



THE CITY OF WINNIPEG

TENDER

TENDER NO. 879-2023

**SUPPLY, DELIVERY AND ON-SITE INSPECTIONS OF PERIMETER ROAD
PUMPING STATION (PRPS) PUMPING EQUIPMENT**

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PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 SUPPLY, DELIVERY AND ON-SITE INSPECTIONS OF PERIMETER ROAD PUMPING STATION (PRPS) PUMPING EQUIPMENT

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, February 19, 2024.

B2.2 The Contract Administrator or the Manager of Materials may extend the Submission Deadline by issuing an addendum at any time prior to the time and date specified in B2.1.

B3. SITE INVESTIGATION

B3.1 Further to C3.1, the Contract Administrator or an authorized representative will be available to conduct a site walkthrough of the Perimeter Road Pumping Station (PRPS) located at 6821 Wilkes Ave. to provide Bidders access to the Site at the following times:

- (a) In Person: Tuesday, February 6, 2024 at 9:00am. (Preferred)
- (b) MS Teams Remote : Thursday, February 8, 2024 at 9:00am.

B3.2 Bidders are requested to register for the Site Investigation by contacting the Contract Administrator with the preferred site visit they plan to attend. Bidders are asked to park behind the pumping stations and meet at the southwest station entrance.

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, and facemask. 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 Bidder representative not attend at least one (1) of the site investigations, the Bidders Proposal will be determined to be non-responsive and will not be further evaluated.

B3.5 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.

B3.6 The Bidder is responsible for inspecting the Site, the nature of the Work to be done and all conditions that might affect their Proposal 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.

B3.7 The Bidder is responsible for determining:

- (a) The requirements and resources for delivery of the Pumps and motor to the Perimeter Road Pumping Station building or as otherwise assigned. The bidder is responsible for offloading.
- (b) The nature of the surface and subsurface conditions at the Site.
- (c) Location equipment will be installed including space requirements, existing pipe isolation points and access for maintenance.
- (d) 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 D4.1.

- 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 promptly notify the Contract Administrator of the error, discrepancy or omission 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 D4.1

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 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 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 SUBMISSION

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid/Proposal;

- (b) Form B: Prices;
- (c) Form N: Detailed Specifications.

B8.2 All components of the Bid shall be fully completed 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.

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 its 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, prices on Form B: Prices shall not include the Goods and Services Tax (GST) or Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable.
- B10.1.2 Prices on Form B: Prices shall include:
- (a) duty;
 - (b) freight and cartage;
 - (c) Off-loading goods at site.
- B10.1.3 Prices on Form B: Prices shall not include Environmental Handling Charges (EHC) or fees, which shall be extra where applicable.
- B10.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Bids.
- B10.3 The quantities for which payment will be made to the Contractor are to be determined by the Work actually performed and completed by the Contractor, to be measured as specified in the applicable Specifications.
- B10.4 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).
- 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 B18.5 will prevail over the Total Bid Price entered in MERX.

B11. DETAILED SPECIFICATION

- B11.1 Form N shall be Submitted and filled out confirming conformity and list deviation with a description of proposed alternates as applicable.

B12. DISCLOSURE

- B12.1 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.
- B12.2 The Persons are:
- (a) Power and Mine Supply Co. Ltd
 - i. Provided information on existing pumps and;
 - ii. Provided pumps and sizing information based on pump constraints.
 - (b) Nothart Engineered Sales Ltd.
 - i. Provided information on existing pumps and;
 - ii. Provided pumps and sizing information based on pump constraints.
 - (c) Xylem Inc.
 - i. Provided information on existing pumps and;
 - ii. Provide pumps and sizing information based on pumps constraints.
 - (d) DXP Enterprises incorporated.
 - i. Provided information on existing pumps and;
 - ii. Provide pumps and sizing information based on pumps constraints.
 - (e) KSB Canada

- i. Provided information on existing pumps and;
- ii. Provide pumps and sizing information based on pumps constraints.

B13. CONFLICT OF INTEREST AND GOOD FAITH

B13.1 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.

B13.2 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:

- (i) 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
 - (ii) 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.

B13.3 In connection with their Bid, each entity identified in B13.2 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.

B13.4 Without limiting B13.3, 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.

B13.5 Without limiting B13.3, 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 B13.4 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.

B13.6 The final determination of whether a perceived, potential or actual Conflict of Interest exists shall be made by the City, in their sole discretion.

B14. QUALIFICATION

B14.1 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, or if the Bidder does not carry on business in Manitoba, in the jurisdiction where the Bidder does carry on business; 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.

B14.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B14.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

- (a) have successfully carried out work similar in nature, scope and value to the Work; and
- (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract;
- (c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba); and
- (d) have completed the Accessible Customer Service online training required by the Accessibility for Manitobans Act (AMA) (see B14.5 and D5).
- (e) Provide requested pump, motor and accessory information. Information requested will include but not be limited to Dimensional Drawings, Model Specifications, included options and Manuals. Provide Explanation of any deviations or follow up of information Required. Pump and motor qualification review to be completed prior to acceptance of submission.

B14.4 Further to B14.3(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:

- (i) 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
 - (ii) 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, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B14.5 Further to B14.3(d), the Bidder acknowledges they and all Subcontractors have obtained training required by the Accessibility for Manitobans Act (AMA) available at <http://www.accessibilitymb.ca/training.html> for anyone that may have any interaction with the public on behalf of the City of Winnipeg.
- B14.6 The Bidder shall submit, within ten (10) 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.
- B14.7 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.
- B14.8 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

B14.9 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.

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 executed and the contract security 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 therefrom: (pass/fail);
- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B14:

- (pass/fail);
- (c) Complete all sections on Form N (Detailed Specifications) or acceptable deviations (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 may reject all or any part of any Bid for failure to complete Form N and/or any Form N items deemed as a Fail without an acceptable deviation.
- 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 will 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 B18.5 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. The City intends to award this Contract by March 11, 2024
- 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 Where an award of Contract is made by the City, the award shall be made to qualified Bidder submitting the lowest evaluated responsive Bid in accordance with B18.
- B19.4 Further to Paragraph 6 of Form A: Bid/Proposal and C4, the City may issue a purchase order to the successful Bidder in lieu of the execution of a Contract.
- B19.4.1 The Contract Documents, as defined in C1.1(p), in their entirety shall be deemed to be incorporated in and to form a part of the purchase order notwithstanding that they are not necessarily attached to or accompany said purchase order.

B19.5 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 the Combined Provision of Goods and Services (2020-01-31)* are applicable to the Work of the Contract.
- C0.1.1 The *General Conditions for the Combined Provision of Goods and Services* are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/gen_cond.stm
- C0.2 A reference in the Tender to a section, clause or subclause with the prefix “**C**” designates a section, clause or subclause in the *General Conditions for the Combined Provision of Goods and Services*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

D1.1 In addition to the *General Conditions for the Combined Provision of Goods and Services*, these Supplemental Conditions are applicable to the Work of the Contract.

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of supply, factory acceptance testing (FAT), delivery, and on-site testing and commissioning of two (2) centrifugal vertical-shaft (wastewater/sewage) pumps complete with motors, motor supports, pump suction elbows, supports, flanged suction and discharge piping connections, extended drive shafts and guards, couplings, vibration and temperature monitoring instruments. and two (2) spare part and tool kits (one per pump). The work includes the provision of initial start-up inspection, commissioning, provision of operations and maintenance manuals, training for all of the equipment supplied under this Contract, and a warranty site visit.

- (a) 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.
- (b) Supply and deliver tools and spare parts necessary for full pump rebuilds.
 - (i) Excluding motors, suction elbows, driveshafts, and pump supports.
- (c) Provide in-person factory acceptance testing.
- (d) Provide on-site installation inspections and assist with commissioning activities.
- (e) Training for all of the equipment supplied under the Contract for both operations and Maintenance City of Winnipeg staff.
- (f) Provide five Operations and Maintenance Manuals for each pump.
- (g) Attend a warranty site visit and correct any deficiencies.

D2.2 Goods supplied under this Contract will be installed by others. The bidder will not be responsible for the installation construction work. The Goods delivered to site shall be defect free prior to installation.

D2.3 The Contractor and their Subcontractors shall:

- (a) Acknowledge the receipt of the Wastewater Services Division (WWSD) Contractor's Environmental Preservation and Compliance Package by an email to the Project Manager or Contract Administrator.
- (b) Comply with the Environmental Management Systems (EMS) contractor's package of the Wastewater Services Division attached as Appendix H.
- (c) Deliver EMS awareness training to employees and anyone who will be working on projects for the Wastewater Services Division (WWSD) through formal education, online training interactive training or work experience.
- (d) Be aware of their obligation as stated in the Wastewater Services Division's Environmental Policy that provides overall direction for the WWSD's environmental performance and provides a framework for setting environmental objectives and targets. This policy can be found online through the City of Winnipeg Wastewater Services website:
<https://www.winnipeg.ca/waterandwaste/sewage/legislation.stm>
- (e) Identify and understand the environmental impacts of your work. Environmental impacts may include, but are not limited to:

- (i) Depletion of natural resources
- (ii) Conservation management and biodiversity
- (iii) Soil contamination
- (iv) Air emissions and pollution
- (v) Water pollution
- (vi) Noise pollution
- (vii) Spills and releases
- (viii) Disturbance to local community and fauna
- (ix) Use of landfill spaces and waste management

D3. DEFINITIONS

D3.1 When used in this Tender:

- (a) **“Bidder”** means the pump supplier proponent prior to the award of this contract;
- (b) **“City”** means City of Winnipeg Water and Waste Department;
- (c) **“Contractor”** means the pump supplier (successful proponent following award of this contract);
- (d) **“DCS”** means Digital Control System;
- (e) **“EMS”** means Environmental Management System;
- (f) **“FAT”** means Factory Acceptance Testing;
- (g) **“General Contractor”** means the construction contractor who will be responsible for the installation of the pumps and other upgrades to the PRPS;
- (h) **“PRPS”** means Perimeter Road Pumping Station;
- (i) **“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;
- (j) **“VFD”** means Variable Frequency Drive; and
- (k) **“WWSD”** means Wastewater Services Division.

