THE CITY OF WINNIPEG

REQUEST FOR PROPOSAL

RFP NO. 449-2014

SUPPLY OF INSTRUMENTATION FOR THE SEWAGE TREATMENT PROGRAM

BIDDERS PLEASE NOTE CLAUSE D13

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B1. CONTRACT TITLE

B1.1 SUPPLY OF INSTRUMENTATION FOR THE SEWAGE TREATMENT PROGRAM

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 4:00 p.m. Winnipeg time, August 15th, 2014.

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

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

B3. ENQUIRIES

B3.1 All enquiries shall be directed to the Contract Administrator identified in D6.1.

B3.2 If the Bidder finds errors, discrepancies or omissions in the Request for Proposal, 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.

B3.3 If the Bidder is unsure of the meaning or intent of any provision therein, the Bidder should request clarification as to the meaning or intent prior to the Submission Deadline.

B3.4 Responses to enquiries which, in the sole judgment of the Contract Administrator, require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator to all Bidders by issuing an addendum.

B3.5 Responses to enquiries which, in the sole judgment of the Contract Administrator, do not require a correction to or a clarification of the Request for Proposal will be provided by the Contract Administrator only to the Bidder who made the enquiry.

B3.6 The Bidder shall not be entitled to rely on any response or interpretation received pursuant to B3 unless that response or interpretation is provided by the Contract Administrator in writing.

B4. CONFIDENTIALITY

B4.1 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.

B4.2 The Bidder shall not make any statement of fact or opinion regarding any aspect of the Bid Opportunity to the media or any member of the public without the prior written authorization of the Contract Administrator.

B5. ADDENDA

B5.1 The Contract Administrator may, at any time prior to the Submission deadline, issue addenda correcting errors, discrepancies or omissions in the Request for Proposal, or clarifying the meaning or intent of any provision therein.

B5.2 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.

B5.2.1 Addenda will be available on the Bid Opportunities page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/bidopp.asp

B5.2.2 The Bidder is responsible for ensuring that he/she has received all addenda and is advised to check the Materials Management Division website for addenda regularly and shortly before the Submission Deadline, as may be amended by addendum.

B5.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 9 of Form A: Proposal. Failure to acknowledge receipt of an addendum may render a Proposal non-responsive.

B6. SUBSTITUTES

B6.1 The Work is based on the materials, equipment, methods and products specified in the Request for Proposal.

B6.2 Substitutions shall not be allowed unless application has been made to and prior approval has been granted by the Contract Administrator in writing.

B6.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least fourteen (14) Business Days prior to the Submission Deadline.

B6.4 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 material, equipment, method or product 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 Contract;

(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 Contract.

B6.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an “approved equal” or as an “approved alternative”, or may refuse to grant approval of the substitute.

B6.6 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.

B6.6.1 The City will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.

B6.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.

B6.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B21.

B6.9 No later claim by the Contractor for an addition to the price(s) because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B6.10 Notwithstanding B6.2 to B6.9 and in accordance with B7.8, deviations inconsistent with the Request for Proposal document shall be evaluated in accordance with B21.1(a).

B7. PROPOSAL SUBMISSION

B7.1 The Proposal shall consist of the following components:

(a) Form A: Proposal;

(b) Form B: Prices;

(c) Form N: Price Adjustment Proposal;

(d) Form P: Proposal Information.

B7.2 The proposal should consist of the following components:

(a) Detailed Price Breakdown;

(b) Published Price List;

(c) Technical Information.

B7.3 Further to B7.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B6.

B7.4 All components of the Proposal shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Proposal.

B7.4.1 Bidders should submit one (1) unbound 8.5” x 11” original (marked “original”) including drawings and six (6) bound copies (copies can be in any size format).

(a) The unbound original should include all proposal components, including Technical Information.

(b) The copies should include the entire proposal, except the Technical Information, which should be submitted as per B7.5.

B7.4.2 Submit six (6) CDs/DVDs of the complete proposal submission in searchable electronic PDF format.

B7.4.3 In case of a discrepancy between the paper and electronic copies, the paper copy marked original will take precedence.

B7.5 Bidders should submit the Technical Information in the following format:

B7.5.1 One paper hard copy in the (1) unbound original copy as per B7.4.1.

B7.5.2 In electronic format on the CDs/DVDs as per B7.4.2.

B7.5.3 In case of a discrepancy between the paper and electronic copies, the paper copy will be adhered to.

B7.6 The Proposal Submission shall be submitted enclosed and sealed in an envelope clearly marked with the RFP number and the Bidder's name and address.

B7.6.1 Samples or other components of the Proposal Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the RFP number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Proposal Submission.

B7.7 Bidders are advised not to include any information/literature except as requested in accordance with B7.1.

B7.8 Bidders are advised that inclusion of terms and conditions inconsistent with the Request for Proposal document, including the General Conditions, will be evaluated in accordance with B21.1(a).

B7.9 Proposals submitted by facsimile transmission (fax) or internet electronic mail (e-mail) will not be accepted.

B7.10 Proposals shall be submitted to:

The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg MB R3B 1J1

B8. PROPOSAL

B8.1 The Bidder shall complete Form A: Proposal, making all required entries.

B8.2 Paragraph 2 of Form A: Proposal shall be completed in accordance with the following requirements:

(a) if the Bidder is a sole proprietor carrying on business in his/her own name, his/her name shall be inserted;

(b) if the Bidder is a partnership, the full name of the partnership shall be inserted;

(c) if the Bidder is a corporation, the full name of the corporation shall be inserted;

(d) if the Bidder is carrying on business under a name other than his/her own, the business name and the name of every partner or corporation who is the owner of such business name shall be inserted.

B8.2.1 If a Proposal is submitted jointly by two or more persons, each and all such persons shall identify themselves in accordance with B8.2.

B8.3 In Paragraph 3 of Form A: Proposal, the Bidder shall identify a contact person who is authorized to represent the Bidder for purposes of the Proposal.

B8.4 Paragraph 11 of Form A: Proposal shall be signed in accordance with the following requirements:

(a) if the Bidder is a sole proprietor carrying on business in his/her own name, it shall be signed by the Bidder;

(b) if the Bidder is a partnership, it shall be signed by the partner or partners who have authority to sign for the partnership;

(c) if the Bidder is a corporation, it shall be signed by its duly authorized officer or officers and the corporate seal, if the corporation has one, should be affixed;

(d) if the Bidder is carrying on business under a name other than his/her own, it shall be signed by the registered owner of the business name, or by the registered owner's authorized officials if the owner is a partnership or a corporation.

B8.4.1 The name and official capacity of all individuals signing Form A: Proposal should be printed below such signatures.

B8.5 If a Proposal 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 Proposal and the Contract, when awarded, shall be both joint and several.

B9. PRICES

B9.1 The Bidder shall state a price in Canadian funds for each item of the Work identified on Form B: Prices.

B9.1.1 Prices on Form B: Prices shall include:

(a) duty;

(b) freight and cartage;

(c) Provincial and Federal taxes [except the Goods and Services Tax (GST) and Manitoba Retail Sales Tax (MRST, also known as PST), which shall be extra where applicable] and all charges governmental or otherwise paid;

(d) profit and all compensation which shall be due to the Contractor for the Work and all risks and contingencies connected therewith.

B9.1.2 Prices on Form B: Prices shall not include Environmental Handling Charges (EHC) or fees, which shall be extra where applicable.

B9.2 The quantities listed on Form B: Prices are to be considered approximate only. The City will use said quantities for the purpose of comparing Proposals.

B9.3 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.

B9.4 Where applicable to the Request for Proposal, payments for services to Non-Resident Bidders are subject to a Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B9.5 The prices entered in the Unit List Price column of Form B shall be the current published list price of the item, without any discounts applied, and the price shall be consistent with the manufacturer's Published Price List, as per B13. Where multiple products are included in the Form B price, the price shall be the sum of the list price of the various components.

B9.5.1 Further to B9.5, the price entered in the Unit List Price Column of Form B shall be in the same currency as the Published Price List provided under B13.

B9.6 The prices entered in the Discounted Unit Price column of Form B shall be the current Unit List Price of the item, as per B9.5, with the applicable discount indicated on Form B applied.

B9.6.1 The Discounted Unit Price shall be the Unit List Price multiplied by (1 – discount).

B9.6.2 The Discounted Unit Price shall be in Canadian Dollars.

B9.6.3 Where the Unit List Price column of Form B is in US dollars or Euros, the discount factor shall include the current exchange rate offered by the Bidder.

