor by direct deposit to the Contractor's banking institution, and by no other means. Payments will not be made until the Contractor has made satisfactory direct deposit arrangements with the City. Direct deposit application forms are at https://winnipeg.ca/finance/files/Direct_Deposit_Form.pdf.

D30.2 Further to **E4**, no payment will be made for Cash Allowances other than as set out in **E4.4**.

WARRANTY

D31. WARRANTY

D31.1 Notwithstanding C13.2, the warranty period shall begin on the date of Applicable Total Performance and shall expire one (1) year thereafter unless extended pursuant to C13.2.1 or C13.2.2, in which case it shall expire when provided for thereunder.

D31.1.1 The Contractor will be required to attend a warranty inspection site visit approximately two (2) months prior to warranty expiration. Any deficiencies found during the site visit along with prior to completion of the warranty period, the Contractor will be provided with a deficiency list and will be required to correct all deficiencies.

DISPUTE RESOLUTION

D32. DISPUTE RESOLUTION

D32.1 If the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator, the Contractor shall act in accordance with the Contract Administrator's opinion, determination, or decision unless and until same is modified by the process followed by the parties pursuant to D32.

D32.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D32.1 The entire text of C21.5 is deleted, and amended to read:

- (a) If Legal Services has determined that the Disputed Matter may proceed in the Appeal Process, the Contractor must, within ten (10) Business Days of the date of the Legal Services Response Letter, submit their written Appeal Form, in the manner and format set out on the City's Purchasing Website, to the Chief Administrative Officer, and to the Contract Administrator. The Contractor may not raise any other disputes other than the Disputed Matter in their Appeal Form.

D32.2 Further to C21, prior to the Contract Administrator's issuance of a Final Determination, the following informal dispute resolution process shall be followed where the Contractor disagrees with any opinion, determination, or decision of the Contract Administrator ("Dispute"):

- (a) In the event of a Dispute, attempts shall be made by the Contract Administrator and the Contractor's equivalent representative to resolve Disputes within the normal course of project dealings between the Contract Administrator and the Contractor's equivalent representative.

(b) Disputes which in the reasonable opinion of the Contract Administrator or the Contractor's equivalent representative cannot be resolved within the normal course of project dealings as described above shall be referred to a without prejudice escalating negotiation process consisting of, at a minimum, the position levels as shown below and the equivalent Contractor representative levels:

- The Contract Administrator;
- Supervisory level between the Contract Administrator and applicable Department Head;
- Department Head.

D32.3 Names and positions of Contractor representatives equivalent to the above City position levels shall be determined by the Contractor and communicated to the City at the pre-commencement or kick off meeting.

D32.4 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

D32.5 Both the City and the Contractor agree to make all reasonable efforts to conduct the above escalating negotiation process within twenty (20) Business Days, unless both parties agree, in writing, to extend that period of time.

D32.6 If the Dispute is not resolved to the City and Contractor's mutual satisfaction after discussions have occurred at the final escalated level as described above, or the time period set out in D32.5, as extended if applicable, has elapsed, the Contract Administrator will issue a Final Determination as defined in C1.1(v), at which point the parties will be governed by the Dispute Resolution process set out in C21.

INDEMNITY

D33. INDEMNITY

D33.1 Indemnity shall be as stated in C17.

D33.2 Notwithstanding C17.1, the Contractor shall save harmless and indemnify the City in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the Contractor, their Subcontractors, employees or agents in the performance or purported performance of the Work, and more particularly from:

- (a) accidental injury to or death of any person whether retained by or in the employ of the contractor or not, arising directly or indirectly by reason of the performance of the Work, or by reason of any trespass on or damage to property;
- (b) damage to any property owned in whole or in part by the City, or which the City by duty or custom is obliged, directly or indirectly, in any way or to any degree, to construct, repair or maintain;
- (c) damage to, or trespass or encroachment upon, property owned by persons other than the City;
- (d) any claim for lien or trust claim served upon the City pursuant to The Builders' Liens Act;
- (e) failure to pay a Workers Compensation assessment, or Federal or Provincial taxes;
- (f) unauthorized use of any design, device, material or process covered by letters patent, copyright, trademark or trade name in connection with the Work;
- (g) inaccuracies in any information provided to the City by the Contractor.

D33.3 Further to C17, The City shall save harmless and indemnify the Contractor in the amount of twice the Contract Price or five million dollars (\$5,000,000), whichever is greater, against all costs, damages or expenses arising from actions, claims, demands and proceedings, by

whomsoever brought, made or taken as a result of negligent acts or negligent omissions of the City, their employees or agents in the performance of its obligation under the Contract.

THIRD PARTY AGREEMENTS

D34. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D34.1 In the event that funding for the Work of the Contract is provided to the City of Winnipeg by the Government of Manitoba and/or the Government of Canada, the following terms and conditions shall apply, as required by the applicable funding agreements.
- D34.2 Further to D34.1, in the event that the obligations in D34 apply, actual costs legitimately incurred by the Contractor as a direct result of these obligations ("Funding Costs") shall be determined by the actual cost to the Contractor and not by the valuation method(s) outlined in C7.4. In all other respects Funding Costs will be processed in accordance with Changes in Work under C7.
- D34.3 For the purposes of D34:
- (a) "**Government of Canada**" includes the authorized officials, auditors, and representatives of the Government of Canada; and
 - (b) "**Government of Manitoba**" includes the authorized officials, auditors, and representatives of the Government of Manitoba.
- D34.4 Modified Insurance Requirements
- D34.4.1 If not already required under the insurance requirements identified in D13, the Contractor will be required to provide wrap-up liability insurance in an amount of no less than two million dollars (\$2,000,000) inclusive per occurrence. Such policy will be written in the joint names of the City, Contractor, Consultants and all sub-contractors and sub-consultants and include twelve (12) months completed operations. The Government of Manitoba and their Ministers, officers, employees, and agents shall be added as additional insureds.
- D34.4.2 If not already required under the insurance requirements identified in D13, the Contractor will be required to provide builders' risk insurance (including boiler and machinery insurance, as applicable) providing all risks coverage at full replacement cost, or such lower level of insurance that the City may identify on a case-by-case basis, such as an installation floater.
- D34.4.3 The Contractor shall obtain and maintain third party liability insurance with minimum coverage of two million dollars (\$2,000,000.00) per occurrence on all licensed vehicles operated at the Site. In the event that this requirement conflicts with another licensed vehicle insurance requirement in this Contract, then the requirement that provides the higher level of insurance shall apply.
- D34.4.4 Further to D13.5, insurers shall provide satisfactory Certificates of Insurance to the Government of Manitoba prior to commencement of Work as written evidence of the insurance required. The Certificates of Insurance must provide for a minimum of thirty (30) days' prior written notice to the Government of Manitoba in case of insurance cancellation.
- D34.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D34.5 Indemnification By Contractor
- D34.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for Construction, the Contractor agrees to indemnify and save harmless the Government of Canada and the Government of Manitoba and each of their respective Ministers, officers, servants, employees, and agents from and against all claims and demands, losses, costs, damages, actions, suit or other proceedings brought or pursued in any manner in respect of any matter caused by the Contractor or arising from this Contract or the Work, or from the goods or services provided or required to be provided by the Contractor, except those

resulting from the negligence of any of the Government of Canada's or the Government of Manitoba's Ministers, officers, servants, employees, or agents, as the case may be.

- D34.5.2 The Contractor agrees that in no event will Canada or Manitoba, their respective officers, servants, employees or agents be held liable for any damages in contract, tort (including negligence) or otherwise, for:
- (a) any injury to any person, including, but not limited to, death, economic loss or infringement of rights;
 - (b) any damage to or loss or destruction of property of any person; or
 - (c) any obligation of any person, including, but not limited to, any obligation arising from a loan, capital lease or other long term obligation;

in relation to this Contract or the Work.

D34.6 Records Retention and Audits

- D34.6.1 The Contractor shall maintain and preserve accurate and complete records in respect of this Contract and the Work, including all accounting records, financial documents, copies of contracts with other parties and other records relating to this Contract and the Work during the term of the Contract and for at least six (6) years after Total Performance. Those records bearing original signatures or professional seals or stamps must be preserved in paper form; other records may be retained in electronic form.

- D34.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for Construction, the Contractor shall keep available for inspection and audit at all reasonable times while this Contract is in effect and until at least six (6) years after Total Performance, all records, documents, and contracts referred to in D34.6.1 for inspection, copying and audit by the City of Winnipeg, the Government of Manitoba and/or the Government of Canada and their respective representatives and auditors, and to produce them on demand; to provide reasonable facilities for such inspections, copying and audits, to provide copies of and extracts from such records, documents, or contracts upon request by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada and their respective representatives and auditors, and to promptly provide such other information and explanations as may be reasonably requested by the City of Winnipeg, the Government of Manitoba, and/or the Government of Canada from time-to-time.