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is MPE, a division of Englobe, represented by:

Mark Baker, P.Eng.
Project Manager

Telephone No. 204-334-3621
Email Address. mbaker@mpe.ca

D4.2 Before commencement of Work, Mark Baker will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D5. ACCESSIBLE CUSTOMER SERVICE REQUIREMENTS

D5.1 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.

D5.1.1 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.

- D5.1.2 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.

D6. UNFAIR LABOUR PRACTICES

- D6.1 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.
- D6.2 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.
- D6.3 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.).
- D6.4 Failure to provide the evidence required under D6.3, may be determined to be an event of default in accordance with C16.
- D6.5 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.
- D6.5.1 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.
- D6.5.2 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 D6.5. The City may also hold back the amount of the Unfair Labour Practice Penalty from payment for any amount it owes the Contractor.
- D6.5.3 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.

SUBMISSIONS

D7. AUTHORITY TO CARRY ON BUSINESS

D7.1 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.

D8. SAFE WORK PLAN

D8.1 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.

D8.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D8.3 Notwithstanding B14.4 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.

D9. INSURANCE

D9.1 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; such liability policy to also contain a cross-liability clause, contractual liability, non-owned automobile liability and products and completed operations cover, to remain in place at all times during the performance of the Work;
- (b) 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 Service. 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) motor truck cargo insurance (trip transit) in the minimum amount of \$800,000, or higher as applicable. Coverage is to include for the full replacement cost of the equipment to be shipped. Insurance to also include coverage for loading and unloading.

D9.2 Deductibles shall be borne by the Contractor.

D9.3 All policies shall be taken out with insurers licensed to carry on business in the Province of Manitoba.

D9.4 The Contractor shall provide the Contract Administrator 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 on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract Documents, as applicable.

D9.5 The Contractor shall not cancel, materially alter, or cause the policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D9.6 The City shall have the right to alter the limits and/or coverages as reasonably required from time to time during the continuance of this agreement.

D10. SAFETY DATA SHEETS

D10.1 The Contractor shall provide the Contract Administrator with one (1) copy of Safety Data Sheets (SDS's) for each product to be supplied under the Contract at least two (2) Business Days prior to the commencement of Work but in no event later than the date specified in C4 for the return of the executed Contract.

D10.2 Throughout the term of the Contract, the Contractor shall provide the Contract Administrator with revisions or updates of the SDS's as soon as may be reasonably possible.

D11. CONTRACT SECURITY

D11.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain contract security until the expiration of the warranty period in the form of:

- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
- (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H3: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
- (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.

D11.1.1 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 D11.1(b).

D11.1.2 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.

D11.1.3 Digital bonds passing the verification process will be treated as original and authentic.

D11.1.4 Where the contract security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as contract security.

D11.2 The Contractor shall provide the Contract Administrator identified in D4 with the required contract security within seven (7) Calendar Days of notification of the award of the Contract by way of Purchase Order and prior to the commencement of any Work on the Site.

D12. SUBCONTRACTOR LIST

D12.1 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.

SCHEDULE OF WORK

D13. COMMENCEMENT

D13.1 The Contractor shall not commence any Work until they are in receipt of a notice of award from the City authorizing the commencement of the Work.

D13.2 The Contractor shall not commence any Work on the Site until:

- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D7;
 - (ii) evidence of the workers compensation coverage specified in C6.18;
 - (iii) evidence of the insurance specified in D9;
 - (iv) the safety data sheets specified in D10;
 - (v) the contract security specified in D11;
 - (vi) the Subcontractor list specified in D12; and
 - (vii) the direct deposit application form specified in D24.
- (b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

D13.3 Upon receiving receipt of the notice of award from the Contract Administrator, commencement of the on-site Work shall be at the discretion of the Contractor provided the commencement date will allow for the achievement of Critical Stages in accordance with D15.

D14. DELIVERY

D14.1 All goods (excluding Operations & Maintenance Manuals) shall be received by January 10, 2025, Delivered Duty Paid (DDP) destination, freight and duty prepaid to:

Perimeter Road Pumping Station (PRPS)
6821 Wilkes Avenue, Winnipeg, Manitoba R4H1B8

D14.2 The Contractor shall confirm each delivery with the Contract Administrator or their designate, at least five (5) Business Days before delivery.

D14.3 Goods shall be delivered between 8:00 a.m. and 12:00 p.m. along with 1:00pm and 2:00 pm on Business Days.

D14.4 The Contractor shall provide off-loading of goods as directed at the delivery location. The Contractor shall pay and arrange for a mobile crane and/or any other equipment required for off-loading goods onto City of Winnipeg flat deck trailers. The Contractor shall also be on-site while goods are being off-loaded.

D15. CRITICAL STAGES

- D15.1 The Contractor shall achieve critical stages of the Work in accordance with the following requirements:
- (a) Shop Drawings submitted 6 weeks after receiving award letter of contract.
 - (b) FAT of both pumps witnessing completed by November 15, 2024
 - (c) Shipment received at site by Jan 10, 2025
 - (d) Pump Substantial Performance by the City planned for March 1, 2025
 - (e) Pump Total Performance by the City planned for April 1 2025
 - (f) Operations & Maintenance Manuals received 3 months after completion of Substantial Performance.

D16. PUMP SUBSTANTIAL PERFORMANCE

- D16.1 Pump Substantial Performance shall be the date at which both pumps have been successfully installed and commissioned.
- D16.1.1 Substantial performance shall not be considered completed until installation and maintenance instructions, a list of spare parts and tools, and pump as-constructed shop drawings have all been received.

D17. PUMP TOTAL PERFORMANCE

- D17.1 Total Performance is planned to be achieved by April 1, 2025.
- D17.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be re-inspected.
- Final deliverables for commissioning reports must be received and approved prior to inspection of work and issuance of a certificate of Total Performance
- D17.3 The pumps must have been operational and in service for a minimum of one (1) month prior to the issuance of a certificate of Total Performance.
- D17.4 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.

D18. LIQUIDATED DAMAGES

- D18.1 If the Contractor fails to achieve Shipment received at site date in accordance with the Contract by the days fixed herein for same, the Contractor shall pay the City the following amounts per Calendar Day for each and every Calendar Day following the days fixed herein for same during which such failure continues:
- (a) Shipment received at site – one thousand dollars (\$1000) per day;
- D18.2 The amounts specified for liquidated damages in D18.1 are based on a genuine pre-estimate of the City's losses in the event that the Contractor does not achieve critical stages or Total Performance by the days fixed herein for same.
- D18.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

D19. SUPPLY CHAIN DISRUPTION SCHEDULE DELAYS

- D19.1 The City acknowledges that the schedule for this Contract may be impacted by the 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.
- D19.2 If the Contractor is delayed in the performance of the Work by reason of the 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.
- D19.3 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 ordering of Material or Goods, production and/or manufacturing schedules or availability of staff as appropriate.
- D19.4 For any delay related 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 D19.3. Failure to provide this notice will result in no additional time delays being considered by the City.
- D19.5 The Work schedule, including the durations identified in D14 where applicable, will be adjusted to reflect delays accepted by the Contract Administrator.
- D19.6 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

D20. THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA) - QUALIFICATIONS

- D20.1 Further to B14.3, 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) as required for work at site. 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 B14.3.

D21. SAFETY

- D21.1 The Contractor shall be solely responsible for safety at the Site and for compliance with all laws, rules, regulations and practices required by the applicable safety legislation.
- D21.2 The Contractor shall be solely responsible for securing the Site, and any existing facility thereon, and for the proper care and protection of the Work already performed.
- D21.3 The Contractor shall do whatever is necessary to ensure that:
- (a) no person, property, right, easement or privilege is injured, damaged or infringed by reason of the Contractor's activities in performing the Work;
 - (b) the health and safety of all persons employed in the performance of the Work or otherwise is not endangered by the method or means of their performance;
 - (c) adequate medical services are available to all persons employed on the Work and at all times during the performance of the Work.

D22. DEFICIENCIES

- D22.1 Further to C11.7, the Contract Administrator may order the Contractor to alter or improve their methods, to increase or improve their Plant, to furnish additional or more suitable Material, or to

employ additional or more qualified labour if, at any time, the Contract Administrator determines that:

- (a) the Work is not being, or will likely not be, performed satisfactorily; or
- (b) progress is not being, or will likely not be, maintained in accordance with the work schedule.

MEASUREMENT AND PAYMENT

D23. INVOICES

D23.1 Further to C12, the Contractor shall submit an invoice for each portion of work performed as identified in Form B fees and in accordance with the payment schedule in D25 to:

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

Facsimile No.: 204 949-0864
Send Invoices to CityWpgAP-INVOICES@winnipeg.ca
Send Invoice Inquiries to CityWpgAP-INQUIRIES@winnipeg.ca
Copy inquiries to the City Contract Administrator

D23.2 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 (PRPS) Pump Replacement and Electrical Upgrade Project';
- (c) The City Contract Administrator 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.

D23.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D24. PAYMENT

D24.1 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.

D25. PAYMENT SCHEDULE

D25.1 Further to C12, payment shall be in accordance with the following payment schedule:

- (a) Ten (10) percent upon the approval of Shop Drawings
- (b) Ten (10) percent upon the FAT in-person witnessing and report or
- (c) Sixty (60) percent upon successful delivery of Shipment to the location identified in D14.
- (d) Ten (10) percent upon successful installation and substantial completion pursuant to D15.

- (e) Five (5) Percent upon Total performance pursuant to D15, including work related to pumps and all associated auxiliary equipment (temp, vibration, training, etc)
- (f) Five (5) percent upon delivery and acceptance of Operation and Maintenance (O&M) manuals along with training, training sessions provided and submittal of lessons learned.

D25.2 The payment schedule shall be utilized for payments and supersede completion of form B fee items.

WARRANTY

D26. WARRANTY

D26.1 Warranty is as stated in E13.

DISPUTE RESOLUTION

D27. DISPUTE RESOLUTION

D27.1 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 D27.

D27.2 The entire text of C21.4 is deleted, and amended to read: "Intentionally Deleted"

D27.3 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 Materials Management 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.