B9.7 The prices entered in the Discounted Unit Price column of Form B shall be the final offered selling price for the period from award to December 31, 2015.

B9.8 The Bidder shall enter a standard discount off list price that shall apply to all electromagnetic flowmeters and related system components in Form B, Item 20. The Form B Discounted Unit Price for all electromagnetic flowmeters shall be consistent with the indicated discount factor. The discount factor shall also apply to all electromagnetic flowmeter components and replacement parts.

B9.9 The Bidder shall enter a standard discount off list price that shall apply to all pressure transmitters and related system components in Form B, Item 21. The Form B Discounted Unit Price for all pressure transmitters shall be consistent with the indicated discount factor. The

discount factor shall also apply to all pressure transmitter components and replacement parts, including pressure based flow elements such as orifice plates.

B9.10 The Bidder shall enter a standard discount off list price that shall apply to all temperature transmitters and related system components in Form B, Item 22. The Form B Discounted Unit Price for all temperature transmitters shall be consistent with the indicated discount factor. The discount factor shall also apply to all temperature transmitter components and replacement parts.

B9.11 The Bidder shall enter a standard discount off list price that shall apply to all ultrasonic level transmitters and related system components in Form B, Item 29. The Form B Discounted Unit Price for all ultrasonic level transmitters shall be consistent with the indicated discount factor. The discount factor shall also apply to all ultrasonic level transmitter components and replacement parts.

B9.12 By submitting a proposal, the Bidder acknowledges and agrees that the pricing discount level provided on Form B is effectively provided for the manufacturer's associated instrument offering, including spare parts.

B9.13 In the event that a discrepancy between the Form B Discounted Unit Price and the Unit List Price reduced by the corresponding discount factor, the Unit List Price reduced by the corresponding discount factor shall be utilized.

B9.14 Provision of a price for Form B, Item 7 is not a mandatory requirement. Where an Electromagnetic Flowmeter Calibration Verification Tool is not proposed, enter a price of 0 for Form B, Item 7.

B9.15 The unit price for Form B, Item 15, 16, 17, and 27 shall be the cost for setup and commissioning of a single instrument, and shall include all travel expenses, tools, shop supplies, etc.

B9.16 The price for Form B, Items 19 and 28 shall include travel expenses, tools, shop supplies, etc.

B9.16.1 The hourly rate for field service may apply to travel time from a location within Winnipeg to site, up to a maximum of one hour per visit. Additional travel time required will not be reimbursed.

B9.16.2 The maximum permissible field service rate for Form B, Items 19 and 28 is $150/hour. In the event that the labour rate indicated on Form B, is greater than the specified maximum rate, the maximum rate will be utilized for the purpose of bid evaluation.

B9.17 Provision of a price for Form B, Item 25 is not a mandatory requirement. Where an Ultrasonic Level Transmitter Hardware Configuration Tool is not proposed, enter a price of 0 for Form B, Item 25.

B10. PRICE ADJUSTMENT PROPOSAL (FORM N)

B10.1 The Bidder shall complete Form N: Price Adjustment Proposal, making all required entries.

B10.2 Provision of a price adjustment proposal is a mandatory requirement.

B10.3 The Price Adjustment Proposal is applicable to all products in this Request for Proposal and the manufacturer's entire range of electromagnetic flowmeters, pressure transmitters including flow elements, temperature transmitters, and ultrasonic level transmitters.

B10.4 The price in effect shall be based upon the date that the purchase order is submitted to the Contractor.

B10.5 Fixed Price Period

B10.5.1 The prices indicated on Form B will be fixed through to December 31, 2015.

B10.5.2 No escalation of prices will be permitted during this period for any cause.

B10.6 Price adjustments will occur annually with the first adjustment taking effect on January 1, 2016.

B10.7 Complete Form N to indicate the method, and details of price determination after the expiration of the fixed prices.

B10.8 Fixed Escalation Rate

B10.8.1 If the Price Adjustment is proposed to be based on a Fixed Escalation Rate, the following shall apply:

(a) Contract prices for equipment and/or service will remain firm through the Fixed Price Period.

(b) Price adjustments will take effect annually after the Fixed Price Period expires, with the first adjustment on the first day after the Fixed Price Period.

(c) Price adjustments will be made in accordance with the percentage change indicated on Form N.

(d) Provision of a fixed escalation rate is mandatory through until December 31, 2020.

(e) In the event that an escalation rate is not proposed for a given year:

(i) The actual escalation rate to be utilized will be negotiated with the City.

(ii) The Proposal will be evaluated in accordance with B22.5.2(b).

B10.8.2 In the event that a Currency Exchange Factor is proposed to be utilized, the effective price will be adjusted by the Currency Exchange Factor as per B10.11.

B10.9 Published List Prices

B10.9.1 If the Price Adjustment is proposed to be based on Published List Prices, the following shall apply:

(a) The price will be based upon the Bidder's indicated discount off the manufacturer's Published Price List, as indicated on Form B.

(b) The manufacturer shall employ a standard practice of utilizing constant discount percentages, and modifying the standard list price to account for the manufacturer's escalation.

B10.9.2 The selling price shall be based on the discount off list price indicated on Form B.

(a) The discount off list price indicated on Form B shall be a percentage of the list price that is subtracted from the list price to determine the actual price.

(b) Example: If a discount of 20% is indicated and the list price is $1,000, the actual price would be $800.

B10.9.3 In the event that a Currency Exchange Factor is proposed to be utilized, the effective price will be adjusted by the Currency Exchange Factor as per B10.11.

B10.9.4 The prices indicated on Form B must be consistent with the Published Price List and the indicated discount on Form N. Significant discrepancies may result in the bid being deemed non-responsive.

B10.9.5 The City reserves the right to use external sources to verify the validity of the Published Price List provided.

B10.9.6 The escalation of prices on the standard price lists shall not exceed accepted market conditions. The City reserves the right to negotiate the prices or cancel the Contract in the event that the price increments are excessive.

B10.9.7 A new Published Price List shall be submitted to the Contract Administrator a minimum of 60 days prior to the new prices taking effect.

B10.9.8 A new Published Price List will be accepted for price adjustment annually. The discount off list price indicated on Form B, shall not change. The price list must be in effect on January 1 of the year the prices take effect.

(a) The new prices will come into effect on January 1, 2016 and on January 1 annually thereafter.

B10.10 Indexed Price Adjustment

B10.10.1 If the Price Adjustment is proposed to be based on Indexed Price Adjustment, the following shall apply:

(a) Contract prices for equipment and/or service will remain firm through the Fixed Price Period.

(b) Price adjustments will take effect annually after the Fixed Price Period expires, with the first adjustment on January 1, 2016.

(c) Price adjustments will be made in accordance with the percentage change in the referenced index, as per Form N.

(d) The price adjustment rate will be determined by comparing the percentage difference between the index in effect on the date of the Bid Submission Deadline and the latest index data available thirty (30) Calendar Days prior to the new prices taking effect. The percentage difference between the two index values will be the price adjustment rate from the original fixed prices.

B10.10.2 In the event that a US based Index is proposed and that a Currency Exchange Factor is proposed to be utilized, the effective price will be adjusted by the Currency Exchange Factor as per B10.11.

B10.10.3 The Indexed Price Adjustment shall apply to the Form B prices, as well as the manufacturer's complete instrumentation offering related to the proposal.

(a) The base prices for equipment not specifically listed on Form B will be based upon the published list price in effect at the time of the bid and the discount factor indicated on Form B.

B10.11 Currency Exchange Factor

B10.11.1 If applicable, a Currency Exchange Factor is the value which the discounted price is multiplied by to arrive at the final selling price.

B10.11.2 A Currency Exchange Factor shall apply if:

(a) The Bidder proposes a Fixed Escalation Rate on Form N, and indicates that a Currency Exchange Factor shall apply.

(b) The Bidder proposes that price adjustment shall be via Published List Prices, that the Published Price List is not in Canadian Dollars and that a Currency Exchange Factor shall apply.

(c) The Bidder proposes that price adjustment shall be via Indexed Price Adjustment, that the escalation shall be based on a US index and that a Currency Exchange Factor shall apply.

B10.11.3 The currency exchange rate utilized shall be based on the noon exchange rates posted by the Bank of Canada. All currency exchange rates shall be expressed in terms of the value of the Canadian Dollar in terms of US Dollars or the alternate currency proposed.

B10.11.4 The noon currency exchange rate of the last twenty (20) Business Days prior to and including the Bid Submission Deadline shall be recorded and the average shall be deemed the original exchange rate.