D34.7 Other Obligations

- D34.7.1 The Contractor consents to the City providing a copy of the Contract Documents to the Government of Manitoba and/or the Government of Canada upon request from either entity.
- D34.7.2 If the Lobbyists Registration Act (Manitoba) applies to the Contractor, the Contractor represents and warrants that it has filed a return and is registered and in full compliance with the obligations of that Act, and covenants that it will continue to comply for the duration of this Contract.
- D34.7.3 The Contractor shall comply with all applicable legislation and standards, whether federal, provincial, or municipal, including (without limitation) labour, environmental, and human rights laws, in the course of providing the Work.
- D34.7.4 The Contractor shall properly account for the Work provided under this Contract and payment received in this respect, prepared in accordance with generally accepted accounting principles in effect in Canada, including those principles and standards approved or recommended from time-to-time by the Chartered Professional Accountants of Canada or the Public Sector Accounting Board, as applicable, applied on a consistent basis.
- D34.7.5 The Contractor represents and warrants that no current or former public servant or public office holder, to whom the Value and Ethics Code for the Public Sector, the Policy on Conflict of Interest and Post Employment, or the Conflict of Interest Act applies, shall derive direct benefit from this Contract, including any employment, payments, or gifts,

unless the provision or receipt of such benefits is in compliance with such codes and the legislation.

D34.7.6 The Contractor represents and warrants that no member of the House of Commons or of the Senate of Canada or of the Legislative Assembly of Manitoba is a shareholder, director or officer of the Contractor or of a Subcontractor, and that no such member is entitled to any benefits arising from this Contract or from a contract with the Contractor or a Subcontractor concerning the Work.

FORM H1: PERFORMANCE BOND
(See D13.1)

KNOW EVERYONE 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

TENDER NO. 477-2024

Perimeter Road Pumping Station 2024 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: LABOUR AND MATERIAL PAYMENT BOND
(See D13.1)

KNOW EVERYONE BY THESE PRESENTS THAT

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Principal"), and

his/its heirs, executors, administrators, successors or assigns (hereinafter called the "Surety"), are held and firmly bound unto **THE CITY OF WINNIPEG** (hereinafter called the "Obligee"), for the use and benefit of claimants as herein below defined, in the amount of

_____ dollars (\$_____)

of lawful money of Canada, for the payment whereof we, the Principal and the Surety jointly and severally bind ourselves firmly by these presents.

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

TENDER NO. 477-2024

PERIMETER ROAD PUMPING STATION 2024 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 promptly make payment to all claimants as hereinafter defined, for all labour, service and material used or reasonably required for use in the performance of the Contract, then this obligation shall be void, otherwise it shall remain in full force and effect subject, however, to the following conditions:

- (a) A claimant is defined as one having a direct contract with the Principal for labour, service and material, or any of them, used or reasonably required for use in the performance of the contract, labour, service and material being construed to include that part of water, gas, power, light, heat, oil, gasoline, telephone service or rental of equipment (but excluding rent of equipment where the rent pursuant to an agreement is to be applied towards the purchase price thereof) directly applicable to the Contract;
- (b) The above-named Principal and Surety hereby jointly and severally agree with the Obligee that every claimant as herein defined, who has not been paid in full before the expiration of a period of ninety (90) days after the date on which the last of such claimant's work, labour or service was done or performed, or materials were furnished by such claimant, may sue on this bond, prosecute the suit to final judgment for such sum or sums as may be justly due claimant, and have execution thereon;
- (c) No suit or action shall be commenced hereunder by any claimant
 - unless claimant shall have given written notice to the Principal and the Surety above-named, within one hundred and twenty (120) days after such claimant did or performed the last of the work, labour or service, or furnished the last of the materials for which said claim is made, stating with substantial accuracy the amount claimed and the name of the party to whom the materials were furnished, or for whom the work, labour or service was done or performed. Such notice shall be served by mailing the same by registered mail to the Principal, and Surety, at any place where an office is regularly maintained for the transaction of business, or served in any manner in which legal process may be served in the Province of Manitoba;

- after the expiration of one (1) year following the date on which Principal ceased work on said Contract; including work performed under the guarantees provided in the Contract;
 - other than in a court of competent jurisdiction in the Province of Manitoba.
- (d) The amount of this bond shall be reduced by and to the extent of any payment or payments made in good faith hereunder, inclusive of the payment by Surety of mechanics liens which may be filed of record against said improvement, whether or not claim for the amount of such lien be presented under and against this bond.
- (e) The Surety shall not be liable for a greater sum than the specified penalty of this bond.

The Principal and Surety hereby agree that The Guarantors' Liability Act (Manitoba) shall apply to this Bond.

IN TESTIMONY WHEREOF, the Principal has hereunto set its hand affixed its seal, and the Surety has caused these presents to be sealed and with its corporate seal duly attested by the authorized signature of its signing authority this

_____ 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 K: EQUIPMENT
(See D16)

PERIMETER ROAD PUMPING STATION 2024 UPGRADES

<p>1. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>2. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>3. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

FORM K: EQUIPMENT
(See D16)

PERIMETER ROAD PUMPING STATION 2024 UPGRADES

<p>4. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>5. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>
<p>6. Category/type:</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p> <p>Make/Model/Year: _____ Serial No.: _____</p> <p>Registered owner: _____</p>

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 their 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, Purchasing 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 Tender shall govern over *The City of Winnipeg Standard Construction Specifications*.
- E1.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B7. In every instance where a brand name or design specification is used, the City will also consider approved equals and/or approved alternatives in accordance with B7.
- E1.4 The following are applicable to the Work:

<u>Specification No.</u>	<u>Specification Title</u>
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NMS SPECIFICATIONS

DIVISION 01 –

GENERAL REQUIREMENTS

010330	Submittal Procedures
013529.06	Health and Safety Requirements
014500	Quality Control
015200	Construction Facilities
015600	Temporary Barriers and Enclosures
017300	Execution
017400	Cleaning
017419	Waste Management and Disposal
017800	Closeout Submittals
019113	General Commissioning Requirements
019113.13	Commissioning Plan
019113.16	Commissioning Forms
019113.18	Commissioning Training

DIVISION 05 –

METALS

051410	Structural Aluminium
055000	Metal Fabrication

DIVISION 09 –

FINISHES

096723	Resinous Epoxy Flooring
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DIVISION 22 –

PLUMBING

220500	Common Work Results for Plumbing
220503	Hangers and Supports
220504	Hydrostatic and Pressure Testing
220515	Plumbing Specialties and Accessories
221116	Domestic Water Piping

DIVISION 23 – HEATING, VENTILATION AND AIR-CONDITIONING
238112 Air Cooled Ductless Splits

DIVISION 26 – ELECTRICAL	
260501	Common Work Results
260521	Wires and Cables (0-1000V)
260525	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 Fastening and Conduit Fittings
260544	Installation of Cables in Ducts in Trenches
260805	Accepting and Testing
262716	Electrical Cabinets and Enclosures
262726	Wiring Devices
262821	Moulded Case Circuit Breakers
262823	Disconnect Switches – Fused and Non-Fused
262903	Control Devices
262923	Variable Frequency Drives
263623	Automatic Transfer Relay
269190	Instrumentation

DIVISION 40 – AUTOMATION	
400501	Common Work Results – Automation
400554	Controls Identification
403002	Controls Instrumentation
408011	Automation – Commissioning
409001	Automation – Field Pushbuttons, Switches and Indicators
409990	Maintenance and Support

Drawing No.

Drawing Name/Title

General

1-0103-DAAA-M001-001-00	Cover Sheet
1-0103-DAAA-M002-001-00	DRAWING INDEX

Architectural

1-0103-BGAD-M001-001-00	BUILDING / ARCHITECTURAL
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Automation

1-0103-ANET-M001-001-00	NETWORK DIAGRAM
1-0103-AILD-M001-001-00	LOOP DIAGRAM – Pump M100PP Vibration Sensors
1-0103-AILD-M002-001-00	LOOP DIAGRAM – Pump M100PP Temperature Sensors
1-0103-AILD-M002-002-00	LOOP DIAGRAM – Pump M100PP Temperature Sensors
1-0103-AILD-M003-001-00	LOOP DIAGRAM – Pump M200PP Vibration Sensors
1-0103-AILD-M004-001-00	LOOP DIAGRAM – Pump M200PP Temperature Sensors
1-0103-AILD-M004-002-00	LOOP DIAGRAM – Pump M200PP Temperature Sensors
1-0103-AILD-M005-001-00	LOOP DIAGRAM – Control Room Temperature Transmitter

Civil

1-0103-CGAD-M001-001-00	SITE PLAN
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Electrical

1-0103-EAAA-M001-001-00	ELECTRICAL LEGEND
1-0103-ESLD-M001-001-00	ELECTRICAL SINGLE LINE DIAGRAM - DEMOLITION
1-0103-ESLD-M001-001-01	ELECTRICAL SINGLE LINE DIAGRAM
1-0103-EGAD-M001-001-00	ELECTRICAL SITE PLAN - DEMOLITION
1-0103-EGAD-M001-001-01	ELECTRICAL SITE PLAN
1-0103-EGAD-M002-001-00	ELECTRICAL BUILDING PLAN - DEMOLITION