D27.4 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:
 - (i) The Contract Administrator;
 - (ii) Supervisory level between the Contract Administrator and applicable Department Head;
 - (iii) Department Head.

D27.4.1 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.

D27.4.2 As these negotiations are not an adjudicative hearing, neither party may have legal counsel present during the negotiations.

- D27.4.3 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.
- D27.4.4 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 D27.4.3, 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.

THIRD PARTY AGREEMENTS

D28. FUNDING AND/OR CONTRIBUTION AGREEMENT OBLIGATIONS

- D28.1 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.
- D28.2 Further to D28.1, in the event that the obligations in D28 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.
- D28.3 For the purposes of D28:
- (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.
- D28.4 Modified Insurance Requirements
- D28.4.1 Where applicable, 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.
- D28.4.2 If applicable 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.
- D28.4.3 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.
- D28.4.4 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.
- D28.4.5 All policies must be taken out with insurers licensed to carry on business in the Province of Manitoba.
- D28.5 Indemnification By Contractor

- D28.5.1 In addition to the indemnity obligations outlined in C17 of the General Conditions for the Combined Provision of Goods and Services, 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.
- D28.5.2 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.
- D28.6 Records Retention and Audits
- D28.6.1 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.
- D28.6.2 In addition to the record keeping and inspection obligations outlined in C6 of the General Conditions for the Combined Provision of Goods and Services, 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 D28.6.1 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.
- D28.7 Other Obligations
- D28.7.1 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.
- D28.7.2 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.
- D28.7.3 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.

- D28.7.4 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.
- D28.7.5 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.
- D28.7.6 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 D11)

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. 879-2023

**SUPPLY, DELIVERY AND ON-SITE INSPECTIONS OF PERIMETER ROAD PUMPING
STATION (PRPS) PUMPING EQUIPMENT**

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 D11)

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 hereinbelow 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. 879-2023

SUPPLY, DELIVERY AND ON-SITE INSPECTIONS OF PERIMETER ROAD PUMPING STATION (PRPS)
PUMPING EQUIPMENT

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
 - (ii) 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;

- (iii) 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;
 - (iv) 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 H3: IRREVOCABLE STANDBY LETTER OF CREDIT
(CONTRACT SECURITY)
(See D11)**

(Date)

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

RE: CONTRACT SECURITY - TENDER NO. 879-2023

SUPPLY, DELIVERY AND ON-SITE INSPECTIONS OF PERIMETER ROAD PUMPING
STATION (PRPS) PUMPING EQUIPMENT

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

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

(Address)

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

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

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

(Date)

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

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

Except where they may conflict with the terms and conditions contained in this Letter of Credit, the International Standby Practices 1998 shall apply to this Letter of Credit. This Letter of Credit shall also be governed by and construed in accordance with the laws of the Province of Manitoba and of Canada as applicable therein, except to the extent that such laws are inconsistent with the International Standby Practices 1998. This Letter of Credit is subject to the exclusive jurisdiction of the courts in the Province of Manitoba and all courts competent to hear appeals therefrom.

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

- E1.1 These Specifications shall apply to the Work.
- E1.2 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.

E2. SITE LOCATION

- E2.1 The location of work will be performed at the Perimeter Road Pumping Station (PRPS) located at 6821 Wilkes Ave., Winnipeg, Manitoba.
- E2.2 The Contractor shall pay and arrange for all Pumping equipment and spare parts, along with hard copy Operating and Maintenance manuals, to be transported to location identified in E2.1. Equipment including any spare parts will be inspected by the City and Contract Administrator upon arrival at site location. The City will notify the Contractor for any defects found in writing. The Contractor at no additional charge shall arrange and replace any equipment and/or cabling found to be defective.
- E2.3 The Contractor shall arrange for his/her staff to be on site location identified in E2.1 for off-loading of transported goods, on-site inspections, on-site commissioning and on-site warranty walkthrough.

E3. SHOP DRAWINGS & SUBMITTALS

- E3.1 Submit shop drawings for all Goods to be supplied and receive an approved release for construction from the Contract Administrator prior to Goods being manufactured for this Contract.
- E3.2 At the time of submission, inform the Contract Administrator in writing of any deviation in the shop drawings from the requirements of the Contract documents.
- E3.3 Submit an electronic file in a format acceptable to the Contract Administrator for items and information being depicted. The Contract Administrator will confirm electronically once submission has been received.
- E3.4 Allow for a minimum of ten (10) business days for the Contract Administrator to review and provide comments on the shop drawings from the date of received submission.
- E3.5 Shop drawings shall include at a minimum, but not limited to the following:
- (a) Include all attachments in one (1) electronic file. Separate files for attachments will not be accepted.
 - (b) Provide table of contents with hyperlinks;
 - (c) All pages shall be setup for portrait letter size printing with the exception of drawings that shall be setup as landscape ANSI B (11" x 17") and/or ANSI D (24" x 34") size printing.
 - (d) A cover page listing the name of the Contractor and contact information, project description, City of Winnipeg Tender Number, City of Winnipeg Project Manager, Date of Submission, Revision Number.
 - (e) Table of Contents.
 - (f) Detailed information of the proposed equipment including model numbers, capacity, size, arrangements, electrical and mechanical characteristics as indicated and specified.

- (g) Field installation instructions, including all work necessary to achieve a sound, functional, accurate installation.
 - (h) Wiring (connection) diagrams for all instruments included. Provide alarm and lock out recommended settings for each instrument on wiring (connection) diagrams. Provide mapping of any instrument analog 4-20mA signals.
 - (i) Diagram of nameplate engraving details. Pump nameplates shall indicate the serial number, capacity, head, impeller trim size, revolutions per minute and other pertinent data. Motor nameplates shall indicate the serial number, voltage, phase, hertz, revolutions per minute, horsepower, service factor, NEMA Design, insulation class and any other pertinent data.
 - (j) Pump curves for proposed pumps. Performance curves shall include capacity, head, pump efficiency, BkW and NPSHR from shut-off through the rated point to run-out.
 - (k) Outline and arrangement drawings.
 - (l) Cross-section drawings.
 - (m) Materials of construction.
 - (n) Details of stuffing box arrangement.
 - (o) Critical speed analysis.
 - (p) Anchor bolt design.
 - (q) Details of coupling design and arrangement.
 - (r) Technical data sheets
 - (s) Equipment weights.
 - (t) Motor load, efficiency, speed, torque, current and power factor curves and data based on site elevation.
 - (u) Data for accessory items.
 - (v) List and quantity of spare parts (kits) proposed to be included.
 - (w) Where multiple part numbers and/or information is provided, highlight information of equipment being referenced.
 - (x) Special tools required for the installation, setup, operation and maintenance of the equipment.
 - (y) Details of the equipment stand, complete with instructions for anchorage and attachment of the stand to the concrete base.
 - (z) Manufacturer recommended alarm and lockout conditions for both vibration and bearing temperature monitoring.
- E3.6 The Contract Administrator will review the shop drawing submissions and will release back to the Contractor. The review is only for conformance with the design concept of the project and with the information given in the specifications. The Contract Administrator's review of a separate item shall not indicate approval of an assembly in which the item functions.
- E3.7 Make any corrections required by the Contract Administrator and resubmit electronic shop drawing file. Direct specific attention in writing or on resubmitted shop drawings for revisions other than the corrections requested by the Contract Administrator on previous submissions.
- E3.8 By approving and submitting shop drawings, the Contractor hereby represents that he/she has determined and verified all field measurements, field construction criteria, materials, catalogue numbers and similar data, or will do so, and that he/she has checked and coordinated each shop drawing and sample with requirements of the Contract.
- E3.9 Final shop drawings to be included as part of the Operations & Maintenance Manuals shall be sealed by a Professional Engineer licenced to practice engineering in the Province of Manitoba.

E3.10 Provision of Shop Drawings will be considered incidental to the price for supply and delivery of the Goods and Materials.

E3.11 Submit torsional natural frequency analysis including the pump, motor, and vertical U-joint drive shaft in accordance with ANSI/HI 9.6.8 level 2 analysis or higher with minimum frequency separation margin of +/- 15%. If resonate conditions are found in the required speed range of the pump a forced response stress analysis is required to determine if the stress is below the fatigue limitations. Submit the analysis as a separate submittal prior to pump shop testing. Analysis shall be completed over the full operating range of the pump. Analysis to include a Campbell/interference diagram.

E4. SERVICES

E4.1 The Contractor shall supply and deliver two pumps and all associated equipment, spare parts, documentation, commissioning, Fat testing reports, O&M documents and training in accordance with the requirements hereinafter specified.