B10.11.5 The initial value of the Currency Exchange Factor shall be 1.0 from Contract Award until December 31, 2015.

B10.11.6 Effective January 1, 2016, the Currency Exchange Factor will be reviewed and updated on an intermittent basis, not more frequent than sixty (60) Calendar Days. A review and potential update of the Currency Exchange Factor will be initiated upon a request for pricing of one or more specific instruments.

B10.11.7 Upon a request for pricing of a specific instrument, the Currency Exchange Factor may be updated to reflect the current exchange rate. An update to the Currency Exchange Factor is required where the current Currency Exchange Factor was established a minimum of sixty (60) Calendar days prior to the current date and the resulting calculated new exchange would result in a one percent (1%) or greater change of the Currency Exchange Factor.

B10.11.8 Updates to the Currency Exchange Factor shall be calculated as follows:

(a) The new Currency Exchange Factor shall be calculated as the original exchange rate divided by the average noon currency exchange rate for the last twenty (20) Business Days. The Currency Exchange Factor shall be rounded the nearest one thousandth (0.001).

(b) For example:

(i) If a Currency Exchange Factor (Can$ / US$) is proposed and the Can$ to US$ noon exchange rate on the date of the Bid Submission Deadline is 0.900, this will be deemed the original exchange rate. The prices in effect will be as per Form B and the indicated discount factors, multiplied by the Currency Exchange Factor, which has a value of 1.

(ii) If a Bid Opportunity is issued for tender on May 1, 2016 and the 20-day average Can$ to US$ exchange rate is 0.850, the Currency Exchange Factor will be calculated as 0.900 / 0.850 = 1.059. This Currency Exchange Factor, once approved by the Contract Administrator, will be in effect for the duration of the Bid Opportunity.

(iii) If on June 15, 2017 another Bid Opportunity is issued for tender and the 20-day average Can$ to US$ exchange rate is 0.95, the Currency Exchange Factor will be calculated as 0.900 / 0.950 = 0.947. This Currency Exchange Factor, once approved by the Contract Administrator, will be in effect for the duration of the Bid Opportunity.

B10.11.9 All modifications of the Currency Exchange Factor shall be approved by the Contract Administrator.

(a) Submit the proposed Currency Exchange Factor and supporting calculations to the Contract Administrator. Allow a minimum of five (5) Business days for review.

B10.11.10 The Contract Administrator may reject any Currency Exchange Factor that is not reasonable or reflective of the current exchange rate trends. For example, the Contract Administrator may reject a Currency Exchange Factor based upon a short term event causing an abnormal deviation in the exchange rate.

B10.11.11 The Currency Exchange Factor may either increase or lower the effective price in Canadian dollars.

B10.11.12 The approved updated Currency Exchange Factor shall be:

(a) Applicable for a minimum of sixty (60) Calendar days.

(b) Constant for all quotations to Installation Contractors during a single City of Winnipeg Bid Opportunity event.

(c) The Currency Exchange Rate utilized for a quotation shall not expire for a minimum of 180 Calendar days. The Currency Exchange Factor on the invoice shall be the same as on the quotation.

B10.12 The Bidder's Price Adjustment proposal will be reflected in the calculation of the Evaluated Bid Price as per B22.

B10.13 Contract Extension Prices

B10.13.1 As indicated in D3, the City may negotiate a Contract extension with the Contractor. The prices for the Contract extension shall be consistent with the Contractor's Price Adjustment Proposal on Form N.

B11. PROPOSAL INFORMATION (FORM P)

B11.1 The Bidder shall complete Form P: Proposal Information, making all required entries. Where insufficient space is provided, attach additional pages as required.

B11.2 Form P will be utilized as reference information for the evaluation of the proposal.

B12. DETAILED PRICE BREAKDOWN

B12.1 Provide a detailed price breakdown, to detail the Bidder's proposal and demonstrate that the unit list prices indicated in Form B are consistent with the Published Price List.

B12.2 Include the following in the Price Breakdown for each Form B item:

(a) List of all subcomponents included in the Form B item price, with the following information provided per subcomponent:
   (i) Quantity
   (ii) Model / Part Number
   (iii) Description
   (iv) List Price

(b) Total List Price, which should correspond to the list price in Form B.

B12.3 Provide the detailed price breakdown in the same currency as the Published Price List.

B13. PUBLISHED PRICE LIST

B13.1 The Bidder shall provide a comprehensive manufacturer Published Price List.

B13.2 The scope of the Published Price List should include:

(a) All products proposed as part of the Bidder's proposal;

(b) The manufacturer's entire instrumentation product offering for magnetic flowmeters, pressure transmitters including flow elements, temperature transmitters, and ultrasonic level transmitters.

B13.3 The Published Price List shall be a published standard list of prices, applicable to all sales by the manufacturer in Canada and/or the United States of America. Use of a price list that is specific to an individual or group of provinces, areas, industries, or customers is not acceptable. Provide evidence as requested to support the list prices submitted.

B13.4 The currency of the Published Price List shall be clearly indicated on the price list. It shall be provided in either Canadian (preferred), US dollars, or Euros.

B13.5 The price list should be included in both the Bidder's paper and electronic proposal.

B13.6 The complete provision of the Published Price List is not a mandatory bid requirement, but lack thereof, or incomplete information, may affect the bid evaluation as per B21.

B14. TECHNICAL INFORMATION

B14.1 The Bidder should provide the following technical information:

(a) Product datasheets for all the products proposed;

(b) Documents to support claims made in Form P;

(c) Installation Manuals;

(d) Operation Manuals;

(e) Maintenance Manuals.

(f) Other documents that represent the manufacturer capabilities, relating to the City's requirements.

B14.2 The complete provision of the above information is not a mandatory bid requirement, but lack of information, or incomplete information, may affect the bid evaluation as per B21.

B15. QUALIFICATION

B15.1 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.

B15.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

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

B15.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:

(a) have successfully carried out work similar in nature, scope and value to the Work; and

(b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and

(c) have a written workplace safety and health program, if required, pursuant to The Workplace Safety and Health Act (Manitoba).

B15.4 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.

B15.5 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.

B16. OPENING OF PROPOSALS AND RELEASE OF INFORMATION

B16.1 Proposals will not be opened publicly.

B16.2 After award of Contract, the names of the Bidders and the Contract amount of the successful Bidder will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at http://www.winnipeg.ca/matmgt/

B16.3 To the extent permitted, the City shall treat all Proposal as confidential, however the Bidder is advised that any information contained in any Proposal Submission may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B17. IRREVOCABLE OFFER

B17.1 The Proposal(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 10 of Form A: Proposal.

B17.2 The acceptance by the City of any Proposal shall not release the Proposals of the other responsive Bidders and these Bidders shall be bound by their offers on such Work for the time period specified in Paragraph 10 of Form A: Proposal.

B18. WITHDRAWAL OF OFFERS

B18.1 A Bidder may withdraw his/her Proposal without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.

B18.1.1 Notwithstanding C21, the time and date of receipt of any notice withdrawing a Proposal shall be the time and date of receipt as determined by the Manager of Materials.

B18.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Proposal or the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal, and only such person, has authority to give notice of withdrawal.

B18.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:

(a) retain the Proposal until after the Submission Deadline has elapsed;

(b) open the Proposal to identify the contact person named in Paragraph 3 of Form A: Proposal and the Bidder's authorized representatives named in Paragraph 11 of Form A: Proposal; and

(c) if the notice has been given by any one of the persons specified in B18.1.3(b), declare the Proposal withdrawn.

B18.2 A Bidder who withdraws his/her Proposal after the Submission Deadline but before his/her offer has been released or has lapsed as provided for in B17.2 shall be liable for such damages as are imposed upon the Bidder by law and subject to such sanctions as the Chief Administrative Officer considers appropriate in the circumstances. The City, in such event, shall be entitled to all rights and remedies available to it at law.

B19. INTERVIEWS

B19.1 The Contract Administrator may, in his/her sole discretion, interview Bidders during the evaluation process.

B20. NEGOTIATIONS

B20.1 The City reserves the right to negotiate details of the Contract with any Bidder. Bidders are advised to present their best offer, not a starting point for negotiations in their Proposal Submission.

B20.2 The City may negotiate with the Bidders submitting, in the City's opinion, the most advantageous Proposals. The City may enter into negotiations with one or more Bidders without being obligated to offer the same opportunity to any other Bidders. Negotiations may be concurrent and will involve each Bidder individually. The City shall incur no liability to any Bidder as a result of such negotiations.