1-0103-EGAD-M002-001-01	ELECTRICAL BUILDING PLAN
1-0103-EGAD-M003-001-00	ELECTRICAL BUILDING PLAN - DEMOLITION
1-0103-EGAD-M003-001-01	ELECTRICAL BUILDING PLAN
1-0103-EGAD-M004-001-00	ELECTRICAL BUILDING PLAN - DEMOLITION
1-0103-EGAD-M004-001-01	ELECTRICAL BUILDING PLAN
1-0103-EGAD-M005-001-00	ELECTRICAL BUILDING PLAN - DEMOLITION
1-0103-EGAD-M005-001-01	ELECTRICAL BUILDING PLAN
1-0103-ETLD-M001-001-00	WIRING DIAGRAM DEMOLITION – AUTO UTILITY TRANSFER
1-0103-ETLD-M001-001-01	WIRING DIAGRAM – AUTO UTILITY TRANSFER
1-0103-ECBD-M001-001-00	MOTOR STARTER DEMOLITION – M100PP
1-0103-EWDG-M002-001-00	MOTOR STARTER CONNECTION DIAGRAM – M100PP
1-0103-ECBD-M002-001-00	MOTOR STARTER DEMOLITION – M200PP
1-0103-EWDG-M004-001-00	MOTOR STARTER CONNECTION DIAGRAM – M200PP
1-0103-EDTL-M001-001-00	DETAILS
1-0103-EWDG-M006-001-00	WIRING DIAGRAM
1-0103-EWDG-M007-001-00	WIRING DIAGRAM
1-0103-EWDG-M008-001-00	WIRING DIAGRAM

Mechanical

1-0103-PAAA-M001-001-00	PROCESS AND INSTRUMENTATION LEGEND
1-0103-PPID-M001-001-00	PROCESS AND INSTRUMENTATION DIAGRAM (P&ID)
1-0103-PPID-M002-001-00	PROCESS AND INSTRUMENTATION DIAGRAM (P&ID)
1-0103-MGAD-M001-001-00	PUMP ROOM ISOMETRIC
1-0103-MGAD-M002-001-00	PUMP ROOM FLOOR PLAN – DEMOLITION
1-0103-MGAD-M002-001-01	PUMP ROOM FLOOR PLAN
1-0103-MGAD-M003-001-00	PUMP ROOM SECTIONS
1-0103-MDTL-M001-001-00	MECHANICAL DETAILS

Structural

1-0103-SDTL-M001-001-00	STRUCTURAL DEMOLITION
1-0103-SGAD-M001-001-00	STRUCTURAL FLOOR PLAN
1-0103-SGAD-M001-001-01	STRUCTURAL DETAILS

GENERAL REQUIREMENTS

E2. OFFICE FACILITIES

- E2.1 The Contractor shall supply office facilities meeting the following requirements:
- (a) The building shall be conveniently located near the Site of the Work.
 - (b) The building shall have a minimum floor area of 25 square metres, two windows and a door entrance with a suitable lock.
 - (c) The building shall be suitable for all weather use.
 - (d) The building shall be adequately powered and lighted.

E3. MOBILIZATION AND DEMOBILIZATION PAYMENT

- E3.1 Description
- (a) This Specification shall govern mobilization and demobilization from site.
 - (b) The Work to be done by the Contractor under this Specification shall include the furnishing of all superintendence, overhead, labour, Materials, equipment, tools, supplies and all things necessary for and incidental to the satisfactory performance and completion of all Works as hereinafter specified.
- E3.2 The Work under this Specification shall include, but not be limited to:

- (a) submission of Site layout plan;
- (b) mobilizing and demobilizing on-Site Work facilities;
- (c) supplying, setting up, laying out and removing Site office facilities;
- (d) install, maintaining and removing any access roadway; and traffic control and traffic management.

E3.3 Mobilization and demolition are in accordance with the most recent Standard Construction Specifications:

- (a) CW 1120 – Existing Services, Utilities and Structures; and
- (b) CW 1130 – Site Requirements.

E3.4 Submittals

- (a) The Contractor shall submit the following to the Contract Administrator fourteen (14) days prior to mobilization on-Site:
 - a plan highlighting the Site layout plan which includes laydown area location(s), staging areas, office facility location, access road(s), temporary secure fencing limits and gate locations for review and approval.
- (b) Contractor shall refer to the Drawings for limits of construction.

E3.5 Materials and Equipment

- (a) All Materials supplied under this Specification shall be of a type approved by the Contract Administrator and shall be subject to inspection and testing by the Contract Administrator.
- (b) The Contractor shall be responsible for the supply, safe storage, and handling of all Materials as set forth in this Specification. All Materials shall be handled in a careful and workmanlike manner, to the satisfaction of the Contract Administrator.
- (c) All equipment shall be of a type acceptable to the Contract Administrator and shall be kept in good working order.

E3.6 Construction Methods

- (a) Site Inspection:
 - inspect the Site with the Contract Administrator to verify existing conditions prior to mobilizing on-Site; and
 - inspect the Site with the Contract Administrator soon after demobilizing on-Site, confirming Site has been restored to its original condition prior to initiation of Work;
- (b) Layout of On-Site Work Facilities:
 - the Contractor shall mobilize all on-Site Work and other temporary facilities; and
 - upon completion of construction activities, the Contractor shall remove all on-Site Work and other temporary facilities;
- (c) Cellular Telephone Communication:
 - the Contractor's Site supervisor is required to carry, at all times, a cellular telephone, with voicemail;
- (d) Access Roadway:
 - the Contractor shall maintain any access roadway they install;
 - the access road shall be maintained on a regular basis to provide continual unrestricted Site access, to the satisfaction of the Contract Administrator; and
 - upon completion of the Work, the area shall be restored to its original condition;
- (e) Snow and Ice Removal:
 - if required, snow clearing shall be done by the Contractor on a regular basis; and

- if required, snow cover shall be cleared from the construction Site prior to commencement of the Work. The methodology to clear the snow shall be subject to the approval of the Contract Administrator;
- (f) Restoration of Existing Facilities:
- upon completion of the Work and demobilization, the Contractor shall restore existing facilities to their original condition, including snow removal, to the approval of the Contract Administrator.

E3.7 Measurement and Payment

- (a) Mobilization and demobilization will be measured on a lump sum basis at the Contract Unit Price for "Mobilization and Demobilization" as shown in Form B: Prices, for supplying all Materials and for performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- (b) thirty percent (30%) when Contract Administrator is satisfied that construction has commenced;
- (c) fifty percent (50%) during construction, percentage distributed equally on a monthly basis at the discretion of the Contract Administrator; and
- (d) twenty percent (20%) upon completion of the Work.
- (i) The Contractor has achieved Substantial Performance;
 - (ii) The Contractor has demobilized;
 - (iii) The Contractor has restored and cleaned up the building and site.

E4. CASH ALLOWANCE FOR ADDITIONAL WORK

E4.1 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.

E4.2 A cash allowance has been included on Form B: Prices.

E4.3 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.

E4.4 Cost of additional work 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.

E4.5 Additional services and/or Work 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 Contractors schedule time to be on Site.

E4.6 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.

E4.7 Material Mark-Up Factors in accordance with C7:

- (a) The base cost is to be the wholesale cost of the material, regardless of the Contractor or Subcontractor supplying the material.
- (b) In general, the party (Contractor or Subcontractor) supplying the material is the party that purchases the material from a supplier who does not perform any work on Site, unless otherwise determined by the Contract Administrator.

- (c) Where the Contractor is supplying the material, the mark-up on the material is limited to fifteen percent (15%).
- (d) Where the Contractor's immediate Subcontractor is supplying the material the total mark-up on the material including all Subcontractors and the Contractor is limited to twenty-five percent (25%)
 - The Subcontractor's mark-up on the material is limited to fifteen percent (15%);
 - The Contractor's mark-up on the material is limited to ten percent (10%).
- (e) A Third-Level Subcontractor is a Subcontractor of a Subcontractor of the Contractor.
 - No Third-Level Subcontractors on this project are approved for additional mark-up.

E4.8 In the event that a Third-Level Subcontractor is utilized, that is not approved for additional mark-up, the Contractor is responsible for coordinating the split of the maximum approved mark-up between the Contractor and Subcontractors.

E5. SPARE PARTS

E5.1 Contractor to include spare parts as outlined in the associated specifications, including but not limited to:

- (a) Spare programmed SEL-700BT bus transfer relay,
- (b) Spare fuses of each size,
- (c) Push buttons and switches,
- (d) Minimum 10% spare terminals on each terminal block.

E6. DANGEROUS WORK CONDITIONS

E6.1 Further to clause C6.24 of the General Conditions, the Contractor shall be aware that underground chambers, lower levels of the pumping station, 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. The Contractor will be required to have Confined Space Entry Training and complete a permit each time work is to be performed in a Confined Space Area. The following locations are considered Confined Spaces:

- (a) Wet Well.
- (b) Sewer manholes.
- (c) Any other areas labelled as 'Confined Space' at the Site.

E6.2 The Contractor shall be aware of the potential hazards that can be encountered in confined spaces such as toxic gases and oxygen deficiency. The Contractor's Safe Work Plan should address these issues.