E5. CENTRIFUGAL VERTICAL SHAFT DRY PIT PUMPS, MOTORS AND ACCESSORIES

E5.1 General:

- (a) This Specification shall cover the supply and delivery of pumping equipment, motors, and accessories.
- (b) Of the four (4) pumps in the PRPS, pumps 1 & 2 are to be replaced in this project. Currently the pump seals are not continually flushed when running. Intermittent flushing of the seals occurs. As part of this project, potable water plumbing complete with solenoid valves, pressure reducing valves, and flow switches is to be installed to each pump to facilitate the possible distant future implementation of continuous seal flushing. Minimum proposed seal, seal water requirement to be specified on form N for review.
- (c) The existing pumps currently in use are:
 - (i) Pump 1 – 400 HP Gould 16” Model NCD
 - (ii) Pump 2 – 200 HP Worthington Type FA-FC-NA
- (d) The pumps will be used to pump raw sewage having a temperature range of 0°C to 30°C with solids up to 150mm.
- (e) Each pump shall be a single stage, non-clogging, centrifugal flow, vertical mounted, pump coupled with a drive shaft to an electric motor suitable for dry pit installation.
- (f) Pumps are required to fit within the existing space, requiring minimal modifications to suction and discharge piping. The existing suction gate valves are not to be replaced.
- (g) Durable metal nameplates shall be securely attached to each pumping unit supplied. Pump nameplates shall indicate the serial number, capacity, head, rpm, and other pertinent data. An impeller information nameplate shall also be included and attached to each pump. Motor nameplates shall indicate the serial number, voltage, phase, hertz, rpm, horsepower, service factor, NEMA Design, insulation class and any other pertinent data.
- (h) Pumping units shall generally comply with the requirements of the Hydraulic Institute Standards and shall be CSA approved. Have equipment comply with the latest edition of the applicable codes and regulations including, but not limited to, the following
 - (i) American Society of Mechanical Engineers (ASME);
 - (ii) Canadian Standards Association (CSA);
 - (iii) Canadian Electrical Manufacturers Association (CEMA);
 - (iv) National Electrical Manufacturer's Association (NEMA);
 - (v) American Society for Testing and Materials (ASTM);
 - (vi) American National Standard Institute (ANSI);
 - (vii) Electrical Electronics Manufacturing Association of Canada (EEMAC); and

- (viii) Electrical Safety Association (ESA)
- (ix) National Electric Code (NEC)
- (x) American Iron and Steel Institute (AISI)
- (xi) American Gear Manufacturer's Association (AGMA)
- (xii) American Institute of Steel Construction (AISC)
- (xiii) American Welding Society (AWS)
- (i) ANSI Standards:
 - (i) B-16.5 Pipe Flanges and Flanged Fittings
 - (ii) ANSI/HI 9.6.4-2009 American National Standard for Rotodynamic Pumps for Vibration Measurements and Allowable Values
 - (iii) ANSI/HI 9.6.5-2009 American National Standard for Rotodynamic (Centrifugal and Vertical) Pumps – Guideline for Condition Monitoring
 - (iv) ANSI/HI 9.8-2012 American National Standard for Rotodynamic Pumps for Pump Intake Design
 - (v) ANSI/HI 9.6.8-2014 Rotodynamic Pumps – Guideline for Dynamics of Pumping Machinery
- (j) Have all electrical equipment comply in every respect with the rules and regulations of Manitoba Hydro and be acceptable to their local inspector.
- (k) In cases of any conflict between these Specifications and any of the above standards, the most stringent standard will have precedence.

E5.2 Products & Construction Methods:

E5.2.1 General Pump Performance Requirements

- (a) The head-capacity curve shall have a single flow rate for each pumping head value and have a continuously rising head characteristic to shut-off to ensure stability.
- (b) At no point on the power demand curve between shut-in and the minimum operating head shall the pump power demand, as determined from the shop performance tests, exceed the "Rated Power" of the motor.
- (c) The maximum speed specified for each pump shall not exceed the maximum specific speed recommended in the Hydraulic Institute Standards, for the specified total dynamic head and the suction head at design minimum suction head conditions. Notwithstanding this requirement, the pump shall be free from cavitation, as described in the Hydraulic Institute Standards, throughout the specified operating ranges listed in E5.3.1 and E5.3.2.
- (d) The pumps and motors shall be capable of being run in reverse rotation (via the variable frequency drive) in an attempt to de-rag the pump. When a de-ragging function is run, the pump will be run in reverse for approximately 5 to 10 seconds at approximately 20% to 40% speed. Approximately four to six attempts will be made, with a 20 to 30 second wait period between each attempt.

E5.3 Pump Requirements:

E5.3.1 Pump 1 General Requirements:

- (a) Required range of acceptable, continuous stable flow: from Duty Point 4 to Duty Point 1 in (c) and (b) below, respectively. The best efficiency point of these pumps must fall within this flow range.
- (b) Rated Speed (Acceptable Synchronous Speeds 600 RPM, 720 RPM)
 - (i) Duty Point 1 (Typical Operation): 900 L/s @ 22m TDH
 - (ii) Duty Point 2 (Alternate): 730 L/s @ 26m Head
 - (iii) Duty Point 3 (Run-out): 950 L/s @ 21m Head
 - (iv) NPHSa: 9.5m

- (c) Reduced Speed:
 - (i) Duty Point 4 (Design Flow at Reduced Speed): 300 L/s @ 14m TDH
 - (ii) NPHSa: 10.0m
- (d) Minimum Efficiency at all duty points 1-4 listed above, regardless of speed: 70%
- (e) Rotation (viewed from above): Clockwise
- (f) Type of Impeller: Non-Clog
- (g) Size of sphere impeller shall pass: 150mm
- (h) The power is to remain under 400 horsepower at all points at the maximum design speed
- (i) Diameter of Pump Suction: 400-600mm
- (j) Diameter of Pump Discharge: 400-500mm
- (k) Suction Elbow Connection to Existing Piping: 600mm Suction Gate Valve. Suction Elbow to reduce as necessary and custom cast to connect suction nozzle to existing gate valve.

E5.3.2 Pump 2 General Requirements:

- (a) Required range of acceptable, continuous stable flow: from Duty Point 3 to Duty Point 1 in (c) and (b) below, respectively. The best efficiency point of these pumps must fall within this flow range.
- (b) Rated Speed (Acceptable Synchronous Speeds 600 RPM, 720 RPM)
 - (i) Duty Point 1 (Typical Operation): 380 L/s @ 16m TDH (12.7m Static Head)
 - (ii) Duty Point 2 (Alternate): 260 L/s @ 25.5m TDH
 - (iii) NPHSa: 9.6m
- (c) Reduced Speed:
 - (i) Duty Point 3 (Design Flow at Reduced Speed): 115 L/s @ 13m TDH
 - (ii) NPHSa: 10.6m
- (d) Minimum Efficiency at all duty points 1-4 listed above, regardless of speed: 65%
- (e) Rotation (viewed from above): Clockwise
- (f) Type of Impeller: Non-Clog
- (g) Size of sphere impeller shall pass: 125mm
- (h) The power is to remain under 200 horsepower at all points at the maximum design speed.
- (i) Diameter of Pump Suction: 300mm
- (j) Diameter of Pump Discharge: 250-300mm
- (k) Suction Elbow Connection to Existing Piping: 400mm Suction Gate Valve. Suction Elbow to reduce as necessary and custom cast to connect suction nozzle to existing gate valve.

E5.3.3 Pump Manufacturer Approved Products:

- (i) Flowserve MN & MF Series
- (ii) Fairbanks Nijhuis 5400 & 5700 Series
- (iii) KSB Sewatec & SPN Series
- (iv) Cornell N Series
- (v) Flygt SSE & SSF Series

E5.3.4 Unspecified Materials

- (a) All unspecified materials shall be selected specifically for their suitability considering their duty. Unless otherwise specified herein, all materials and equipment shall conform to the appropriate Standard Specifications of the American Society for

Testing Materials, referred to as the ASTM Standards except where a higher standard is specifically called herein. Where alternate materials are being offered the bidder shall refer to the material by ASTM standard number.

- (b) The various materials used in the construction of the equipment shall be of the best quality and particularly suited to the requirements. Materials shall conform in general to the composition, physical characteristics and methods of treatment required by the specifications of the American Society for Testing Materials in so far as they apply and as specified herein.

E5.3.5 General Requirements:

- (a) Castings to be free from flaws and imperfections and machined surfaces finished true.
- (b) Round off inside and outside corners and edges of all castings.
- (c) Provide means to prevent nuts and bolts from becoming loose (pins, spring or friction washered fasteners).
- (d) Obtain written permission of the Contract Administrator to patch, plug, shim or employ other means of overcoming defects, discrepancies or errors in manufacturing.
- (e) Statically and dynamically balance all rotating components as an assembled unit in accordance with ISO 1940 G6.3.
- (f) Pump contractor to coordinate ports to be tapped and instrument mounts to be installed on both pumps for Fixturlaser SMC by STCD with instrument supplier. See E7.1. The instrument is intended to analyze vibration of the shaft at the connections to the pump and motor.

E5.3.6 Casing:

- (a) Cast iron conforming to ASTM Specification A48 or A278, for Gray Iron Castings, Class 30 or approved equal in accordance with B7.
- (b) Casing shall be rated for 1.5 times working pressure.
- (c) Eyebolts or hooks shall be provided for lifting.
- (d) Centrifugal volute type design of ample thickness and rigidity to withstand stresses due to hydraulic forces, weight of piping, erection loads, operating and testing.
- (e) Inside water passages shall be smooth and free from any significant projections that would hinder the flow of any solid waste.
- (f) Proportion casings so change in energy of the sewage from the kinetic form, as it leaves the impeller, to the pressure form as it leaves the casing will take place gradually with minimum eddy formation or shock.
- (g) Front head to permit equal distribution of sewage to all parts of the impeller without the use of stationary guides or vanes on the suction side of the impeller.
- (h) Design to permit the removal of the rotating assembly without disturbing the suction and discharge piping.
- (i) Provide a hand hole with bolted cover on the volute to permit access to the inside for cleaning and unclogging of the volute.
- (j) Provide a tapped 10 millimetre (3/8") NPT hole on the top of the volute with a suitable length of brass pipe and a shut off ball valve to allow trapped air within the volute to be bled off.
- (k) Shop test and provide certification that the fully assembled casing is successfully able withstand a hydrostatic test pressure of not less than 1.5 times the shut-off head of the largest impeller size as shown by the characteristic curve.

E5.3.7 Impeller:

- (a) Impeller: cast iron conforming to ASTM Specification A48 or A278, for Gray Iron Castings, Class 30 or approved equal in accordance with Section B7 of the Tender. The cast iron shall contain not less than three (3) percent nickel.

- (b) The impeller to be of the non-clog enclosed channel type.
- (c) Design impeller to ensure smooth operation without cavitation in the operating range and with minimum vibration.
- (d) Cast impeller in one piece and balance both statically and dynamically to ISO 1940 G6.3.
- (e) Trim impeller over its full height if the impeller supplied has been trimmed from a larger impeller leaving no lip or protrusion around the bottom edge.
- (f) Balance trimmed impeller after trimming.
- (g) Cast impeller surface to be free from casting blemishes and finished to 250 RMS or better.
- (h) Securely key the impeller to the tapered shaft and hold in place with an impeller nut.
- (i) The impeller nut shall be dome shaped with a smooth face and blend into the hub so as not to allow any stringy material to accumulate around the nut. Hex shaped nuts shall not be used.
- (j) Design the impeller and retaining nut so that the impeller cannot loosen on the shaft due to torque resulting from rotation.