B20.3 If, in the course of negotiations pursuant to B20.2 or otherwise, the Bidder amends or modifies a Proposal after the Submission Deadline, the City may consider the amended Proposal as an alternative to the Proposal already submitted without releasing the Bidder from the Proposal as originally submitted.

B21. EVALUATION OF PROPOSALS

B21.1 Award of the Contract shall be based on the following evaluation criteria:

(a)	compliance by the Bidder with the requirements of the Request for Proposal or acceptable deviation therefrom (pass/fail):	
(b)	qualifications of the Bidder and the Subcontractors, if any, pursuant to B15 (pass/fail):	
(c)	Section A evaluated points, calculated as per B21.2	80 pts
(d)	Section B evaluated points, calculated as per B21.3	20 pts
(e)	economic analysis of any approved alternative pursuant to B6;	
(f)	costs to the City of administering multiple contracts.	

B21.2 Further to B21.1(c), the Section A evaluated points shall be based upon the following evaluation criteria:

(a) Section A Evaluated Bid Price, calculated as per B22	32.0 pts
(b) Section A Pricing Completeness and Consistency	0.8 pts
(c) Technical Features and Capabilities – Electromagnetic Flowmeters	16.0 pts
(d) Technical Features and Capabilities – Pressure Transmitters	12.0 pts
(e) Technical Features and Capabilities – Temperature Transmitters	12.0 pts
(f) Section A Warranty	4.0 pts
(g) Section A Delivery	0.8 pts
(h) Section A Service / Support	1.6 pts
(i) Service / Support – General	0.8 pts

B21.3 Further to B21.1(d), the Section B evaluated points shall be based upon the following evaluation criteria:

(a) Section B Evaluated Bid Price, calculated as per B22	8.0 pts
(b) Section B Pricing Completeness and Consistency	0.2 pts
(c) Technical Features and Capabilities – Ultrasonic Level Transmitters	10.0 pts
(d) Section B Warranty	1.0 pts
(e) Section B Delivery	0.2 pts
(f) Section A Service / Support	0.4 pts
(g) Service / Support – General	0.2 pts

B21.4 Further to B21.1(a), the Award Authority may reject a Proposal as being non-responsive if the Proposal Submission is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Proposal, or waive technical requirements or minor informalities or irregularities if the interests of the City so require.

B21.5 Further to B21.1(b), the Award Authority shall reject any Proposal submitted by a Bidder who does not demonstrate, in his/her Proposal, in other information required to be submitted, during interviews or in the course of reference checks, that he/she is responsible and qualified.

B21.6 Further to B21.2(a) and B21.3(a) the Evaluated Bid Price for each Section will be calculated as per B22.

B21.7 Further to B21.2(b) and B21.3(b) the Pricing Completeness and Consistency for each Section will be evaluated based upon completeness, consistency, and overall effectiveness in providing transparent pricing to the City of Winnipeg.

(a) Bidders who do not provide an applicable Published Price List, as per B13, will receive a score of zero (0) for this criteria item.

B21.8 Further to B21.2(c), the Technical Features and Capabilities – Electromagnetic Flowmeters will be evaluated utilizing the following as sources:

(a) Form P;

(b) Technical Information provided as per B14.

(c) Other information submitted with the proposal.

B21.8.1 Further to B21.8, in the event that a proposed electromagnetic flowmeter does not meet the critical technical qualifications identified in E1, the entire score for the associated component may be assigned a value of 0.

B21.9 Further to B21.2(d), the Technical Features and Capabilities – Pressure Transmitters will be evaluated utilizing the following as sources:

(a) Form P;

(b) Technical Information provided as per B14.

(c) Other information submitted with the proposal.

B21.9.1 Further to B21.9, in the event that a proposed pressure transmitter does not meet the critical technical qualifications identified in E1, the entire score for the associated component may be assigned a value of 0.

B21.10 Further to B21.2(e), the Technical Features and Capabilities – Temperature Transmitters will be evaluated utilizing the following as sources:

(a) Form P;

(b) Technical Information provided as per B14.

(c) Other information submitted with the proposal.

B21.10.1 Further to B21.10, in the event that a proposed temperature transmitter does not meet the critical technical qualifications identified in E1, the entire score for the associated component may be assigned a value of 0.

B21.11 Further to B21.3(c), the Technical Features and Capabilities – Ultrasonic Level Transmitters will be evaluated utilizing the following as sources:

(a) Form P;

(b) Technical Information provided as per B14.

(c) Other information submitted with the proposal.

B21.11.1 Further to B21.10.1, in the event that a proposed ultrasonic level transmitter does not meet the critical technical qualifications identified in E1, the entire score for the associated component may be assigned a value of 0.

B21.11.2 Further to B21.10.1, in the event that the proposed ultrasonic level transmitter does not utilize a sensor that is remote from the sensor, the entire score for the associated component may be assigned a value of 0.

B21.12 Further to B21.2(f) and B21.3(d), the Warranty for each Section will be evaluated utilizing the following as sources:

(a) Form P;

(b) Technical Information provided as per B14.

(c) Other information submitted with the proposal.

B21.13 Further to B21.2(g) and B21.3(e), the Delivery for each Section will be evaluated utilizing the following as sources:

(a) Form P;

(b) Other information submitted with the proposal.

B21.14 Further to B21.2(h) and B21.3(f), the Service / Support for each Section will be evaluated based upon the proposal information submitted in Form P and other information submitted with the proposal, considering the service and support requirements of the City.

B21.15 Further to B21.2(i) and B21.3(g), the Service / Support - General will be evaluated based upon the proposal information submitted in Form P and other information submitted with the proposal, considering the service and support requirements of the City.

B21.16 The City may utilize the information available on the manufacturer's website to confirm and clarify information in the proposal.

B21.17 This Contract may be awarded as a whole or separately in Sections as identified on Form B: Prices.

B21.17.1 Notwithstanding B9.1, the Bidder may, but is not required to, bid on all Sections.

B21.17.2 Notwithstanding B23.3, the City shall not be obligated to award any Section to the responsible Bidder submitting the lowest evaluated responsive Bid for that section and shall have the right to choose the alternative which is in its best interests. If the Bidder has not bid on all Sections, he/she shall have no claim against the City if his/her partial Bid is rejected in favour of an award of the Contract as a whole.

B21.18 If, in the sole opinion of the City, a Proposal does not achieve a pass rating for B21.1(a) and B21.1(b), the Proposal will be determined to be non-responsive and will not be further evaluated.

B22. EVALUATED BID PRICE

B22.1 The subtotal bid price for Section A will be calculated based upon Form B as the sum of the estimated quantities multiplied by the unit prices for Items 1 through 19.

B22.2 The subtotal bid price for Section B will be calculated based upon Form B as the sum of the estimated quantities multiplied by the unit prices for Items 23 through 28.

B22.3 The Estimated Cost Per Year for each Section will be calculated from the subtotal bid price of the corresponding Section as follows :

(a) Year 0 (2014): 0% of the subtotal bid price;

(b) Year 1 (2015): 1% of the subtotal bid price;

(c) Year 2 (2016): 5% of the subtotal bid price, plus escalation;

(d) Year 3 (2017): 15% of the subtotal bid price, plus escalation, plus currency exchange rate factor indicated in B22.5.1;

(e) Year 4 (2018): 15% of the subtotal bid price, plus escalation;

(f) Year 5 (2019): 14% of the subtotal bid price, plus escalation;

(g) Year 6 (2020): 14% of the subtotal bid price, plus escalation;

(h) Year 7 (2021): 15% of the subtotal bid price, plus escalation;

(i) Year 8 (2022): 15% of the subtotal bid price, plus escalation;

(j) Year 9 (2023): 4% of the subtotal bid price, plus escalation;

(k) Year 10(2024): 2% of the subtotal bid price, plus escalation.

B22.4 Further to B21.2(a) and B21.3(a), the Evaluated Bid Price for each Section will be calculated as the sum of the Estimated Cost Per Year multiplied by the estimated total escalation for the year.

B22.5 The estimated total escalation for each year will be based upon the Bidder's Price Adjustment Proposal in Form N.

B22.5.1 If the Price Adjustment includes a Currency Exchange Factor, an additional escalation rate of 5.0% shall be added to the escalation for January 1, 2017. Note that the escalation is cumulative and thus all subsequent years will be affected.

B22.5.2 If the Price Adjustment is proposed to be based on a Fixed Escalation Rate, the following shall apply:

(a) The calculation of the Evaluated Bid Price will utilize the indicated escalation values indicated on Form N.

(b) In the event that a percentage price increase is not proposed after December 31, 2020, the annual escalation assumed for the purpose of bid evaluation will be the maximum price increase for the respective year from all other responsive bids, or 7%, whichever is greater.