E6.3 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. The Contractor is responsible for all testing requirements.

E6.4 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.

E6.5 Workers must wear a respirator or have supplied air at all times when entering a chamber, manhole or sewer where live sewage is present.

E6.6 If products containing volatile organic carbons (VOCs) are used, the Contractor shall provide a photoionization detector (PID) on Site to monitor potential VOCs 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. In addition, the Contract Administrator may collect discrete air samples for laboratory analysis.

E6.7 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 his 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.

E7. SHOP DRAWINGS

E7.1 Submit shop drawings in accordance with Section 01 33 00.

E8. PRE-CONSTRUCTION PHOTOGRAPHS

E8.1 The Contractor is responsible for taking photographs and/or video of the surrounding structures, houses and landscaping in order to establish the condition of the area around the pumping station prior to commencement of the Work. The pictures and/or video must be submitted to and approved by the Contract Administrator prior to the commencement of the Work.

E9. EQUIPMENT SUPPLIED BY OTHERS

E9.1 Process Mechanical:

- (a) One (1) 880 l/s (Pump 1) dry-pit pumping unit complete with motor, shaft, pump support, shaft guard, suction elbow, and spare parts for installation as indicated in the Specifications and Drawings. Delivery expected by January 10, 2025.
- (b) One (1) 380 l/s (Pump 2) dry-pit pumping unit complete with motor, shaft, pump support, shaft guard, suction elbow, and spare parts for installation as indicated in the Specifications and Drawings. Delivery expected by January 10, 2025.

E9.2 Electrical:

- (a) Two (2) new Schneider Electric APM VFDs, one for each pump, as indicated in the specifications and drawings. Delivery expected by November 1, 2024.

E9.2.1 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.

E9.2.2 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.

E9.2.3 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.

E9.2.4 The Contract Administrator will supply arc flash stickers for the electrical equipment.

E9.2.5 Programming of the VFDs and motor protection relays shall be completed by the VFD supplier.

E10. DEMOLITION OF STRUCTURES

E10.1 Description of Work

The Work required under this section shall include, but is not limited to, the following:

- (a) Demolition of the concrete pump and motor bases as shown on the contract drawings.
- (b) Demolition of the pump access platforms as shown on the contract drawings.
- (c) Demolition of the motor bases and housekeeping pads as well as the removal of shaft bearing supports from steel columns.
- (d) Demolition of the existing entrance pole and buried entrance conduit for the Headingly utility service.
- (e) Demolition of the existing automatic utility transfer system as shown on the contract drawings.
- (f) Demolition of the existing pump 1 VFD, 12-pulse transformer, and associated equipment as shown on the contract drawings.
- (g) Demolition of the existing pump 2 combination starter and magnetic speed drive as shown on the contract drawings.
- (h) Demolition of portions of the existing housekeeping pad as shown on the contract drawings.
- (i) Removal and disposal of pump existing pumps including associated mechanical and electrical materials.
- (j) Removal and disposal of construction debris.

E10.1.1 The work to be done by the Contractor under this section shall include the furnishing of all superintendence, overhead, labour, materials, equipment, tools, supplies, and all things necessary for and incidental to the satisfactory performance and completion of all Works as described hereinafter.

E10.2 References

- E10.2.1 CSA S350-M1980, Code of Practice for Safety in Demolition of Structures.
- E10.2.2 Manitoba Workplace Safety and Health Act, and all applicable National, Provincial and Municipal regulations.

E10.3 Protection

- E10.3.1 Prevent damage of existing structure to remain. Make good any damage caused by the demolition Work.
- E10.3.2 Take precautions to support adjacent and affected structures and, if safety of structure being demolished or adjacent structures appears to be endangered, cease operations and notify the Contract Administrator.
- E10.3.3 The Contractor shall take precautions during demolition works to prevent damage to existing structures and adjacent property. In the event of damage, the Contractor will be held liable and shall be required to provide appropriate restoration at his cost, to the satisfaction of the Contract Administrator.

E10.4 Execution

- E10.4.1 Commencement
- E10.4.2 Inspection
 - (a) Inspect Site with Contract Administrator and verify extent of items for removal, disposal, salvage and items to remain.
 - (b) Notify and obtain approval of Contract Administrator before starting demolition.
- E10.4.3 Safety Code and Requirements
 - (a) Unless otherwise specified, carry out demolition in accordance with the City of Winnipeg Safety Directives and Guidelines.
- E10.4.4 Demolition

- (a) Demolish structures to permit construction of new work as required.
- (b) At end of each day's Work, leave Work in safe condition so that no part is in danger of toppling or falling.
- (c) Do not sell or burn materials on Site.
- (d) Damage to concrete that is to remain shall be minimized. Concrete shall be demolished by saw cutting and subsequent jackhammering using hand-held breakers or jack hammers (maximum 10 kgs/20 lbs unless noted otherwise on drawings). Other methods of performing concrete demolition may be submitted for review and approval to the Contract Administrator. The Contractor shall take measures to ensure that the concrete beyond the limits of demolition is not fractured or shattered. The Contractor shall remove concrete using acceptable methods and replace any concrete which is deemed to be fractured as a result of demolition methods employed by the Contractor. This repair Work shall be performed at no additional cost to the City of Winnipeg.

E10.4.5 Demolition Tolerances

- (a) All demolition shall be done using equipment and procedure to prevent over-breakage of the existing structure.
- (b) Final demolition surfaces must remain locally within (25 mm) of the demolition lines, alignments, or limits shown on the drawings. Demolition beyond the limits shown shall be reviewed by the Contract Administrator. The Contractor shall repair excess demolition to the satisfaction of the Contract Administrator, and at no cost to the City where required.
- (c) All protrusions into the defined limits of demolition shall be removed if they interfere with the placement and alignment of embedded components or reinforcing steel.

E10.4.6 Abrasive Wiresaw and Sawcutting

- (a) Areas of demolition shall be delineated from existing concrete that is to remain using either abrasive disc sawcutting, or abrasive wire sawing.
- (b) All sawcuts shall be performed straight and normal to the surface being cut, following the locations shown on the drawings, or as directed by the Contract Administrator.
- (c) Overruns at the junctions of sawcuts, and mis-starts shall be cleaned and filled with dry patching mortar of matching colour, as directed by the Contract Administrator.
- (d) Overruns at the junctions of sawcuts, and mis-starts shall be cleaned and filled with dry patching mortar of matching colour, as directed by the Contract Administrator.

E10.4.7 Disposal of Demolished Material

- (a) The Contractor shall be responsible for removal of debris and waste from the Work area to the location to an appropriate solid waste disposal area approved by the contract administrator.
- (b) Metal debris, which may include reinforcing steel, shall be removed from Site and disposed of by the Contractor.

E10.5 Measurement and Payment

E10.5.1 Demolition

- (a) Demolition will be measured on a lump sum basis and paid for at the Contract Lump Sum Price for "Demolition."
- (b) No payment shall be made for demolition beyond the limits specified, or those otherwise approved by the Contract Administrator. The separation, as necessary of embedded and structural steel shall be considered incidental to the Work. The installation of temporary supports, shoring or hangers shall also be considered incidental to the Work. Saw cutting of concrete and removal of construction debris shall be considered incidental to the Work.

E11. SALVAGE

- E11.1 Contractor to coordinate with Contract Administrator to arrange for City of Winnipeg Staff to visit site and mark equipment and material for salvage prior to commencement of demolition.
- E11.2 All salvaged equipment and materials as determined under E11.1 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 Northeast corner of the intersection of Dugald Road and Van Bellegham Avenue, Winnipeg, Manitoba.
- E11.3 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.
- E11.4 The Contractor shall remove and haul all rejected salvage from the site and legally dispose of it.
- E11.5 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.

E12. CAST-IN-PLACE CONCRETE

E12.1 Description

- E12.1.1 This specification will cover construction of cast-in-place concrete gate chamber and shall supplement, revise and amend CW 2160.