E5.3.8 Backhead & Stuffing Box:

- (a) Cast iron conforming to ASTM Specification A48 or A278, for Gray Iron Castings, Class 30 or approved equal in accordance with B7.
- (b) Backhead shall be a separate piece from the volute casing.
- (c) Backhead shall be designed to rigidly support the bearing frame and be a self centering and self-indexing fit with the volute casing to ensure proper alignment.
- (d) Provide a minimum of two large openings opposite each other adjacent to the stuffing box to allow access for maintenance.
- (e) Provide for external axial adjustment of the rotating element to maintain proper clearance between the impeller and front head wearing rings.
- (f) Provide tapped 10 millimetre NPT inlet and vent holes complete with suitable lengths of brass pipe and full port shut-off ball valves on opposite sides of the stuffing box for seal water inlet and outlet.
- (g) Provide a tapped drain hole on the stuffing box complete with pipe plug.
- (h) Stuffing box shall be integral with the backhead and suitable for the use of a double mechanical seal and packing.

E5.3.9 Clean Out Port:

- (a) Clean out port to be located at center of pump.
- (b) One hundred fifty (150) millimetres (six (6) inches) diameter, two (2) bolt pattern.

E5.3.10 Wear Rings:

- (a) Provide removable wear rings of the axial or radial type for the front head (casing) and impeller.
- (b) Wear Rings: fabricated from stainless steel conforming to ASTM Standard A296, for Corrosion-Resistant Iron Chromium, Iron-Chromium-Nickel, and Nickel-Base Alloy Castings for General Application, Grade CA-15 or approved equal in accordance with B7.
- (c) Impeller ring hardness to be at least 300 Brinell (RC 32.1).
- (d) Casing wear ring to exceed impeller wear ring by at least 50 Brinell.
- (e) Machine the rings for a close fit to minimize the leakage of sewage from the discharge to the suction.

- (f) Attach the rings in such a way as to allow for ready adjustment or replacement and to prevent loosening under normal operation or under reverse pump rotation.

E5.3.11 Impeller Shaft Assembly

- (a) Shaft Assembly: fabricated from steel conforming to ASTM A108, Grade 1045 or approved equal in accordance with B7.
- (b) Shaft assembly to be of sufficient diameter to assure rigid support of the impeller and to transmit loads without slip, vibration or undue deflection at all operating speeds and loads.
- (c) Accurately machine the shaft along its entire length and provide keyways at both ends.

E5.3.12 Bearings:

- (a) Bearings: shall be of the heavy duty anti-friction type suitable for oil or grease lubrication. Radial bearings shall be of the self-aligning plain roller or ball type and thrust bearings shall be of the tapered roller or angular contact type.
- (b) Design bearings for a B-10 life of not less than 100,000 hours in accordance with AFBMA.
- (c) Rigidly support bearings to counteract any possible tendency towards vibration.
- (d) Grind and match duplex bearings, if used.
- (e) Adapt lubrication of the bearings to the operation of the units without full-time attendance.

E5.3.13 Mechanical Seals:

- (a) Mechanical Seals: single mechanical seals.
 - (i) Split type.
 - (ii) Primary sealing mating faces to be silicon carbide to silicon carbide and secondary sealing mating faces to be carbon to silicon carbide or silicon carbide to silicon carbide.
 - (iii) As manufactured by John Crane, Durametallic, Burgmann, or approved equal in accordance with B7.
 - (iv) Stuffing box must be compatible with retrofitting of a double mechanical seal or future use of packing and meet the requirements provided in accordance with E5.3.8.
- (b) Alternative Single Mechanical Seals may be approved as a substitute in accordance with B7. Alternative seals must meet the following requirements to be approved:
 - (i) Typical Type I & II with mating faces to be silicon carbide to silicon carbide.
 - (ii) The impeller must include back pump-out vanes.
 - (iii) Evidence of successful similar applications of the seal with minimum flushing water to be provided prior to approval.
 - (iv) If stuffing box is not compatible with future retrofitting of a double mechanical seal or future use of packing, an alternate backplate must be provided with the spare parts listed in E8, which facilitates the installation of a double mechanical seal and the use of packing.
 - (v) If an alternate backplate is required it must meet the requirements provided in accordance with E5.3.8.
- (c) The proposed mechanical seal shall be selected for operation with minimal flushing water (see E5.1(b)).

E5.3.14 Paint:

- (a) Apply one prime coat of a rust inhibitive primer, a second adhesive prime coat and one finish coat of manufacturer's standard enamel to all exterior metal surfaces, except machined surfaces.

- (b) Do not paint over nameplates.

E5.3.15 Drive Shaft Assembly

- (a) Vertical hollow steel drive shaft with flexible coupling(s) to transmit power from the motor to the pump.
- (b) Drive shaft and coupling(s) shall have a service factor of 2.5 to ensure ample capacity to transmit power continuously for all operating conditions with up to three (3) degrees of misalignment which may occur during or develop after installation and should accommodate any thermal expansion based on a temperature differential of one hundred (100) degrees Fahrenheit.
- (c) The shaft shall be of ample diameter to limit the deflection of shaft and impeller when installed in the pump casing to a minimum and to prevent vibration during acceleration, deceleration and running speeds.
- (d) Shaft shall be machined with radiused re-entrant corners at changes of diameters and at keyways to minimize stress concentration and other causes of metal fatigue.
- (e) The drive shaft assembly coupling arrangement shall permit easy removal of either the pump or motor without disturbing the other. Only one length of shaft shall be used between the pump and motor.
- (f) Statically and dynamically balance the drive shaft to obtain vibration free operation. Design shaft to ensure a separation of 50% between the operating speed and the first harmonic frequency of the system (motor, couplings, shaft and pump).
- (g) The approximate elevations of the pump room floor, suction centre line, and motor room floor for the pumping station is shown in E12.1. The Bidder shall use this to approximate the drive shaft length for bidding purposes. Contractor shall confirm distances prior to manufacture.
- (h) After award of this Contract, the Contractor shall be responsible to take exact measurements for final sizing of the drive shaft lengths.

E5.3.16 Drive Shaft Guard:

- (a) Drive shaft guards, as supplied, shall meet OSHA standards upon installation without requiring any modification. Installation by others.
- (b) Note that for each pump, shaft guards are required for the shaft length above the pump in the pump room and the shaft length in the valve room above the pump room.
 - (i) The drive shaft guards shall extend to a height of at least 3.5 meters above the valve room floor and pump access platforms, or to the ceiling above.

E5.3.17 Shaft and Sleeve:

- (a) Shaft sleeve where shaft passes through stuffing box: fabricated from 316L stainless steel conforming to ASTM A240 or approved equal in accordance with B7.
- (b) Fit and securely fasten the shaft sleeve in place after shaft grinding.
- (c) Seal shaft sleeve to prevent leakage between the sleeve and shaft.
- (d) Extend shaft sleeve at least 2 millimetres above the top of the gland cover.

E5.3.18 Suction and Discharge

- (a) Suction and discharge shall be flanged, faced and drilled to conform to ASME Specification B 16.1 Class 125.
- (b) Provide a cast or fabricated 90° suction elbow with hand hole and cover plate fastened with bolts, to permit access to the suction side of the impeller for cleaning and inspection. The handhole will not be required if it is provided in the pump support type above the elbow (refer to E5.3.20)
- (c) Provide gauge connections tapped for 10 millimetre (3/8") NPT threaded pipe on each suction and discharge nozzle. Locate tapped connection close to flange ends. Provide pipe plugs in tapped holes.

E5.3.19 Bearing Frame

- (a) Bearing Frame: cast iron conforming to ASTM Specification A48 or A278, for Gray Iron Castings, Class 30.
- (b) The station includes existing shaft openings through floors and posts supporting bearings on the valve floor.
- (c) Bearing frame shall rigidly support the motor adapter frame with a self-centering and self-indexing fit with the backhead to ensure proper alignment.
- (d) Machine bearing frame for accurate and permanent bearing alignment.
- (e) Completely enclose the shaft between the bearings.
- (f) Provide lip type seals in contact with the shaft.
- (g) Include grease fittings in the bearing frame for bearing lubrication.

E5.3.20 Pump Support

- (a) Provide one (1) support for each pump. Acceptable supports include:
 - (i) rigid support plate to be mounted on cast-in-place concrete support,
 - (ii) Suction spool or gusseted base plate cast integrally with suction nozzle to be mounted on cast-in-place concrete base. Support to include cleanout/handhole. If handhole cannot be included in the base, it must be included on the suction elbow.
 - (iii) Suction spool and sole plate complete with suction nozzle connection. Sole plate to be mounted on cast-in-place concrete base. If handhole cannot be included in the suction spool above the sole plate, it must be included on the suction elbow.
- (b) Pump support shall firmly support the entire weight of the pump and withstand the full motor torque. Submit pump support in accordance with E3 to be approved by contract Administrator prior to shipment.
- (c) The pump support shall provide clear access to the cleanout ports on the suction elbow and the pump volute.
- (d) The pump support should be suitable for mounting onto a concrete base using anchor bolts.
 - (i) The installation contractor will have the capability to modify the existing concrete base to suite the pump and pump support.
- (e) Alternative pump support arrangements that better fit the existing space and concrete bases may be approved on a case-by-case basis by the Contract Administrator in accordance with B7.