B22.5.3 If the Price Adjustment is proposed to be based on Published List Prices, the following shall apply:

(a) An annual escalation value of 4.5% will be assumed for the calculation of the Evaluated Bid Price, provided that a Published Canadian Price List is found to be consistent with Form B and the applicable discount proposed on Form B.

(b) In the event that the standard list prices are not determined to be sufficiently consistent with Form B and the applicable discount proposed on Form B, an annual escalation value of 5.0% will be assumed.

(c) In the event that the standard list price has, in the opinion of the Contract Administrators, major inconsistencies with Form B and the applicable discount proposed on Form B, the Contract Administrator may determine the bid non-responsive.

B22.5.4 If the Price Adjustment is proposed to be based on Indexed Price Adjustment, the following shall apply:

(a) An annual escalation rate of 3.0% or the average change of the last five years of the index, whichever is greater, will be assumed for the calculation of the Evaluated Bid Price.

B22.6 Form B, Item 7 is not mandatory. In the event that a price is not provided, the unit price for the corresponding item will be calculated as the corresponding average unit price of the other proposals that proposed a price for the corresponding item, for the purpose of calculating the Evaluated Bid Price.

B22.7 Form B, Item 25 is not mandatory. In the event that a price is not provided, the unit price for the corresponding item will be calculated as the corresponding average unit price of the other

proposals that proposed a price for the corresponding item, for the purpose of calculating the Evaluated Bid Price.

B22.8 In the event that the products proposed will result in additional design and/or installation costs for the City, the bid will be normalized by adding a nominal value, as determined by the Contract Administrator, to the corresponding Form B price, for the purpose of Bid Evaluation.

B22.9 In the event that a product is not proposed for any item on Form B, the City may:

(a) Deem the bid nonresponsive in accordance with B21.4; or

(b) Utilize for the purpose of Bid Evaluation, the corresponding price(s) from the Published Price List included in the Proposal; or

(c) Utilize for the purpose of Bid Evaluation, the average price for the item of the other responsive Bids; or

(d) In the event that the product specified is adequately addressed by other products in the Bidder's proposal, a price of zero will be utilized for the corresponding line item.

B22.10 In the event that the Unit List Price indicated on Form B is not consistent with the List Prices provided in the Published Canadian Price List, the Contract Administrator may:

B22.10.1 Deem the bid nonresponsive in accordance with B21.4; or

B22.10.2 Select the Unit List Price indicated on Form B for the purpose of bid evaluation.

B22.11 In the event that, in the Contract Administrator's opinion, a specified component of the Form B price appears to be missing, the Contract Administrator may:

B22.11.1 Deem the bid nonresponsive in accordance with B21.4; or

B22.11.2 For the purposes of Bid Evaluation, normalize the bid by adding a nominal value to the Form B price to address the missing component. The nominal value may be from the Published Canadian Price List, multiplied by the proposed discount factor, or the average discounted price for the equivalent component from the other bidders.

B23. AWARD OF CONTRACT

B23.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B23.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Proposals are determined to be responsive.

B23.2.1 Without limiting the generality of B23.2, the City will have no obligation to award a Contract where:

(a) the prices exceed the available City funds for the Work;

(b) the prices are materially in excess of the prices received for similar work in the past;

(c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;

(d) only one Proposal 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.

B23.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the most advantageous offer, in accordance with B21.

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PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

C0.1 The *General Conditions for the Supply of Goods* (Revision 2008 05 26) are applicable to the Work of the Contract.

C0.1.1 The *General Conditions for the Supply of Goods* 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 Request for Proposal to a section, clause or subclause with the prefix "**C**" designates a section, clause or subclause in the *General Conditions for Supply of Goods*.

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. INTENT

D2.1 The intent of this Request for Proposal is to select an instrument manufacturer for the City's Sewage Treatment Program and set the conditions for supply.

D2.2 The quantities indicated in Form B are the current best estimate of the equipment to be procured, however the City's upgrade and expansion plans are still in development, and thus the actual quantities purchased are subject to change.

D2.3 The electromagnetic flow, pressure, and level instruments shall be produced by a single manufacturer, to assure consistent integration with the process control system. While it is desired that the ultrasonic level transmitters also be produced by the same manufacturer, this is not a mandatory requirement and may be awarded separately.

D2.4 It is intended that the manufacturer(s) selected by this RFP process may be considered the standard for instruments to be utilized for the City of Winnipeg wastewater treatment facilities.

D2.4.1 The City may procure instruments, not specifically identified under this Request for Proposal, via this Contract without initiating a separate Bid Opportunity process.

D2.5 The Goods to be purchased under this contract are intended to be utilized at the SEWPCC, NEWPCC, and WEWPCC facilities.

D2.6 The City of Winnipeg reserves the right to procure equipment under this Contract for other City of Winnipeg facilities, without initiating a separate Bid Opportunity process.

D3. SCOPE OF WORK

D3.1 The Work to be done under the Contract shall consist of supply and delivery of instrumentation for the period from Contract award until September 30, 2019 with the option of four (4) five (5) year extensions.

D3.1.1 The City may extend the term of this Contract upon the first expiry, dated September 30, 2019, by providing written notice to the Contractor within one hundred twenty (120) Calendar Days prior to the expiry date of the Contract.

(a) If exercised by the City, the first five (5) year extension of the Contract is mandatory for the Contractor.

(b) The City shall incur no liability to the Contractor if the option is not exercised.

D3.1.2 All subsequent Contract extensions after September 30, 2024 shall be mutually agreed upon between the City and the Contractor, based upon negotiations.

(a) The City may negotiate the extension option with the Contractor within one hundred eighty (180) Calendar Days prior to the expiry date of the Contract. The City shall incur no liability to the Contractor as a result of such negotiations.

(b) Changes resulting from such negotiations shall become effective on October 1 of the respective year. Changes to the Contract shall not be implemented by the Contractor without written approval by the Contract Administrator.

D3.1.3 The prices for Contract extensions shall be consistent with the Price Proposal indicated in Form N and B10.

D3.2 The Work shall be done on an "as required" basis during the term of the Contract.

D3.2.1 The type and quantity of Work to be performed under this Contract shall be as authorized from time to time by the Contract Administrator and/or Installation Contractors by a purchase order.

D3.2.2 Subject to C7, the City shall have no obligation under the Contract to purchase any quantity of any item in excess of its actual requirements.

D4. PROCUREMENT VIA INSTALLATION CONTRACTORS

D4.1 Procurement of Goods under this Contract may be directly by the City, or indirectly via an Installation Contractor engaged by the City.

D4.1.1 It is expected that most of the Goods purchased under the Contract will be via Installation Contractors engaged by the City.

D4.2 The Contractor shall allow Installation Contractors to procure equipment on behalf of the City, based upon the pricing, technical specifications and delivery requirements of this Contract.

D4.3 The pricing provided to Installation Contractors shall be as per the Contract. No additional surcharges shall be applied.

D4.4 Payment for all Goods procured via an Installation Contractor shall be the responsibility of the Installation Contractor, as per D19.

D4.5 The City shall incur no liability to the Contractor for Goods procured via an Installation Contractor, other than that required by Provincial Regulations (Builders' Liens Act).

D4.6 The Contractor shall not impose any restrictions or conditions on the Installation Contractors in relation to this Contract.

D4.7 Failure to deliver Goods to the Installation Contractor may be determined to be an event of default under this Contract.

D4.8 Upon request by the City or a potential Installation Contractor for installation work on behalf of the City, the Contractor shall provide an itemized quotation for the Goods, consistent with the terms of the Contract.

D4.9 Where the City issues a Bid Opportunity, which includes the supply and installation of Goods related to this Contract, the Contractor shall review the Bid Opportunity package to identify and confirm the scope of Goods required under the Bid Opportunity. The quotation of Goods shall be comprehensive to the requirements of the Bid Opportunity.

D4.10 The Contractor shall provide an equal quotation to all potential Installation Contractors, consistent with the terms of the Contract.

D4.10.1 The Contractor shall supply a copy of the quotation made to potential Installation Contractors to the Contract Administrator, upon request.

D4.11 Invoices to Installation Contractors must clearly indicate, as a minimum:

(a) the City's Bid Opportunity Number shall be indicated;

(b) date of delivery;

(c) delivery address;

(d) type and quantity of Goods delivered;

(e) the amount payable with GST, MRST, and any applicable environmental handling charges/fees identified and shown as separate amounts; and

(f) the Contractor's GST registration number.