E12.2 Materials

(a) Concrete Mix Design

The Contractor shall be responsible for the design and performance of all concrete mixes supplied under this Specification. Concrete shall be supplied in accordance with the requirements of CSA A23.1-14, with the minimum properties as provided below:

(i) Pump Bases

Class of Exposure	C-1
Maximum Size of Aggregate	20 mm
Cement Type	GU
Maximum Water/Cementing Materials Ratio	0.40
Compressive Strength at 28 Days	32 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	< 5.0%

(ii) Lean Mix Concrete

Cement Type	Type HS
Maximum Water/Cementing Materials Ratio	0.49
Compressive Strength at 28 Days	15 MPa
Slump/Flow	80 mm
Air Content	nil

(iii) Concrete Curbs, Pads, and Aprons

Class of Exposure	C-1
Maximum Size of Aggregate	20 mm
Cement Type	GU
Maximum Water/Cementing Materials Ratio	0.40
Compressive Strength at 28 Days	25 MPa
Slump/Flow	80 mm +/- 20 mm
Air Content	< 5.0%

- (b) Provide a “Mix Design Statement” for each type of concrete to be used certifying constituent materials and mixing proportions to the Contract Administrator at least 2 weeks prior to delivery of Concrete to the Site. Supply reasonable evidence to the Contract Administrator that the mix proportions selected will produce concrete meeting the specified strength, workability and yield.
- (c) Admixtures
 - All admixtures shall be compatible and meet the following standards:
 - ◆ Air entraining agent shall meet ASTM C260.
 - ◆ Chemical water reducing admixtures shall meet ASTM C494.
 - ◆ Type F high-range water reducing (super-plasticizing) admixture shall be used when a slump of more than 110 mm is desired.
- (d) Grout
 - Grout for pump and motor base plates shall be SikaFlow 648 Non-Shrink Epoxy Grout or approved equivalent in accordance with B7
 - Floor surface in lower pump room to be prepared according to product manufacturer’s requirements prior to application of grout.
 - Grout to be applied as per manufacturer’s requirements.
 - Hydraulic cement for form hole patching shall be Xypex Patch-n-Plug or approved equivalent in accordance with B7.
- (e) Reinforcing Steel
 - New deformed billet steel bars conforming to CSA G30.18 (latest). Grade to be 400.
 - Bar accessories:
 - ◆ To be made of a non-corroding material
 - ◆ Shall not stain, blemish or spall the concrete surface for the life of the concrete
 - ◆ Shall be approved by the Contract Administrator
 - ◆ Bar chairs shall be PVC.
- (f) Bonding Agent shall be Sika Latex R or approved equivalent in accordance with B7.
- (g) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any material that could reduce bond with the concrete.
- (h) Waterproofing
 - Provide two coats bitumen waterproofing emulsion to all below grade exterior concrete surfaces.
 - Approved product: Mapai Plastimul or approved equal in accordance with B7.
- (i) Miscellaneous Metals and Accessories
 - As shown on the Drawings.
- (j) Shop Drawings:
 - Provide shop drawings in accordance with E7 of this specification.
 - Submit shop drawings for reinforcing steel a minimum of two (2) weeks prior to the fabrication of any reinforcing steel.

E12.3 Construction Methods

E12.3.1 Construction Method Submission

- (a) No Work shall commence on construction of cast-in-place concrete until after the Contract Administrator’s review of the Contractor’s Construction Method submission.
- (b) The Contractor shall prepare for the Contract Administrator’s review a Construction Method submission detailing:

- (i) Construction sequence to be followed including all methods to be employed.
 - (ii) Shoring system(s) to be used.
 - (iii) Proposed method of structure construction.
 - (iv) Specialized equipment to be used.
 - (v) Any design revisions proposed to accommodate the Contractor's proposed construction method.
 - (vi) Water control consideration including details on the Contractor's proposed method of groundwater and surface runoff control.
- (c) The Contractor shall respond to any concerns that may be raised by the Contract Administrator after review of Construction Method submission.

E12.3.2 Pump Station Upgrades

- (a) Construct cast in place concrete in accordance with CW 2160 and CSA A23.1, except as supplemented, revised or amended in this specification and as indicated in the construction notes on the Drawings.
- (b) Adjust the location of reinforcing steel adjacent to openings to frame those openings in accordance with good practice, and maintain the bar spacing intent.
- (c) Do not use welded splices for reinforcing steel.
- (d) Remove all form tie plastic cones and patch with hydraulic cement compound.
- (e) Order all wall reinforcement steel in lengths to best suit the spacing of walers so that reinforcing bars will not be bent or misformed in order to remove the walers.
- (f) Reinforcing steel shall be clean, free of rust, dirt, loose scale, oil, grease or any other material which would reduce bond with concrete.
- (g) Tie, support, and space all reinforcing steel with proper approved devices designed for use in reinforced concrete, to prevent displacement of reinforcing and ensure specified concrete cover.
- (h) Provide minimum concrete cover for reinforcing steel as follows:
 - (i) Slab faces exposed to soil: 75 mm
 - (ii) Slab faces not exposed to soil: 50 mm
 - (iii) Subgrade Walls (exterior face): 75 mm
 - (iv) Subgrade Walls (interior face): 50 mm
 - (v) Chamber To Slab (top and bottom): 50 mm
 - (vi) Interior Walls: 50 mm
- (i) Notify the Contract Administrator at least one (1) full Working Day in advance of any backfilling operation. No Backfill shall be placed against concrete until approved by the Contract Administrator and in no case before field cured test cylinders show the concrete strength to be 75% of that specified.

E12.3.3 Grout & Patching Cement

- (a) Mix and apply grout and patching cement in accordance with the manufacturer's instructions. Consistency is to be suitable for the intended application.

E12.3.4 Measurement and Payment

- (a) Construction of the cast-in-place concrete will be measured per cubic meter and paid for at the Contract unit price for "Cast-in-Place Concrete." Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification, accepted and measured by the Contract Administrator.

E13. COLD WEATHER REQUIREMENTS

- E13.1 Should any concrete Work be required to be carried out when the daily mean temperature is below 5°C or anticipated to be below 5°C within the 24 hour cure period, cold weather requirements will be specified herein.
- E13.2 All freshly placed concrete shall be protected from the elements and from defacements due to construction operations.
- E13.3 The following are minimum requirements for protecting concrete during and after placement during freezing weather, but mere adherence to these requirements will not relieve the Contractor of the necessity for producing concrete which has not been weakened or injured by frost or freezing, or replacing such damaged Work at no additional cost to the City;
- (a) Before any concrete is placed, all ice, snow, and frost shall be completely removed from all formwork, and other surfaces against which concrete temperatures of such surfaces raised above 7°C for twenty-four (24) hours minimum prior to concreting. Where concrete Work is to come in contact with the earth, the surface of the earth shall be completely free of frost when concrete is placed thereon.
 - (b) Concrete aggregates and water shall be heated to not over 80°C. Concrete shall be not less than 20°C or more than 30°C in temperature when deposited. Concrete when placed during freezing weather, or if freezing is anticipated during curing period, shall be fully enclosed and the temperature of same maintained at not less than 20°C for five (5) days nor less than 5°C for an additional five (5) days.
 - (c) Heating enclosures shall be strong and wind-proof, well ventilated with heating units so located as to prevent local overheating or drying of the concrete or damage from combustion gases. Only indirect fired heaters will be accepted. Units must be vented outside the enclosure. No direct fired units will be accepted.
 - (d) The Contractor shall inform the Contract Administrator well in advance as to the methods of enclosure and frost protection he proposes to employ.
- E13.4 Measurement and Payment
- (a) Cold weather requirements shall be considered incidental to the construction of Cast-in-Place concrete and no payment will be made for this item.

E14. METAL FABRICATIONS

- E14.1 Refer to Section 05 14 10 – Structural Aluminum
- E14.2 Refer to Section 05 50 00 – Metal Fabrication
- E14.3 Measurement and Payment
- (a) Supply, fabrication, transportation, handling, delivery and placement of metal fabrications will be paid for at the Contract Lump Sum Price for “Miscellaneous Metals.” Said price shall be payment in full for supplying all materials and performing all operations herein described and all other items incidental to the Work included in this specification.

E15. PROCESS MECHANICAL WORK

- E15.1 Description
- E15.1.1 This Specification covers the process piping, equipment, and materials for the Pumping Station Upgrade Project.
- E15.1.2 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.

- E15.1.3 Mechanical drawings indicate general layout only. The Contractor is responsible for confirming all dimensions prior to manufacture of piping.
- E15.1.4 All equipment and material shall be supplied by the Contractor unless specified herein.
- E15.2 Materials:
- E15.2.1 Pumping Units: To be supplied and delivered to the City of Winnipeg at Perimeter Road Pumping Station by Power and Mine Supply.
- E15.2.2 Pump Motors: To be supplied and delivered to the City of Winnipeg at Perimeter Road Pumping Station by Power and Mine Supply.
- (a) Refer to Section D19 and coordinate with Division 26 – Electrical.
- E15.2.3 Carbon Steel Piping and Fittings:
- (a) Pump Suction and Discharge Piping: All piping shall be ASTM A106/A106M Grade B Carbon steel extra heavy wall thickness.
- (b) Fabricated fittings shall conform to ASTM A106/A106M Carbon Steel Grade B, extra heavy wall thickness.
- (c) Steel fittings shall be ASTM A234 Grade B Carbon Steel, extra heavy wall thickness. Dimensions shall be to ANSI B16.9.
- (d) Steel flanges shall be ASTM A105, slip-on or weld-neck, dimensions to ANSI B16.5, 150#, flat-face.
- (e) Drains and vents, DN50 and smaller:
- (i) Thredolet, carbon steel, ASTM A105, 3000#.
- (ii) Pipe, carbon steel ASTM A106-B, ERW, schedule 160, threaded ends.
- (iii) Ball valve, full-port, 2-piece, NPT, 316 SS, RTFE seats, 1000 psi WOG at 200°F, blowout-proof stem, lockable lever handle.
- (iv) 316 stainless steel threaded plug in valve outlet.
- (f) Interior finish
- (i) Carbon steel pipe, fittings and flanges shall be internally lined with shop-applied epoxy coating in accordance with AWWA C210. Holiday testing required.
- (ii) Conform to manufacturer requirements regarding:
- ◆ Surface preparation including sand blasting.
 - ◆ Conditions under which painting system can be applied.
 - ◆ Prime and final coat thicknesses.
- (iii) Acceptable products: Two (2) prime coats Devoe Bar Rust 236, 6 mil DFT per coat, with Devoe Devgrip 238 abrasion resistant finish coat, 6 mil DFT. Total lining 18 mil DFT, or approved equal in accordance with B7.
- (iv) On mechanically-coupled pipe ends with ring adapters, interior finish shall be continuous over end of pipe and ring adapter, up to and including coupling gasket sealing surface.
- (v) Contractor shall add additional flanged breaks as required to complete internal lining of pipe spools with elbows.
- (g) Exterior finish
- (i) Apply epoxy finish to the exterior of all carbon steel or ductile iron piping components in accordance with AWWA C210.
- (ii) Provide a 1-year warranty from project substantial performance date for entire painting system. See B7.
- (iii) Conform to manufacturer requirements regarding:
- ◆ Surface preparation including sand blasting.
 - ◆ Conditions under which painting system can be applied.