E5.4 Motor requirements:

- (a) Motor General Requirements:
 - (i) Enclosure: Totally Enclosed Fan Cooled (TEFC)
 - (ii) Power Supply: 600 VAC, 3-Phase, 60 Hz.
 - (iii) Power Rating:
 - (a) Pump 1 (M100PP): 400 HP
 - (b) Pump 2 (M200PP): 200 HP
 - (iv) Power Factor: 0.80 PF Minimum
 - (v) Efficiency: Premium - 0.90 Minimum
 - (vi) Winding Insulation: Class F or Higher
 - (vii) Pump 1 Nominal Speed: 720 RPM
 - (viii) Pump 2 Nominal speed: 900 RPM
 - (ix) Windings: Copper
 - (x) Motor Service Factor: 1.15

- (xi) Approvals: CSA, NEMA MG1
- (xii) Starts per Hour Capability: 10
- (xiii) Inverter Duty Rated for Variable Frequency Drive (VFD) Compatibility.
- (xiv) Pump 1 motor must be capable of operating under the existing RVMS backup starter, further information on the RVMS starter is included in Appendix F.
- (xv) All motor shall be equipped with motor shaft grounding ring, suitable for VFD (inverter) application:
 - (a) AEGIS SGR Bearing Protection Ring;
 - (b) Or approved equal in accordance with B7.
- (b) Power Cabling General Requirements:
 - (i) Include lugs for the connection of power cabling for 500 KCMIL or larger.
- (c) Provide motor mount standoff with access to motor shaft similar to that of existing and found on Appendix B;

E5.5 Instruments General Requirements:

- (a) All instrument signals shall be capable of connecting directly to motor protection relays for condition monitoring and/or DCS. The motor protection relay planned to be used is the SEL-710-5 from Schweitzer Engineering Laboratories.
- (b) Vibration Monitoring:
 - i. Vibration monitoring to include sensors for XY directions for a total of 4 analog vibration instruments per pump and motor assembly.
 - ii. 4-20mA loop powered.
 - iii. Frequency range three (3) hertz to one thousand (1,000) hertz.
 - iv. Sensor one hundred (100) mV/g.
 - v. Cast aluminum NEMA 4 conduit elbow termination housing.
 - vi. Terminal blocks for connection to field wiring.
 - vii. Threaded bolted connection to machined flat spot on bearing housing.
 - viii. Manufacturer: IMI Sensors (PCM Piezotronics).
 - ix. Locations
 - (a) Pump 1 Lower Bearing Vibration
 - (b) Pump 1 Upper Bearing Vibration
 - (c) Pump 1 Top of Motor Vibration
 - (d) Pump 1 Bottom of Pump Vibration
 - (e) Pump 2 Lower Bearing Vibration
 - (f) Pump 2 Upper Bearing Vibration
 - (g) Pump 2 Top of Motor Vibration
 - (h) Pump 2 Bottom of Pump Vibration
- (c) Temperature Monitoring:
 - (i) One hundred (100) ohm platinum 4-wire RTD.
 - (ii) NEMA 4X connection head.
 - (iii) Terminal blocks for connection to field wiring.
 - (iv) Provide RTD temperature sensors at the following locations:
 - (a) Pump 1 Lower Bearing Temperature
 - (b) Pump 1 Upper Bearing Temperature
 - (c) Pump 1 Winding temperature (3 phases)
 - (d) Pump 1 Stator temperature (3 phases)

- (e) Pump 2 Lower Bearing Temperature
- (f) Pump 2 Upper Bearing Temperature
- (g) Pump 2 Winding temperature (3 phases)
- (h) Pump 2 Stator temperature (3 phases)

E6. PUMP AND MOTOR ANALYSIS AND FACTORY ACCEPTANCE TESTING

E6.1 General factory acceptance testing shall consist of the following:

- (a) Factory Acceptance Testing (FAT) shall be carried out by the equipment manufacturer. Motor FAT to be unwitnessed provided all required testing reports and documentation is provided. Pump FAT shall be witnessed In-Person by City of Winnipeg personnel and/or City of Winnipeg representatives at no additional cost. A total of three (3) City of Winnipeg representatives (2 City Personnel and 1 Contract Administrator Personnel) shall be participating in In-Person witnessing of the FAT. The City reserves the right to request remote witnessing in place of in-person witnessing at no additional cost.
 - (i) If remote pump FAT witnessing is requested, the manufacturer shall complete all testing required and shall arrange for live video viewing of testing. The manufacturer is responsible for organizing and arranging the live video testing and for distributing video recordings of each test.
 - (ii) The costs of travel and accommodation for the three (3) City of Winnipeg representatives is not to be included in this contract. These costs are to be borne by the Contract Administrator.
- (b) The In-Person FAT shall be carried out on one (1) FAT site visit. The equipment manufacturer shall arrange for FAT to be performed on all pumps during the single FAT site visit.
- (c) Provide a minimum of twenty (20) business days notice to the Contract Administrator prior to anticipated witness testing date.
- (d) The Contractor shall furnish all power, labour, materials and properly calibrated instruments required for these tests. Instrument calibration shall be as specified in the Test Code of the Hydraulics Institute Standards.
- (e) Allow for an escort at the testing facility for participating City of Winnipeg representatives, equipment pictures to be taken, along with testing equipment, tools and materials to carry out testing. Make all equipment and labour accessible for participating personnel as directed.
- (f) A minimum of five (5) business days prior to anticipated FAT date, submit test facility evidence of ANSI Certification, calibration certificates of all testing equipment to be used along with details on the test arrangement procedures. Submit detailed test procedures including the test layout and instrument test calibration certificate. Include equipment calibrations and test arrangement procedures in the Operation & Maintenance Manual.

E6.2 Pump factory acceptance testing shall consist of the following:

- (a) The pumps shall be subject to unwitnessed hydrostatic tests in accordance with the Test Code of the Hydraulic Institute Standards. Certified test records shall be submitted to the Contract Administrator for review prior to pump shipment.
- (b) Performance testing of a pump shall not be scheduled until satisfactory completion and submission of the certified records of the hydrostatic testing.
- (c) Conduct pump tests in accordance with Hydraulic Institute Standards. All definitions for the purpose of testing shall be as set forth by Hydraulic Institute Standards.
- (d) Pump test to be witnessed performance tested (In-Person FAT) as per Hydraulic Institute Standards 14.6 Grade 1B. Each pump shall be tested for:
 - (i) Flow Test: The pumps shall be tested to determine the head, capacity, efficiency, power, and vibration limit all in accordance with the Hydraulic Institute Standards. The pumps shall be tested at full rated speed and reduced

speeds, as specified, over the ranges listed below. Vibration reading shall be recorded for each point tested and included with the test results. Vibration readings shall include FFT graphs for each point.

- ◆ Pump 1: Test 6 evenly spaced (by flow) duty points between (and including) shutoff and runout. Do this at relative speeds of 100%, 80%, and 70%. Record motor TDH, efficiency, running currents and absorbed power usage at each flow rate. Absorbed power usage shall be obtained when power factor has been corrected to 0.95.
 - ◆ Pump 2: Test 6 evenly spaced (by flow) duty points between (and including) shutoff and runout. Do this at relative speeds of 100%, 75% and 65%. Record TDH, motor efficiency and absorbed power usage at each flow rate listed. Absorbed power usage shall be obtained when power factor has been corrected to 0.95.
 - ◆ Developing Certified Test Curve(s) (per Hydraulic Institute Standards) Showing Pump Performance.
 - ◆ Vibration to be measured at each stage including FFT graphs for each point.
 - ◆ Bearing temperature to be measured at each stage.
 - ◆ If any signs of cavitation or incipient cavitation occur over the specified operating range of the pumping unit, the unit may be rejected.
 - ◆ A test report which includes certified performance curve in showing head in metres, capacity in litres per second, efficiency, speed, power in kilowatts, and vibrations shall be furnished to the Engineer for approval. The Contractor shall include sample calculations, raw data, calibration curves and/or certificates, and assumptions in the report.
- (ii) Perform fixed head test of 20m TDH for Pump 1 and 15m TDH for Pump 2, varying speed for each pump from 70 – 100%. Four evenly spaced duty points to be tested from 0L/s to the maximum expected flow at the rated speed and 20m TDH. Data collected at each duty point is to match (i).
- (iii) Complete a NPSH (Cavitation) testing with methods and allowable tolerances in accordance with Hydraulic Institute Standards at full speed, corrected for difference in atmospheric conditions between testing location and project site. For each pump test the design duty points given in E5.3.1 and E5.3.2 and the worst-case duty points at flow run-out.
- (e) The approval of the Engineer of the results of the shop tests is not to be construed as being final approval of the pumping unit. Final approval will be given subject to the satisfactory installation and operation in place of this equipment, as demonstrated by Field Performance Tests specified hereinafter.
- (f) All FAT to be performed is to be provided prior to testing and include pump rated specification and acceptable tolerances with pass/fail indicators.

E6.3 Motor factory acceptance testing (unwitnessed) to be completed as per ANSI/NETA ATS-2021, NEMA MG 1-2021, and manufacturers requirements with the intent to test the compliance of the motors without causing damage to the equipment. Testing shall consist of the following at minimum for each motor:

- (i) Run Test at Full Voltage and Full Speed.
- (ii) Running Current at Motor Speed tests at:
 - (a) 100% Load.
 - (b) 75% Load.
 - (c) 50% Load.
 - (d) 40% Load.
 - (e) 30% Load.
- (iii) Full Load Steady State Current.

- (iv) High Potential Test.
- (v) Noise and Vibration Test.
- (vi) Insulation Resistance Test.
- (vii) Winding Resistance Test.
- (viii) Partial Discharge Test.
- (ix) Surge Test.
- (x) Power Factor Test.
- (xi) Temperature Rise Test at the rated service factor of the motor for the duration applicable to a continuously rated machine using the resistance method.

E6.4 Instrument factory acceptance testing shall consist of the following:

- (a) All instruments to be provided with calibration certificates:

E6.5 At no additional cost, make any adjustments or changes required by the participating City of Winnipeg representatives such that each pump and associated equipment will pass every test. Final acceptance by the City of Winnipeg representatives will be a conditional requirement prior to pump shipments from the factory.

E6.6 All factory acceptance tests shall be documented, dated and signed by the testing technician(s) with electronic copies submitted to Contract Administrator for approval prior to shipments from the factory. Include test results in the Operation & Maintenance Manual.

E6.7 Any failure to meet the requirements of the Specifications shall be corrected promptly by the Contractor after which the pump shall be retested. If, after correction and retesting, the pump still fails to meet the requirements of the Specifications, it may be rejected.

E6.8 Do not ship pump or motor to site until:

- (a) Shop tests for both are completed.
- (b) Shop test reports have been submitted to Contract Administrator.
- (c) Compliance with performance requirements has been demonstrated.
- (d) Contract Administrator has given approval for shipping to proceed.
- (e) Contract Administrator has given approval of Torsional Frequency Analysis results pursuant to E3.11.