(g) The Installation Contractor's name.

D4.12 The Goods delivered and associated amounts payable must be clearly itemized and priced in a manner to allow the City to verify that the proposed pricing and terms of the Contract are being adhered to.

D4.13 Through the implementation of this Contract, Installation Contractors working on behalf of the City may utilize the products of the Contractor or its distributors for other instrumentation components which are not stated within the scope of the Contract. The Contractor shall not abuse his status under this Contract to achieve an undue favorable position or excess profit for items not under the scope of this Contract. The City reserves the right to audit the Contractor's behavior associated with any other City Bid Opportunity, Request For Proposal, or other contract.

D4.13.1 In the event that the Contractor has, in the opinion of the Contract Administrator, abused his status under this Contract, this may be deemed a breach of the Contract, in accordance with C16.

D5. DEFINITIONS

D5.1 When used in this Request for Proposal:

(a) **"ANSI**" means American National Standards Institute;

(b) **"ASME**" means American Society of Mechanical Engineers;

(c) **"CSA**" means Canadian Standards Association;

(d) "**DTM**" means Device Type Manager;

(e) "**EDDL**" means Electronic Device Description Language;

(f) "**EPDM**" means Ethyline Propylene Diene Rubber;

(g) "**ETFE**" means Ethylene Tetrafluoroethylene;

(h) "**FDT**" means Field Device Tools;

(i) "**FNPT**" means Female National Pipe Thread;

(j) "**GSD**" means General Station Description;

(k) "**HART**" means Highway Addressable Remote Transducer Protocol;

(l) "**ISA**" means International Society of Automation;

(m) "**LCD**" means Liquid Crystal Display;

(n) "**NEWPCC**" means North End Water Pollution Control Centre;

(o) "**NPT**" means National Pipe Thread;

(p) "**O&M**" means Operation and Maintenance;

(q) "**NAMUR**" means Automation Systems Interest Group of the Process Industry;

(r) "**NEMA**" means National Electrical Manufacturers Association;

(s) "**NPT**" National Pipe Thread;

(t) "**PC**" means Personal Computer;

(u) **"PFA"** means Perfluoroalkoxy;

(v) **"PTFE"** means Polytetrafluoroethylene (Teflon);

(w) "**RTD**" means Resistance Temperature Detector;

(x) "**SEWPCC**" means South End Water Pollution Control Centre;

(y) "**SPDT**" means Single-Pole Double-Throw;

(z) "**SPST**" means Single-Pole Single-Throw;

(aa) "**URL**" means Upper Range Limit;

(bb) "**WEWPCC**" means West End Water Pollution Control Centre.

D5.2 Notwithstanding C1.1, when used in this Request for Proposal:

(a) "**Installation Contractor**" means the person undertaking construction or implementation work under a separate contract with the City, who will utilize the pricing, terms, and conditions of this Contract to procure equipment for performing the work under the separate contract. The Installation Contractor may be a subcontractor to a contractor engaged by the City.

D6. CONTRACT ADMINISTRATOR

D6.1 The Contract Administrator is Veolia Water, represented by:

Jonathan Deegan-Ross
Electrical, Instrumentation & Control Manager
Veolia Water
110-1199 Pacific Avenue,
Winnipeg, MB, R3E 3S8

JDeegan-Ross@winnipeg.ca

Telephone No.: (204) 986-2564
Facsimile No.: (204) 986-2439

D6.2 Bids Submissions must be submitted to the address in B7.10.

D7. RETURN OF GOODS

D7.1 Further to C9.8 to C9.13, Goods incorrectly supplied as a result of the Contractors error shall be returned at no cost to the City.

D7.2 Further to C9.8 to C9.13, Goods incorrectly supplied as a result of the City's error will be returned at the City's cost.

D7.3 Further to C9.8 to C9.13, the Contractor will be responsible for costs and any associated equipment manufacturer correspondence for any and all equipment delivered in an unusable state.

D7.4 Where restocking fees apply, they shall not exceed 10%.

D8. CHANGES IN THE WORK

D8.1 Further to C7, the City anticipates that during the term of the Contract there will be changes including but not limited to:

(a) Products line / model availability;

(b) Products required to meet specific applications.

D8.2 Changes shall be addressed in accordance with C7 of the General Conditions.

D8.3 The Contractor shall advise the City of planned obsolescence of a product or product line a minimum of one year prior to obsolescence.

(a) The Contractor shall provide detailed technical literature on the proposed replacement. The Contract Administrator will determine the technical acceptability of the proposed replacement product.

D8.4 Where the Contractor is unable to provide a replacement product to meet changes in the City's requirements, the City shall have the right to remove the product from the Contract.

D8.5 The price of the proposed replacement product must have pricing that is comparable and consistent with the pricing originally proposed in the Contractor's submission. The Contractor shall clearly justify any price changes for the replacement product. The City reserves the right to negotiate the pricing for replacement products.

D8.6 Where the price of the replacement product is deemed by the City to not be comparable to the original product proposed, the City shall have the right to remove the product from the Contract.

D8.7 Where the proposed replacement product(s) and/or pricing no longer meets the overall intent of this Request for Proposal, the City reserves the right to cancel the complete Contract or the applicable portion.

D9. INSPECTION

D9.1 Notwithstanding C9.1, the City does not intend to travel to the manufacturing facility to observe and inspect the Work. Should a factory visit be required, this would be considered a Change in the Work.

D10. INDEMNITY

D10.1 Further to C15.1, the Contractor shall save harmless and indemnify the City in the amount of five million dollars ($5,000,000) against all costs, damages or expenses arising from the items identified in C15.1.

D11. NOTICES

D11.1 Notwithstanding C21.3 all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:

The City of Winnipeg
Chief Financial Officer

Facsimile No.: 204 949-1174

D12. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

D12.1 The Contract, all deliverables produced or developed, and information provided to or acquired by the Contractor are the property of the City and shall not be appropriated for the Contractors own use, or for the use of any third party.

D12.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.

D12.3 The following shall be confidential and shall not be disclosed by the Contractor to the media or any member of the public without the prior written authorization of the Contract Administrator;

(a) information provided to the Contractor by the City or acquired by the Contractor during the course of the Work;

(b) the Contract, all deliverables produced or developed; and

(c) any statement of fact or opinion regarding any aspect of the Contract.

D12.4 A Contractor who violates any provision of D12 may be determined to be in breach of Contract.

D13. FACILITY STANDARD

D13.1 The instrument manufacturer selected through this RFP process for Section A may be utilized as a facility standard for the wastewater treatment facilities for:

(a) Electromagnetic flowmeters,

(b) Pressure instrumentation including flow elements,

(c) Temperature instrumentation, and

D13.2 The instrument manufacturer selected through this RFP process for Section B may be utilized as a facility standard for the wastewater treatment facilities for:

(a) Ultrasonic level instrumentation.

D13.3 In addition to the instruments indicated in D13.1 and D13.2, the City may, at its option, utilize the facility standard for other instrumentation.

SUBMISSIONS

D14. AUTHORITY TO CARRY ON BUSINESS

D14.1 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.

SCHEDULE OF WORK

D15. COMMENCEMENT

D15.1 The Contractor shall not commence any Work until he/she is in receipt of a notice of award from the City authorizing the commencement of the Work.

D15.2 The Contractor shall not commence any Work until:

(a) the Contract Administrator has confirmed receipt and approval of:

(i) evidence of authority to carry on business specified in D14;

(ii) evidence of the workers compensation coverage specified in C6.16;

(b) the Contractor has attended a meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a meeting.

D16. DELIVERY

D16.1 All goods shall be delivered f.o.b. destination, freight prepaid to the destination indicated on the purchase order.

D16.2 All delivery timeframes shall be from the date of the purchase order until delivered to the destination indicated on the purchase order, and shall include the period allocated for shop drawing reviews.

D16.3 Allow fourteen (14) Calendar days for shop drawing (submittal) reviews on all instruments, which shall be inclusive in the delivery time indicated.

(a) Errors and omissions on the shop drawings that result in re-submittal of shop drawings and additional shop drawing reviews will not result in an extension of the delivery date.

D16.4 All destinations may be assumed to be within the limits of the City of Winnipeg.

D16.5 Goods, consisting of up to ten (10) electromagnetic flowmeters with a diameter < 300mm (12") shall be delivered within forty-two (42) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.5.1 Where purchase orders exceed ten (10) electromagnetic flowmeters with a diameter < 300mm (12"), the first ten (10) flowmeters shall be delivered as per D16.5. Additional flowmeters shall be delivered within an additional seven (7) Calendar days for each additional group of ten (10).