◆ Prime and final coat thicknesses.

- (iv) Piping shall be identified per existing identification standard indicating the product and direction of flow. Provide white lettering / arrows on piping painted black. Provide black lettering / arrows on all other background colours.
- (v) The exterior final coat colour of all piping shall be as directed by the Contract Administrator

(h) Submit shop drawings in accordance with Section 01 33 00.

E15.2.4 Dismantling Joints:

- (a) Use Dresser style 131 or Robar dismantling joint with tie rods or equivalent in accordance with B7.
- (b) Contractor is responsible for confirming dimensions of existing and new pipework for installation of dismantling joints.
- (c) 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

E15.2.5 Couplers

- (a) Victaulic or approved equal in accordance with B7.
- (b) Installed according to manufacturer's recommendations.

E15.2.6 Domestic Water Piping:

- (a) As per Section 22 11 16.

E15.2.7 Plumbing Specialties and Accessories:

- (a) As per Section 22 05 15.

E15.2.8 Fasteners:

- (a) Flange nuts and bolts shall be ASTM A193-B8M class 2 Type 316 stainless steel bolts, ASTM A194-8M Type 316 stainless steel extra heavy hex nuts coated with anti-galling compound.
- (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.

E15.2.9 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.

E15.3 Construction Methods:

E15.3.1 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 force main 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.

E15.3.2 Flow Control:

- (a) Pumps 3 and 4 must be operational while pumps 1 and 2 are out of service.
- (b) Only one pump may be removed from service at a time.

E15.3.3 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.

E15.3.4 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.

E15.3.5 Pumping Units and Piping Installation:

- (a) The existing pumping station contains four (4) pumps total. Two (2) pumps complete with motors and related piping to be replaced as part of the Contract. These pumps will be replaced with two (2) new pumps complete with new motors and new drive shafts, bases, suction elbows, and related spare parts.
- (b) Remove 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 painted in accordance with E15.2.3 Carbon Steel Piping & Fittings.

E15.3.6 Each new pump to be equipped with a seal flushing water supply system. Refer to contract drawings.

E15.3.7 Miscellaneous Metal Fabrications:

- (a) As per 05 50 00 and 05 14 10.

E15.3.8 Cleanup:

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

E15.4 Measurement and Payment:

E15.4.1 Payment will be based on Form B, "Process Mechanical Work", 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.

E16. EXISTING PUMPING STATION OPERATION DURING CONSTRUCTION

E16.1 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 written permission from the Contract Administrator.**

E16.2 The Contractor is advised that the required pumps in the pumping station will be allowed to be taken out of operation only after the Contractor's schedule of activities to complete the Work is approved by the Contract Administrator. The Contractor shall plan his/her construction activities to allow for the minimum amount of disruption time to normal operating status of the station.

- E16.3 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.

E17. TEMPORARY SHUTDOWN OF THE STATION PUMPS

- E17.1 Temporary shutdown of the pumps in the station will be allowed for the following work activities. Pump 1 will be shutdown first, followed by Pump 2. Pump 1 shall be operational prior to Pump 2.
- (a) Shutdown of Pump 1 during the replacement of Pump 1.
- (b) Shutdown of Pump 2 during the replacement of Pump 2.
- E17.2 All shutdowns must be reviewed and approved by the Contract Administrator prior to the shutdown. Prepare and submit changeover plans to Contract Administrator a minimum of fifteen (15) Working Days prior to proposed shutdown of Pump 1, with the estimated date included in the Contractor's changeover plan. The changeover plan submittals shall be issued ten (10) Working Days prior to the planned shutdown and commencement of Work. Shutdown plans must a minimum include:
- (a) Location and duration of shutdown;
- (b) Purpose/description of the planned shutdown;
- (c) List of all relevant stakeholders;
- (d) Risks and contingency planning;
- (e) Outline of changeover plan;
- (f) Monitoring requirements;
- (g) Key data and elevations;
- E17.3 All gate operation and other control relating to the wastewater process will be by the City.
- E17.4 Water and Waste Department, Collection System personnel will be available to aid the Contractor for shutdown of the pumps of the wastewater pumping station.
- E17.5 Coordination of the pumps shutdowns and any associated Work described herein is incidental to the Work.

E18. UTILITY TRANSFER RELAY PROGRAMMING AND COMMISSIONING

- E18.1 The contractor shall retain SEL Engineering Services for the supply, programming, and commissioning assistance of the utility transfer controller as outlined in the contract documents and Section 26 36 23.
- (a) **Contact:** Ken Hamilton
- (b) **Email:** khamilton@pro-techpower.com
- (c) **Phone:** 431-374-7266
- E18.2 The contractor is responsible for the design, shop drawings, installation, and CSA approval of the renovated utility control section in SGR-M700.
- E18.3 Real-world witnessed testing of the utility transfer system is required. The contractor shall provide notice of real world testing at least one (1) week ahead of the test. Testing to be witnessed by the contract administrator and City Representatives.
- E18.4 See Appendix E for programming and control requirements for the utility transfer relay.

E19. COMMISSIONING

- E19.1 The Manufacturer's Technical Representative, installation Contractor and Contract Administrator shall jointly commission the pumps in accordance with the written procedure for commissioning. The installation Contractor will provide sufficient manpower for the duration of the commissioning period. The installation Contractor will make necessary adjustments during commissioning to put the pumps into continuous operation.
- (a) The Contract Administrator will request that the equipment be operated to demonstrate that it performs as specified. If the Contract Administrator notes deficiencies in the installation, the deficiency will be corrected immediately by the installation Contractor. The installation Contractor will advise the Contract Administrator, in writing, when the deficiencies have been corrected. If the Contract Administrator notes deficiencies in the supplied products, the deficiency shall be corrected immediately by this Contractor.
 - (b) Deficiencies of a serious nature, as determined by the Contract Administrator, shall be corrected by the manufacturer's representative.
- E19.2 The Contractor will coordinate with the manufacturers and contract administrator to provide the services of a qualified Manufacturer's technical representative to be present at the commissioning of each pumping unit supplied under this Contract to perform the following:
- (a) Inspect the pumping equipment to ensure they have been properly installed in accordance with the manufacturer's instructions. If the installation is not in order, the technical representative shall provide instruction for the installation Contractor. The equipment shall be started and run, and adjustments made at this time;
 - (b) Conduct and document amp draw, rotation and speed tests;
 - (c) Check for unusual vibration or noises;
 - (d) Instruct City personnel in the operation and maintenance of the pumps; and
 - (e) Inspect and document vibration and bearing temperature reading.
- E19.3 Example commissioning forms and report have been provided in Appendix G. The contractor shall create commissioning documents based on the provided examples. Commissioning forms are to be submitted to the contract administrator for review at least four (4) weeks prior to beginning commissioning activities.
- E19.4 After the equipment has been installed and prior to final acceptance, protect the equipment from damage. Ensure that protection measures are to the satisfaction of the Contract Administrator.
- E19.5 The price provided for "Commissioning" shall cover all costs associated with this item of Work including travel expenses, accommodations, meals and wages.
- E19.6 On-Site Start-Up Inspections and On-Site Commissioning Activities
- (a) On-site start-up inspections and on-site commissioning activities are planned to occur over four (4) full business days (32 hours) with time allotment for additional troubleshooting and deficiencies. The Contract Administrator will provide a minimum of five (5) Business Days notice of requirement for an on-site initial start-up inspection and on-site field commissioning activities. In order to ensure reliable operation of a newly installed equipment total performance will be one month after all work has been completed, commissioning has been accepted and 1 month of pump operation has been completed.
 - (b) Deficiencies during commissioning may result in follow up on-site activities and require attendance follow up inspection and commissioning activities.
 - (c) The Contractor will be required to provide inspection checklists and commissioning forms for each piece of equipment. The Contractor will be responsible to fill out checklists and commission forms during site visits. Example commissioning forms have been included in Appendix G. Commissioning forms must be submitted to the contract administrator for review prior to commissioning and include items outlined in Section 01 91 33 and the following at minimum:

- Project Name;
 - Drawing reference;
 - Equipment number, loop number, wire tag information;
 - Description of equipment and check function;
 - As applicable include: I/O address, analog range, test points, warnings, alarms, source/input/output, as-expected vs. as found results;
 - Functional checks (run, stop, warning, alarm shutdown, E-stop, etc.);
 - Notes and;
 - Date, time, name and signature.
- (d) On-Site Start-up Inspections:
- Provide the services of a qualified technical representative to be present at the initial start-up under this Contract to perform the following:
 - Inspect the equipment to ensure they have been properly installed in accordance with the manufacturer's instructions.
 - Conduct and document motor current draw, rotation and speed tests.
 - Check for unusual vibration and/or noises.
 - Verify connection of instruments for control philosophy and DCS monitoring.
 - Instruct City personnel in the Operation and Maintenance of the Goods.
 - Promptly correct any deficiencies with the equipment at the Contractor's expense to the satisfaction of the Contract Administrator.
- (e) Field Tests:
- Field tests will be performed as soon as possible after the Contractor has inspected the installation. Field tests will be to determine and check for the following:
 - Capacity;
 - Noise;
 - Vibration;
 - Calibration;
 - Analog signals;
 - Digital Statuses;
 - Functional control and operation checks;
 - Interlocks and;
 - Faults.
- (f) On-Site Commissioning Activities:
- If the Field Commissioning testing indicates the Goods supplied does not meet the specified requirements, the Contractor shall promptly correct the issues at their expense and to the Contract Administrator's satisfaction;
 - If the Contractor is not satisfied with the procedure of the tests or the City's interpretation of the results thereof, the Contractor may have the tests repeated, or their interpretation referred to a referee to both the City and themselves. The cost of the services of such a referee shall be borne by the City if the referee rules that the tests as reported by the City were to the detriment of the Contractor. Otherwise if the referee rules in favour of the City, the Contractor shall pay the costs of the services of the referee and of the repeating tests required. The decision of the referee shall be final and binding both on the City and the Contractor and;
- (g) The Contractor will be required to provide informal training to City personnel during commissioning activities. This informal training shall include instrument connections and signals, proper installation and operation procedures along with proper storage of spare parts. See section E20 for training requirements.
- (h) Field Inspection and Commissioning Reports:

- Prepare and submit a field inspection and commissioning report. The field report shall be submitted electronically no later than five (5) business days after completion of commission testing site visit and include the following:
 - Contractor name and contact information of representative(s) on site;
 - Site visit dates and time on site;
 - Scope of the site visit;
 - Check sheet, parameter lists, ranges, etc. identifying all field checks have been performed
 - Each check is to be initialed by the commissioning representative;
 - Any findings, corrections made, deficiencies found and any other items;
 - Pictures and;
 - Narrative of commissioning activities performed and challenges that occurred during each commission testing site visit.
- (i) The price for “On-Site Start-Up Inspections” and ‘On-Site Commissioning Activities’ shall include all costs associated with these items of work, including all subcontractor costs, travel expenses, accommodations, meals and wages.
- (j) Commissioning tasks shall include items outlined in the Section 01 91 33 and the following at minimum:
 - Test each I/O point and provide a detailed paper report documenting the checks. For discrete signals, both ‘0’ and ‘1’ states shall be recorded. For analog signals, record at least three (3) points shall be recorded. For example, with Analog pump motor temperature, record temperature when motor is stopped, after 5 seconds of motor starting up and after 1 minute of run time;
 - Check I/O wiring, labels and provided detailed paper documentation;
 - Test device warnings, alarms and lockouts signals and provided detailed paper documentation and;
 - Software alarms shall be verified
 - Perform Operational and Functional checks and provide detailed paper documentation.

E19.7 Measurement and Payment

- (a) Commissioning will be measured on a lump sum basis at the Contract Unit Price for “Commissioning” as shown in Form B: Prices, for supplying all Documents and for performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- (b) thirty percent (30%) upon submission and approval of draft commissioning plan and documents;
- (c) seventy percent (70%) upon completion of commissioning activities and submission and approval of final commissioning reports.

E20. TRAINING

E20.1 The contractor shall develop a “Training Program” that shall include both ‘Classroom’ and ‘On-Site’ sessions.

- (a) Coordinate scheduling of training sessions with the City and the Contract Administrator. Give at least 25 business days notice prior to scheduling a training session.
- (b) Coordinate with City to ensure all applicable staff are given opportunity to attend training sessions.

E20.1.1 The Training Program shall include sessions tailored to specific City of Winnipeg “Participant Groups” classified as below.

- (a) "Operations Personnel",
- (b) "Maintenance Personnel",

E20.1.2 The Training Program will:

- (a) Be developed with the following goals:
 - (i) Trained personnel will be able to operate and maintain the systems and equipment under this contract under normal and abnormal conditions;
 - (ii) Trained personnel will be able to restore the equipment and systems under this contract to normal operation following fault or upset conditions;
 - (iii) Trained personnel will be able to maintain the equipment and systems under this contract under both routine and failure scenarios;
- (b) Include at a minimum, the following:
 - (i) Facility overview and review of Process & Instrumentation Diagrams;
 - (ii) Pump and motor operations and maintenance information;
 - (iii) Operations and maintenance information for the seal water flushing systems;
 - (iv) Operations and maintenance information for VFDs;
 - (v) Operations and maintenance information for electrical equipment and systems;
 - (vi) Operations and maintenance information for HVAC and building mechanical systems;

E20.1.3 The Training Program shall incorporate the training programs developed by the Pump and Motor Supplier and VFD Supplier for each of their supplied equipment and systems, as specified below.

- (a) Pump and Motor Supplier is to provide material for:
 - (i) Classroom Training Session for Operations Personnel;
 - (ii) Classroom Training Session for Maintenance Personnel;
 - (iii) Informal On-Site Training during Commissioning.
- (b) Pump and Motor Supplier is to provide material for:
 - (i) On-Site Start-up fine-tuning, commissioning, operator training and instruction for a total of Two (2) working days during field testing.

E20.1.4 Each Session (both Classroom and On-Site) shall include in the Training Program material:

- (a) Session Name;
- (b) Target "Participant Group";
- (c) Planned Duration;
- (d) Learning Objectives;
- (e) Relevant O&M Manuals;
- (f) Appropriate "presentations" and "slideshows" (in PowerPoint format), "handouts", "videos" and other audio/visual material, speaking notes, and associated material for teaching purposes;
- (g) Session evaluation methodology. Evaluation (quizzes or tests) to be sufficiently detailed to ensure that a passing grade for an individual signifies sufficient competence to act within their operations or maintenance role. Answers to questions are to be provided to the Contract Administrator for review.

E20.2 Classroom Training to:

- (a) Have a duration between one (1) hour and four (4) hours.
- (b) Be held in designated City of Winnipeg Facilities.
- (c) Occur on business days between 8:00 a.m. and 3:30 p.m. including a 45-minute lunch break and two 15-minute coffee breaks.

- Note: Simply video recording the training sessions is not considered adequate. Audio video material needs to be edited and integrated into comprehensive modules;
- (d) Be developed and delivered by instructor(s) who:
- Are familiar with the material of the session including project documentation and O&M Manuals;
 - Are experienced and qualified for the training;
 - Have demonstrated experience in similar training;
 - Have appropriate instructional and articulate public speaking skills to communicate clearly with the Participant Groups.
- (e) Include the following at a minimum:
- overview of the Project, including the locations of equipment;
 - general purpose, intent, and function of the equipment;
 - high level functional and performance requirements;
 - applicable safety features and procedures;
 - placing every component of the Project in a safe, zero energy state with appropriate safety provisions, including barriers and grounding, and in accordance with the Safe Work Procedures (duplicated in both classroom and field training); and
 - emergency procedures.
- E20.3 Commissioning shall be combined with On-Site Training. Training sessions shall be in accordance with 01 91 13.18 and shall be documented and include the following as a minimum.
- (a) Functional description of equipment operation;
- (b) Identification of components and their purpose;
- (c) Confirmation of operating parameters and machine limits;
- (d) Review of routine maintenance procedures and maintenance supplies;
- (e) Trouble shooting procedures, limits of operator and maintenance competence;
- (f) Long-term maintenance procedures, including anticipated overhaul frequencies; and
- (g) Disconnection and removal of motors, drive shafts and pumps for maintenance Work.
- E20.4 On-Site training in conjunction with commissioning to:
- (a) Be delivered by a qualified instructor complete with the necessary course materials;
- (b) Be in accordance with the Safe Work Plan and standard operating procedures.
- (c) Include the following at minimum:
- The field training topics for all Training Participants, tailored specific to each Training Participant Group, shall include at minimum:
 - overview of the Project, including locations of specific equipment;
 - demonstration of routine inspections and round checks, including the reading of gauges;
 - routine visual inspection of lifting devices, but not certification;
 - demonstration of Standard Operating Procedures;
 - demonstration of operating parameter or setting adjustments for optimized equipment / system operation;
 - demonstration of start-up and shutdown procedures;
 - demonstration of the required equipment exercise procedures;
 - placing every component of the Project in a safe, zero energy state with appropriate safety provisions, including barriers and grounding and in accordance with the Safe Work Procedures; and

- demonstration of the use of all special tools and equipment.