E6.9 All FAT to be performed is to be provided prior to testing and include rated specification, acceptable tolerances with pass fail indicators. All FAT documents and testing procedures are to be provided to the Contract Administrator at least 4 weeks ahead of actual FAT. The Contract Administrator will provide comments on the FAT documents which the supplier must review and revise accordingly.

E6.10 FAT reports are to indicate nominal values and acceptable tolerances in addition to as-found testing results.

E7. VIBRATIONAL ANALYSIS SYSTEM

E7.1 Pursuant to E5.3.5(f), Contractor to provide one (1) vibrational system with auto diagnosis. The vibrational system shall include triaxial wireless sensors along with a built in camera, pyrometer and stroboscope for diagnosing the pumps. The City's preference is to use Fixturlaser SMC by STCD. Contact Charles Gagne, Ph. (514) 213-1437, email: charles@stcd.ca for details. Product data sheets attached as Appendix I. Contractor to coordinate with the representative for the installation of ports and mounts on the pump necessary for the use of the equipment.

E8. TOOLS, ACCESSORIES, AND SPARE PARTS:

- (a) Provide two (2) sets total of special tools and/or accessories required for installation, maintenance, adjustment, assembly or disassembly of the pumping equipment supplied.

E8.2 Spare Parts:

- (a) For each pump and motor assembly, provide the following spare parts:
 - (i) Qty 1 set of wear rings;
 - (ii) Qty 1 set of mechanical seals;
 - (iii) Qty 1 set of bearings;
 - (iv) Qty 1 pump shaft;
 - (v) Qty 1 pump shaft guard. See E5.3.16 for shaft guard requirements. One single spare guard is to be provided matching the longer shaft guard for the pump with the larger diameter shaft guard;
 - (vi) Qty 1 impeller (trimmed to size);
 - (vii) Qty 1 set of volute and casing gaskets and;
 - (viii) Qty 1 Motor Shaft grounding ring.
- (b) Properly package spare parts to resist damage.
- (c) Clearly identify package as to its contents.
- (d) Spare parts shall be identical to those supplied in the pumps.

E8.2.1 If a single mechanical seal is proposed rather than a double mechanical cartridge seal in accordance with E5.3.13, and if the backplate proposed is incompatible with a double mechanical cartridge seal, an alternate backplate must be provided with the spare parts facilitating the installation of a double mechanical cartridge seal.

E9. ON-SITE START-UP INSPECTIONS AND ON-SITE COMMISSIONING ACTIVITIES OF PUMPS

E9.1 On-Site Start-up Inspections:

- (a) Goods supplied under this Contract will be installed by others. The pump supply contractor will not be responsible for the installation construction work. The Goods including pumps and cabling delivered to site shall be defect free prior to installation.
- (b) Provide the services of a qualified technical representative to be present at the initial start-up of each pump (therefore two (2) site visits) supplied under this Contract to perform the following:
 - (i) Inspect the pumping equipment to ensure they have been properly installed in accordance with the manufacturer's instructions.
 - (ii) Conduct and document motor current draw, rotation and speed tests.
 - (iii) Check for unusual vibration and/or noises.
 - (iv) Verify connection of instruments for control philosophy and DCS monitoring. An updated control philosophy will be provided by the Contract Administrator
 - (v) Instruct City personnel in the Operation and Maintenance of the Goods.
- (c) Verify operation of pump 1 while on the existing RVMS starters.
- (d) Promptly correct any deficiencies with the pumping equipment at the Contractor's expense to the satisfaction of the Contract Administrator.

E9.2 On-Site Commissioning Activities:

- (a) The Contractor, along with the Schneider Electric representative arranged by the City, will be required to assist the General Contractor with field commissioning activities that will be used to determine and check for the following:
 - (i) Operation of pumps.
 - (ii) Unusual noise during operation (bearings, mechanical Seals, other).
 - (iii) Verification / readings of instrument signals to the control panels and DCS System.
 - (iv) Electrical power supplied to motors.

- (b) If the Field Commissioning testing indicates the Goods supplied do not meet the specified requirements, the Contractor shall promptly correct the issues at their expense and to the Contract Administrator's satisfaction.
 - (c) 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.
 - (d) 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.
- E9.3 On-site start-up inspections and on-site commissioning activities are planned to occur over two (2) full business days (16 hours) for each pump. 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. Only one (1) pump will be installed and commissioned at a time, therefore a total of two (2) separate instances of on-site start-up inspections and commission activities will be required by the Contractor. In order to ensure reliable operation of a new installed pump, it is anticipated that there will be at least a minimum of one (1) week duration between the time a new pump is installed and successfully commissioned until another new pump would be installed.
- E9.4 Deficiencies during commissioning may result in follow up on-site activities and require attendance follow up inspection and commissioning activities at no cost to the owner.
- E9.5 The Contractor will be required to provide inspection checklists and commissioning forms for each on-site pump inspection and commissioning activities. The Contractor will be responsible to fill out checklists and commission forms during site visits.
- E9.6 Field Tests
- (a) Field tests will be performed on each pumping unit as soon as possible after the Contractor has inspected the installation. Field tests will be to determine and check for the following:
 - (i) Capacity,
 - (ii) Noise (bearing, mechanical seal, cavitation, other),
 - (iii) Vibration,
 - (iv) Electrical energy supplied to the motors from the VFD/RVMS (voltage, current, frequency, etc), and
 - (v) The liquid pumped during the field test will be raw sewage with a density taken to be 1.00 kilogram per litre.
 - (b) Tests shall be undertaken after the pump and its motor, have been running for at least an hour and have reached operating temperature. Measurements shall be taken by a qualified representative of the Pump Manufacturer. Prepare a report including all testing data presented graphically in the same units as the shop test results and submit to the Contract Administrator.
 - (c) If the field pump tests indicates the Goods supplied does not meet the specified requirements, the Contractor shall promptly correct the problem at his expense to the Contract Administrator's satisfaction.
 - (d) 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 acceptable to both the City and himself. The cost of the services of such 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 but if otherwise, the Contractor shall pay the cost of the services of the referee and of repeating the tests. The decision of the referee shall be final and binding both on the City and the Contractor.

- (e) In the field, the peak-to-peak vibration velocity shall not exceed 4 mm/s. The vibration shall be measured at the bearings of both pump and motor in three coordinates x (horizontal, perpendicular to shaft), y (horizontal, perpendicular to shaft) and z (vertical, axial direction of shaft). Measurements shall be made in accordance with Hydraulic Institute Standards at rated speed and shall not exceed 4 mm/s over the specified operating head range of the pump.

E9.7 Field Inspection and Commissioning Reports:

- (a) Prepare and submit a separate field inspection and commissioning report for each pump site visit. A total of two (2) reports are to be submitted (1 for each site visit). Each field report shall be submitted electronically no later than five (5) business days after completion of commission testing site visit and include the following:
 - (i) Contractor name and contact information of representative(s) on site.
 - (ii) Site visit dates and time on site.
 - (iii) Scope of the site visit.
 - (iv) Any findings, corrections made, deficiencies found and any other items.
 - (v) Pictures showing variable frequency drive displays, spare parts, and installation/operation along with instrument signals at control panels and DCS screens. Each picture shall have a numbered caption (i.e. Picture 1 – Looking at DCS Screen) and short narrative description.
 - (vi) Narrative of commissioning activities performed and challenges that occurred during each commission testing site visit.

E9.8 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.

E10. OPERATING AND MAINTENANCE (O&M) MANUALS

E10.1 Provide the Contract Administrator 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.

E10.2 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.

E10.3 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.

E10.4 For each pump, provide the Contract Administrator with five (5) hard copies and five (5) electronic copies of the Contract Administrator reviewed and 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.

E10.5 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.

E10.6 Digital copies are to be word searchable and all tabs, indexes and references cross-reference linked (hyperlink).

- E10.7 In addition to the information called in the Specifications, the following shall be included as part of the Operating and Maintenance Manuals:
- (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.
 - (b) Bid opportunity number and description of supplied goods;
 - (c) Table of Contents indicating all sections contained in the Operation and Maintenance manual.
 - (d) Tab A – Contractor Information
 - (i) Contractor name and address.
 - (ii) Contractor contact representative with phone number and email.
 - (iii) All Sub-Contractors names, addresses and contact information.
 - (e) Tab B – Warranty
 - (i) Letter of Warranty, signed and dated to include warranty start date (from the date as stated in E13), warranty end date, Contractor warranty information.
 - (ii) Description of work/parts that are covered under warranty and warranty durations.
 - (f) Tab C – equipment models, serial and performance specifications
 - (i) Quick reference pump model and serial number and pump specifications including pictures of supplied equipment.
 - (ii) Auxiliary equipment model, serial and specifications including pictures;
 - (g) Tab D – Products and Shop Drawings
 - (i) Specifications (as provided equipment in accordance with section E5).
 - (ii) 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.
 - (iii) Pump PID drawings (To be provided by consultant)
 - (h) Tab E – Spare Parts & Tools
 - (i) Provide instructions for handling and storage of spare parts.
 - (ii) Provide a listing of any special tools required to operate and/or maintain the products.
 - (iii) 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
 - (i) General information page containing:
 - (a) Pump information (model, serial, specifications
 - (b) Dates pumps were tested
 - (c) Tests performed on the pumps.
 - (d) Testing representatives.
 - (ii) Calibration of equipment used for testing procedures and test procedure arrangements.
 - (iii) 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.
 - (iv) Factory inspection and verification reports/forms.
 - (v) Any additional performance reports.
 - (vi) Copy of current edition of factory certification for CSA and/or cUL compliance for Canadian Approval.
 - (j) Tab G – Sequence of Operation