D16.6 Goods, consisting of up to ten (10) electromagnetic flowmeters with a diameter >= 300mm (12") and < 600mm (24") shall be delivered within sixty-three (63) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.6.1 Where purchase orders exceed ten (10) electromagnetic flowmeters with a diameter >= 300mm (12") and < 600mm (24") the first ten (10) flowmeters shall be delivered as per D16.5. Additional flowmeters shall be delivered within an additional fourteen (14) Calendar days for each additional group of ten (10).

D16.7 Goods, consisting of up to ten (10) electromagnetic flowmeters with a diameter >= 600mm (24") shall be delivered within eighty-four (84) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.7.1 Where purchase orders exceed ten (10) electromagnetic flowmeters with a diameter >= 600mm (24") the first ten (10) flowmeters shall be delivered as per D16.5. Additional flowmeters shall be delivered within an additional twenty-one (21) Calendar days for each additional group of ten (10).

D16.8 Goods, consisting of up to ten pressure transmitters with corresponding flow elements, as applicable, shall be delivered within forty-two (42) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.8.1 Where purchase orders exceed ten (10) pressure transmitters the first ten (10) instruments shall be delivered as per D16.5. Additional instruments shall be delivered within an additional seven (7) Calendar days for each additional group of ten (10).

D16.9 Goods, consisting of up to ten temperature transmitters shall be delivered within forty-two (42) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.9.1 Where purchase orders exceed ten (10) temperature transmitters the first ten (10) instruments shall be delivered as per D16.5. Additional instruments shall be delivered within an additional seven (7) Calendar days for each additional group of ten (10).

D16.10 Goods, consisting of up to ten ultrasonic level transmitters shall be delivered within forty-two (42) Calendar days or the timeframe indicated in Form P, whichever is less.

D16.10.1 Where purchase orders exceed ten (10) ultrasonic level transmitters the first ten (10) instruments shall be delivered as per D16.5. Additional instruments shall be delivered within an additional seven (7) Calendar days for each additional group of ten (10).

D16.11 The Contractor shall off-load Goods as directed at the delivery location.

D16.12 Where Goods are ordered directly by the City, the following shall apply:

D16.12.1 The Contractor shall confirm each delivery with the Contract Administrator or his/her designate, at least two (2) Business Days before delivery.

D16.12.2 Goods shall be delivered between 8:00 a.m. and 3:30 p.m. on Business Days.

MEASUREMENT AND PAYMENT

D17. INVOICES – CITY ORDERED GOODS

D17.1 Where the City directly orders Goods under this Contract, the following shall apply.

D17.2 Further to C10, the Contractor shall submit an invoice for each order delivered 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
Email: CityWpgAP@winnipeg.ca

D17.3 Invoices must clearly indicate, as a minimum:

(a) the City's purchase order number;

(b) date of delivery;

(c) delivery address;

(d) type and quantity of goods delivered;

(e) the amount payable with GST, MRST, and any applicable environmental handling charges/fees identified and shown as separate amounts; and

(f) the Contractor's GST registration number;

(g) The person placing the order.

D17.4 The Goods delivered and associated amounts payable must be clearly itemized and priced in a manner to allow the City to verify that the proposed pricing and terms of the Contract are being adhered to.

D17.5 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D17.6 Bids Submissions must be submitted to the address in B7.10.

D18. PAYMENT – CITY ORDERED GOODS

D18.1 Further to C10, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

D18.2 Further to C10.1.1, the payment to the Contractor shall include the escalation indicated in the Bidder's price proposal, or as agreed to via negotiation.

D19. PAYMENT – INSTALLATION CONTRACTOR ORDERED GOODS

D19.1 Payment for Goods ordered by the Installation Contractor will be made by the Installation Contractor.

D19.2 The price shall be based upon the price under this Contract in effect at the time of order.

D20. PAYMENT SCHEDULE

D20.1 Further to C10, payment shall be in Canadian funds net thirty (30) Calendar Days after receipt and approval of the Contractor's invoice.

D20.2 Payment will not be made until the Goods are delivered.

D20.3 All payments shall include price adjustments in accordance with Form N and B10.

D20.4 Payment for Form B, Item 18, Local Training Session – Flowmeter, Pressure, Temperature and Form B, Item 27, Local Training Session – Ultrasonic Level will be made on a per session basis.

(a) In the event that the quality of training provided does not, in the opinion of the Contract Administrator, meet the specifications and the requirements of the City, the payment may be reduced to reflect the quality of training provided.

D20.5 Payment for Form B, Item 19 shall be based upon the lesser of:

(a) The value in Form B, Item 19; or

(b) $150/hour.

D20.6 Payment for Form B, Item 28 shall be based upon the lesser of:

(a) The value in Form B, Item 28; or

(b) $150/hour.

D21. PROVISION OF AUDIT SERVICES

D21.1 Upon request by the Contract Administrator, the Contractor shall supply the following:

(a) A complete list of all orders placed and delivered under the Contract.

(b) All invoices for Goods delivered under the Contract, including orders placed by the City or by an Installation Contractor.

(c) Evidence that the prices invoiced are consistent with the terms of this Contract.

D21.2 In the event that it is determined that the price invoiced and paid for Goods exceeded the terms of the Contract, the Contractor shall pay the City the difference.

D21.2.1 Payment corrections shall apply to both the Goods ordered by the City or an Installation Contractor.

WARRANTY

D22. WARRANTY

D22.1 Notwithstanding C11, the warranty period shall begin on the date of successful commissioning and expire one (1) year thereafter or as indicated on Form P, whichever is longer.

D22.2 In the event that the commissioning of the goods is not initiated within six (6) months of delivery, the warranty period shall begin on the date six (6) months from the date of delivery.

D22.3 In the event that the Contractor proposed a warranty period on Form P that is longer than two years, the warranty period may begin on the date of delivery, if so proposed by the Contractor.

D22.4 Notwithstanding C11.2.1, where goods are repaired or replaced under warranty, the warranty on the affected goods shall expire six (6) months from the date the defect or deficiency is corrected or as per D20.1, whichever is longer.

PART E - SPECIFICATIONS

GENERAL

E1. CRITICAL TECHNICAL QUALIFICATIONS

E1.1 All instruments proposed by the Bidder in Section A and/or Section B shall be from a single manufacturer.

E1.2 All instruments proposed shall be industrial-grade.

E1.3 The instruments should be CSA certified; however, the instruments shall be approved by a Canadian recognized agency approval, such as CSA, cUL, or cFM.

E1.4 The manufacturer for the items in Form B, Section A shall offer:

E1.4.1 Magnetic flowmeters with the following features:

(a) Integral PROFIBUS PA communication capability.

(b) Have an option for HART communication capability.

(c) Integral and remote transmitter options.

E1.4.2 Pressure transmitters with the following features:

(a) Integral PROFIBUS PA communication capability

(i) The requirement shall be waived for the Pressure Transmitter, Type 3, Flow application provided a transmitter with HART commendation is provided.

(b) Have an option for HART communication capability.

E1.4.3 Temperature transmitters with the following features:

(a) Integral PROFIBUS PA communication capability.

(b) Have an option for HART communication capability.

E1.5 The manufacturer for the items in Form B, Section B shall offer:

E1.5.1 Ultrasonic level transmitters with the following features:

(a) Integral PROFIBUS DP or PA communication capability.

E1.5.2 An ultrasonic level transmitter with sensors/transducers remote from the transmitter.

E2. APPROVED MANUFACTURERS

E2.1 Approved manufacturers for Form B, Section A (Electromagnetic Flowmeter, Pressure, Temperature) are:

(a) ABB

(b) Emerson Rosemount

(c) Endress & Hauser

(d) Siemens

E2.2 Approved manufacturers for Form B, Section B (Ultrasonic Level) are:

(a) Endress & Hauser

(b) Siemens

E2.3 Bidders are reminded that requests for approval of substitutes as an approved equal or an approved alternative shall be made in accordance with B6.

E3. WORK BY OTHERS

E3.1 The installation of the instruments will be by others.

E3.2 The commissioning of the instruments will be by others, except as provided for by E27.

E4. MANUFACTURER MODELS

E4.1 Where multiple model series are proposed for an item on Form B, provide a separate bid for each model series.

E5. SUBMITTAL PROCEDURES

E5.1 In addition to B14, submit shop drawings upon receipt of each purchase order.

E5.2 Administrative:

E5.2.1 Submit to the Contract Administrator submittals listed for review in accordance with the Specifications, or as requested by the Contract Administrator.