E20.5 Training Records will be compiled and supplied to the Contract Administrator within two (2) weeks of the completion of training sessions and commissioning.

- (a) Provide a total of five (5) hardcopy training manuals in 3-ring binders along with an electronic copy for attendees of each session.
- (b) Incorporate training material from the Pump and Motor Supplier and VFD Supplier.
- (c) Include material and information organized as follows:
 - (i) Area or "General" as applicable;
 - (ii) Participant Group;
 - (iii) Session Title;
 - (iv) Session Materials in accordance with E20.1.4;
 - (v) Digital session recording file;
 - (vi) Evaluation (quiz or test results) for Participant Group members.

E20.6 The Training Program including all training material shall be submitted to the contract administrator for review a minimum of sixty (60) calendar days prior to on-site training or commissioning. Should any changes be required, the contractor shall make the changes at no extra cost.

E20.7 Measurement and Payment

- (a) Training will be measured on a lump sum basis at the Contract Unit Price for "Training" as shown in Form B: Prices, for supplying all Documents and for performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- (b) fifty percent (50%) upon submission and approval of draft training plan and materials;
- (c) fifty percent (50%) upon completion of all training activities.

E21. RECORD DRAWINGS

E21.1 The contractor shall keep an up to date set of red-pen markup drawings throughout construction indicating any deviations from the construction drawings for record purposes. Red pen markups to be submitted to the contract administrator at the end of the project.

E21.2 See Section 26 05 01.

E22. O&M MANUALS

E22.1 The contractor is to provide the Contract Administrator operation and maintenance manuals for all new major equipment installed as part of this project with manufacturer's technical literature for each component supplied detailing correct installation procedure and recommended operating and maintenance schedule, grades of lubricants required and assembly/disassembly instructions. For equipment supplied by others the contractor is to coordinate with the supplier for all required information to compile the O&M manuals.

E22.2 O&M Manuals shall include at minimum:

- (a) Title Sheet, labelled "Operation and Maintenance Instructions", containing Project Number & Name (S-1251 – Perimeter Road Pumping Station (PRPS) Pump Replacement and Electrical Upgrades), Date, and subject Equipment Tag.
- (b) Description of supplied goods;
- (c) Table of Contents indicating all sections contained in the Operation and Maintenance manual.
- (d) Tab A – Contractor Information

- Contractor name and address.
 - Contractor contact representative with phone number and email.
 - All Sub-Contractors names, addresses and contact information.
- (e) Tab B – Warranty
- Letter of Warranty, signed and dated to include warranty start date (from the date as stated in D32), warranty end date, Contractor warranty information.
 - Description of work/parts that are covered under warranty and warranty durations.
- (f) Tab C – equipment models, serial and performance specifications
- Quick reference equipment model and serial number and highlight specifications including pictures of supplied equipment.
 - Auxiliary equipment model, serial and specifications including pictures;
- (g) Tab D – Products and Shop Drawings
- Detailed Specifications;
 - Copy of all approved and as-constructed Shop Drawings. As-constructed Shop Drawings shall be sealed by a Professional Engineer licenced to practice engineering in the Province of Manitoba.
 - PID drawings (To be provided by contract administrator)
- (h) Tab E – Spare Parts & Tools
- Provide instructions for handling and storage of spare parts.
 - Provide a listing of any special tools required to operate and/or maintain the products.
 - Provide a listing of all spare parts included with pictures of each part, part numbers, quantities and practical life spans.
- (i) Tab F – Certified Factory Test Results
- (a) General information page containing:
- (i) Equipment information (model, serial, specifications)
 - (ii) Dates equipment was tested
 - (iii) Tests performed on the equipment.
 - (iv) Testing representatives.
 - (v) Calibration of equipment used for testing procedures and test procedure arrangements.
 - (vi) Copy of all approved tests and documented information test forms completed at the factory, each test shall be signed by the Contractor representative and dated.
 - (vii) Factory inspection and verification reports/forms.
 - (viii) Any additional performance reports.
 - (ix) Copy of current edition of factory certification for CSA and/or cUL compliance for Canadian Approval.
- (j) Tab G – Sequence of Operation
- Sequence of Operation outlining how systems installed were designed to work.
 - Provide description of entire mechanical system, operation and control.
 - Provide operating instructions, including start-up and shutdown procedures.
- (k) Tab H – Installation and Removal Instructions
- Provide instructions for handling and storage of equipment.
 - Provide instructions for installation and removal of equipment (including instruments).
- (l) Tab I – Maintenance Activities

- Provide part books that illustrate and list all assemblies, sub-assemblies, and components for easy reference.
 - Provide instructions on preventative and corrective maintenance, with service procedures and recommended schedules.
 - Schedule for when preventative maintenance should be performed on all products.
 - Recommended frequency for each maintenance task, cleaning inspections and scheduled overhauls and/or reconditioning.
 - Provide maintenance checklist forms and test procedures for performing maintenance tasks for mechanical and electrical components.
 - Provide troubleshooting table covering the complete control/electrical power systems, showing description of trouble, probable cause, and suggested remedial action.
 - Cleaning: Instructions and schedules for all routine cleaning and inspection recommended, including recommended cleaners and lubricants.
 - Inspection: Periodic inspection of equipment required for operation, cleaning or other reasons, with items to be inspected and inspection criteria given for motors, impeller, seals, bearings, instruments and other maintenance items.
 - Instructions for minor repairs and/or adjustments required for preventative maintenance routines.
 - Instructions for any instruments and/or parts requiring calibration.
 - Listing of any special tools required to service and/or maintain the equipment.
- (m) Tab J – Inspection & Commissioning Reports
- Include field observation reports submitted for each inspection and commissioning activity.
 - Confirmation letter identifying that all commissioning activities were witnessed and verified to meet the requirements of the Specifications and the requirements of the project.
- (n) Tab K – Commissioning report
- (o) Tab L- Lessons Learned
- (p) Tab M –Training Operations and Maintenance documents & records
- E22.3 Contractor supplied O&M's shall incorporate all procured equipment installed by the contractor for a complete project document incorporating all supplier provided information.
- E22.4 Each Tab requires a section index page to list the separate items in each tab along with the page number and number of pages. All pages shall be numbered.
- E22.5 The Contractor shall provide one (1) electronic copy and two (2) hardcopy draft versions of the installation & storage, operation and maintenance instructions prior to each shipment of goods from the factory.
- E22.6 See Appendix H for project O&M manual requirements.
- E22.7 The contractor shall submit draft O&M manuals for review by the City and contract administrator.
- E22.8 Digital copies are to be word searchable and all tabs, indexes and references cross-reference linked (hyperlink).
- E22.9 After the Contractor has reached Total Performance, provide the Contract Administrator with one (1) electronic copy for each review submission for the complete Operating and Maintenance Manuals.
- E22.10 Provide the Contract Administrator with five (5) hard copies and five (5) electronic copies of the Contract Administrator reviewed an approved Operating and Maintenance Manuals. Bind hard

copies in a three (3) "D-Ring", hard-covered, plastic jacketed binder with full cover and spine inserts. Organize contents into applicable sections of work, parallel to Specifications breakdown and provide tab dividers for separating sections along with cover sheets for each section. Provide each binder with USB for a complete electronic copy of Operating and Maintenance Manuals.

E22.11 Measurement and Payment

- (a) O&M manuals will be measured on a lump sum basis at the Contract Unit Price for "Operation and Maintenance Manuals" as shown in Form B: Prices, for supplying all Documents and for performing all operations herein described and all other items incidental to the Work included in this Specification and accepted by the Contract Administrator.
- (b) fifty percent (50%) upon submission and approval of draft O&M manuals;
- (c) fifty percent (50%) upon submission and approval of final O&M manuals.

E23. SNOW CLEARING

- E23.1 All required snow clearing shall be performed by the Contractor at his own expense.
- E23.2 The Contractor will be required to perform snow clearing and sanding operations on City streets and sidewalks within the Site where access to City snow clearing and sanding crews is blocked due to construction activities or where construction activities have created unsafe, icy conditions.
- E23.3 Snow built-up on sidewalks and roadway shall be maintained to the condition of the surrounding sidewalks and roadways.

APPENDIX A – HISTORICAL DRAWINGS
APPENDIX B – HISTORICAL PUMP 1&2 DATA
APPENDIX C – SHOP DRAWING SUBMITTAL LIST
APPENDIX D – INSTRUMENT LIST
APPENDIX E – TRANSFER RELAY CONTROL NARRATIVE
APPENDIX F – DCS IO LIST
APPENDIX G – EXAMPLE COMMISSIONING CHECKLISTS
APPENDIX H – OPERATION AND MAINTENANCE MANUAL REQUIREMENTS
APPENDIX I – PRE-PROCURED VFD DRAWINGS