- (i) Sequence of Operation outlining how systems installed were designed to work.
 - (ii) Provide description of entire mechanical system, operation and control.
 - (iii) Provide operating instructions, including start-up and shutdown procedures.
- (k) Tab H – Installation and Removal Instructions
 - (i) Provide instructions for handling and storage of equipment.
 - (ii) Provide instructions for installation and removal of equipment (including instruments).
- (l) Tab I – Maintenance Activities
 - (i) Provide part books that illustrate and list all assemblies, sub-assemblies, and components for easy reference.
 - (ii) Provide instructions on preventative and corrective maintenance, with service procedures and recommended schedules.
 - (iii) Schedule for when preventative maintenance should be performed on all products including pumps, instruments, replacement of spare parts, etc.
 - (iv) Recommended frequency for each maintenance task, cleaning inspections and scheduled overhauls and/or reconditioning.
 - (v) Provide maintenance checklist forms and test procedures for performing maintenance tasks for mechanical and electrical components.
 - (vi) Provide troubleshooting table covering the complete control/electrical power systems, showing description of trouble, probable cause, and suggested remedial action.
 - (vii) Cleaning: Instructions and schedules for all routine cleaning and inspection recommended, including recommended cleaners and lubricants.
 - (viii) 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.
 - (ix) Instructions for minor repairs and/or adjustments required for preventative maintenance routines.
 - (x) Instructions for any instruments and/or parts requiring calibration.
 - (xi) Listing of any special tools required to service and/or maintain the equipment.
- (m) Tab J – Inspection & Commissioning Reports
 - (i) Include two (2) field observation reports submitted for each site visit inspection and commissioning activities.
 - (ii) Confirmation letter identifying that all two (2) commissioning site visit activities were witnessed and verified to meet the requirements of the Specifications and the requirements of the project.
- (n) Tab K – Commissioning report (To be provided by consultant)
- (o) Tab L- Lessons Learned
 - (i) Prepare a lessons learned report, including a summary of the project scope, issues that arose throughout the project lifecycle, contributing factors to the issues, corrective actions taken, and lessons learned on the project.
- (p) Tab M – Training Operations and Maintenance documents & records
 - (i) The manual is to incorporate feedback from training sessions and answers to attendees questions.
- (q) Tab N - Spare
- (r) Tab O – Spare

E11. TRAINING SESSIONS

- E11.1 The Contractor shall provide a virtual training presentation to City staff by a factory-trained representative on the operation, maintenance, and troubleshooting of the pumps and the pump

instruments. Instructor(s) shall be experienced and qualified for the specific training course and familiar with the Works, including the Operation and Maintenance Manuals.

- (a) Training for the pump equipment shall be conducted over Microsoft Teams. The Contractor shall provide a qualified representative as well as the necessary course materials. All course materials shall be provided as a presentation slide format. The entirety of the sessions (video and audio) are to be recorded on Microsoft Teams for distribution.
- (b) The Training Program shall:
 - (i) be designed to comprehensively train plant staff to competently operate and maintain the Infrastructure in accordance with Good Industry Practice;
 - (ii) be tailored for the specific audience in each course;
 - (iii) ensure that each course accommodates plant staff shift schedules;
 - (iv) include ample opportunities for Training Participants to ask questions and have their questions answered;
 - (v) be based upon the Operation and Maintenance Manuals with complete consistency between the training and the Operation and Maintenance Manuals, including Standard Operating Procedures, Safe Work Procedures and Lock-out Tag-out;
- (c) The Contractor shall be required to electronically submit the presentation slide show in PDF format to the Contract Administrator.
- (d) Training shall be provided in one (1) session for Operation Personnel and one (1) session for Maintenance Personnel. Each training session shall be planned to be two (2) hours in duration and shall be performed on separate days. Training sessions shall be provided as a presentation slideshow done over Microsoft Teams. Submit one (1) electronic copy of each presentation slide show in pdf format to the Contract Administrator after completion of each training session to be distributed to attendees. PDF pages shall be setup with two (2) slides on one (1) page.
 - (i) **“Operations Personnel”** means the plant staff responsible for operation of the WEWPC facility wastewater treatment process and the associated building mechanical systems;
 - (ii) **“Maintenance Personnel”** means the plant staff responsible for maintenance of the WEWPC facility, who are further grouped as follows:
 - ◆ Mechanical Maintenance;
 - ◆ Electrical and Instrumentation Maintenance; and
 - ◆ Automation and Industrial Controls Group;
 - (iii) In addition to the Training Participants, other City staff may attend and observe the training.
- (e) Each Course Lesson Plan shall be consistent with the Training Plan and provide a detailed description that includes:
 - (i) the instructor(s), including qualifications;
 - (ii) Training Participant evaluation methodology;
 - (iii) identification of any applicable resources in addition to the Training Material; and
 - (iv) other supporting information as appropriate.
- (f) These virtual training sessions are to be completed no later than the commencement of commissioning activities.
- (g) Understanding the regular daily duties of plant operators, coordinate with the City Representative, or designated representative, regarding dates and times for training sessions. Provide all requests to schedule a training session a minimum of 25 Business Days prior to the planned session. All dates and times are subject to availability of plant staff. Limit training to Business Days within the following windows of time:
 - (i) 8:00 am to 12:00 pm, with a 15 minute coffee break; and
 - (ii) 12:45 pm to 3:15 pm, with a 15 minute coffee break.

E11.2 Contractor to also provide informal on-site (in-person) training to be performed in conjunction with commissioning, allowing two (2) hours training for each pump.

- (a) On-site training is to provide:
 - (i) Maintenance information,
 - (ii) Operations information,
 - (iii) Troubleshooting information,
 - (iv) Questions and answers period.
- (b) Instructor(s) shall be experienced and qualified for the instruction of operations and maintenance staff and familiar with the Works, including the Operation and Maintenance Manuals

E11.3 Training shall be completed after Total Performance has been achieved. The Contract shall not be considered complete until the training has been provided.

E12. APPROXIMATE ELEVATIONS

E12.1 Table 1 – Approximate Elevations and Dimensions. The Bidder shall use this to approximate the drive shaft length for bidding purposes. Contractor shall confirm distances prior to manufacture.

DETAIL	ELEVATION (m)
MOTOR ROOM	234.08
VALVE ROOM	231.19
PUMP ROOM FLOOR	225.86
PUMP 1 CONCRETE BASE	227.97
PUMP 2 CONCRETE BASE	226.55

E13. MANUFACTURER WARRANTY WALKTHROUGH AND DEFICIENCY CORRECTIONS

E13.1 Notwithstanding the terms of C13.2, the manufacturer warranty period shall commence from the earlier of the following:

- (a) Eighteen (18) months starting from the start date of the complete shipment received, or
- (b) Twelve (12) months starting from the date of Substantial Pump Performance achieved.

E13.2 Notwithstanding the terms of C13.6 and C13.7, the manufacturer parts warranty shall at minimum cover the following items found to be defective during the warranty period:

- (a) Pump Enclosure
- (b) Electric Motor
- (c) Mechanical Pumps
- (d) Pump Shaft
- (e) Bearings (Pump & Motor)
- (f) Wear Rings
- (g) Mechanical Seals
- (h) Pump Impellers
- (i) Power & Control Cabling along with Cabling Accessories
- (j) Instruments and/or Sensors.

E13.3 On-Site Warranty Walkthrough:

- (a) Prior to the Warranty expiring, the Contractor will be required to attend an on-site warranty walkthrough approximately one (1) month prior to the end of the warranty period. The Contract Administrator will provide a minimum of ten (10) Business Days notice. The City will arrange for two (2) installed pumps to be operated and tested for the Contractor to witness. It is planned for the warranty inspection site visit to occur over one (1) full business day.
- (b) The Contractor shall provide the services of a qualified technical representative to be present at the warranty walkthrough under this Contract to perform the following:
 - (i) Inspect the pumping equipment (if available) to ensure there are no visible deficiencies.
 - (ii) Witness operation of the pumps.
 - (iii) Verify if any instrument alarm and trip signals appear at each pump control panel and/or DCS system.
 - (iv) Check for unusual vibration and/or noises.
 - (v) Promptly correct any deficiencies with the pumping equipment at the Contractor's expense to the satisfaction of the Contract Administrator.
- (c) The City will perform the following services during the walkthrough:
 - (i) Conduct and document motor current draw, rotation and speed tests.
 - (ii) Document instrument readings for control philosophy and DCS monitoring.

E13.4 The City will prepare and submit a pump inspection report prior to the on-site warranty inspection site visit. The City will arrange (without the Contractor representatives on site) to temporarily remove all pump installations to document pictures of pump exterior, instruments and seals that would be included as part of the pump inspection report. The preliminary warranty inspection report will be submitted to the Contractor no later than two (2) business days prior to the warranty site visit.

E13.5 The City will prepare and submit a warranty walkthrough report after the on-site warranty walkthrough site visit has been completed. The warranty walkthrough report will include a summary of the items investigated, a pass/fail parts checklist, along with a list of deficiencies and corrective measures to be performed. The warranty walkthrough report will be submitted to the Contractor no later than five (5) business days after completion of the warranty walkthrough site visit.

E13.6 Deficiency Corrections:

- (a) The Contractor shall provide the services of a qualified technical representative to correct all manufacturer deficiencies found during the warranty site visit along with any additional deficiencies found prior to the warranty period lapsing.
- (b) If the deficiency corrections are required to be sent to a shop, the shop shall be local to Winnipeg. The City will arrange transportation to the shop location.

E13.7 The Contractor shall electronically submit a signed and dated Deficiency Corrective Letter listing all deficiencies found and that each deficiency has been corrected to the best of the Contractor's knowledge. The Deficiency Correction Letter shall be received prior to project close-out.

E13.8 The price for "On-site Warranty Inspection" and "Deficiency Corrections" shall cover all costs associated with these items of work, including travel expenses, accommodations, meals and wages.

APPENDIX A – PROPOSED PUMP LAYOUT
APPENDIX B – SITE INFORMATION
APPENDIX C – EXISTING DRAWINGS
APPENDIX D – PUMP 1 EXISTING
APPENDIX E – PUMP 2 EXISTING
APPENDIX F – PUMP 1 LOW VOLTAGE STARTER
APPENDIX G – PRELIMINARY PID
APPENDIX H – ENVIRONMENTAL MANAGEMENT SYSTEMS (EMS)
APPENDIX I – DATA SHEETS FOR FIXTURLASER SMC BY STCD