E5.2.2 Submit promptly and in orderly sequence to not cause delay in Work. Failure to submit in ample time is not considered sufficient reason for extension of Contract Time and no claim for extension by reason of such default will be allowed.

E5.2.3 Do not proceed with Work affected by submittal until review is complete.

E5.2.4 Present shop drawings, product data, samples and mock ups in SI Metric units.

E5.2.5 Where items or information is not produced in SI Metric units converted values are acceptable.

E5.2.6 Review submittals prior to submission to Contract Administrator. This review represents that necessary requirements have been determined and verified, or will be, and that each submittal has been checked and co-ordinated with requirements of Work and Contract Documents. Submittals not stamped, signed, dated and identified as to specific project will be returned without being examined and considered rejected.

E5.2.7 Notify Contract Administrator, in writing at time of submission for review, identifying deviations from requirements of Contract Documents stating reasons for deviations.

E5.2.8 Contractor's responsibility for errors and omissions in submission is not relieved by Contract Administrator’s review of submittals.

E5.2.9 Contractor's responsibility for deviations in submission from requirements of Contract Documents is not relieved by Contract Administrator review.

E5.2.10 Acceptance of Shop Drawings for a component or a subassembly does not constitute acceptance of the complete assembly of which it is a part.

E5.2.11 The Contractor shall make any corrections required by the Contract Administrator and shall resubmit the required number of corrected copies of Shop Drawings. The Contractor shall direct specific attention in writing or on resubmitted Shop Drawings to revisions other than the corrections requested by the Contract Administrator on previous submission.

E5.2.12 After Contract Administrator’s review and return of copies, distribute copies to sub-trades as appropriate.

E5.2.13 Keep one reviewed copy of each submission on site.

E5.3 Shop Drawings and Product Data:

E5.3.1 The term "shop drawings" means drawings, diagrams, illustrations, schedules, performance charts, brochures and other data which are to be provided by Contractor to illustrate details of a portion of Work.

E5.3.2 The Contractor shall arrange for the preparation of clearly identified Shop Drawings as specified or as the Contract Administrator may reasonably request. Shop Drawings are to clearly indicate materials, weights, dimensions, methods of construction and attachment or anchorage, erection diagrams, connections, explanatory notes and other information necessary for completion of the Work. Where articles or equipment attach or connect to other articles or equipment, clearly indicate that all such attachments and connections have been properly coordinated, regardless of the trade under which the adjacent articles or equipment will be supplied and installed. Shop Drawings are to indicate their relationship to design Drawings and Specifications. Notify the Contract Administrator in writing of any deviations in Shop Drawings from the requirements of the Contract Documents.

E5.3.3 The Contractor shall examine all Shop Drawings prior to submission to the Contract Administrator to ensure that all necessary requirements have been determined and verified and that each Shop Drawing has been checked and coordinated with the requirements of the Work and the Contract Documents. Examination of each Shop Drawing shall be indicated by stamp, date and signature of a responsible person of the sub-contractor for supplied items and of the General Contractor for fabricated items. Shop Drawings not stamped, signed and dated will be returned without being reviewed and stamped "Re-submit". Ensure that the following are verified:

E5.3.4 Submit shop drawings in a native text-searchable electronic PDF copy (not scanned).

E5.3.5 Shop Drawing reviews by the Contract Administrator is solely to ascertain conformance with the general design concept. Responsibility for approval of detail design inherent in Shop Drawings rests with the Contractor and review by the Contract Administrator shall not imply such approval.

E5.3.6 After submittals are stamped "REVIEWED", "NO EXCEPTIONS TAKEN", "MAKE NOTED CORRECTIONS" or "REVIEWED AS MODIFIED", no further revisions are permitted unless re-submitted to the Contract Administrator for further review.

E5.3.7 Any adjustments made on Shop Drawings by the Contract Administrator are not intended to change the Contract Price. If it is deemed that such adjustments affect the Contract Price, clearly state as such in writing prior to proceeding with fabrication and installation of Work.

E5.3.8 Make changes in Shop Drawings, which the Contract Administrator may require, consistent with Contract Documents. When re-submitting, notify the Contract Administrator in writing of any revisions other than those requested by the Contract Administrator.

E5.3.9 Show the following information in lower right hand corner of shop drawings.

(a) Project Title.

(b) Tender number or other project number assigned by the Contract Administrator.

(c) Name of the depicted item in accordance with the Specifications and Drawings.

(d) Project series number and location where the item is used if applicable.

(e) Specification section number if applicable

(f) Proposed option if applicable.

(g) Name of Contractor.

E6. PRODUCT LIFECYCLE GUARANTEE

E6.1 The manufacturer shall have no plans to remove the proposed instrumentation series from active sale and/or production within the next three years.

E6.2 The manufacturer shall provide guarantee that the instruments will be operable, maintainable and fully supported by the manufacturer, including availability of spare parts, for a period of at least five (5) from the date that any of the proposed products are removed from active sale.

E6.3 The desired requirement for the instrument lifecycle guarantee is:

(a) Provide guarantee that the proposed instrumentation will be operable, maintainable and fully supported by the manufacturer, including availability of spare parts, for a period of at least twenty (20) years from the date that any of the proposed products are removed from active sale.

E7. ELECTROMAGNETIC FLOWMETERS, GENERAL REQUIREMENTS

E7.1 Function:

(a) Measure in-line volumetric fluid flow and transmit the volumetric flow rate signal to the process control system.

E7.2 Operating principle:

(a) Electromagnetic, with operation based on Faraday's Law, utilizing the pulsed dc type coil excitation principle.

E7.3 Approvals:

(a) CSA certified.

E7.4 Features

(a) Smart electronics.

(b) Zero stability feature to eliminate the need to stop flow to check zero alignment.

(c) No obstructions to flow.

(d) Very low pressure loss.

(i) Bi-directional flow measurement capability.

E7.5 Flow Tube Requirements:

E7.5.1 Flange type: Class 150, ASME B16.5 unless otherwise specified

E7.5.2 Flowtube: Flanged and all welded flow tube body; must not rely on gaskets to fully protect the coils and electrode wiring

E7.5.3 Measuring tube material: Stainless steel

E7.5.4 Housing material: Carbon steel or stainless steel, unless otherwise noted.

(a) Desired feature: Stainless steel housing

E7.5.5 Flange material: Carbon steel of stainless steel, unless otherwise noted.

(a) Desired feature: Stainless steel flanges

E7.5.6 Electrode material: 316L stainless steel, unless otherwise noted.

E7.5.7 Electrode Style: Bullet, unless otherwise noted.

E7.5.8 Electrode housing: Sealed, welded housing

E7.5.9 The transition between the flow tube and the junction box must be potted to prevent process fluids from reaching the electronics or conduit in the event of a lining or electrode failure.

E7.5.10 The field termination and electronics must be in separate, fully isolated compartments to prevent moisture or contamination to enter these compartments.

E7.5.11 All flow tubes must be hydrostatically tested to 1.5 times their rated pressure.

E7.5.12 Provide epoxy paint coating for the entire flowtube.

E7.5.13 Ambient Temperature Range Requirements:

(a) Minimum -10°C to 40°C

(b) Desired: -40°C to 60°C

E7.5.14 Desired feature:

(a) Optional Lining Protectors (not required to be included in price) to protect the upstream edge of sensor from abrasive fluids. The lining protector is permanently installed on the flowtube and eliminates the need for grounding rings.

E7.6 Performance Requirements:

E7.6.1 Minimum Accuracy: +/- 0.75% of reading or better for all flows from 0.5 to 10 m/s.

E7.6.2 Desired Accuracy: +/- 0.25% of reading for all flows from 0.5 to 10 m/s.

E7.6.3 Specified accuracy to include flow rate the combined effects of linearity, hysteresis, repeatability, and calibration uncertainty.

E7.6.4 The electronics must be temperature compensated to maintain the indicated accuracy across the stated temperature range.

E7.7 Transmitter Requirements:

E7.7.1 Display: LCD, capable of indicating flow rates, flow totalizer. Display 2 lines of a minimum of 20 characters.

E7.7.2 Controls: Pushbuttons, membrane or through-glass type

E7.7.3 Programming and configuration:

(a) Fully configurable via transmitter pushbutton controls.

(b) If the transmitter is HART capable, configurable via HART field communicator on the 4 to 20mA output loop.

(c) If the transmitter if PROFIBUS PA capable, configurable via PROFIBUS PA interface.

E7.7.4 Units of operation:

(a) Flow Rate: L/s or as otherwise indicated.

(b) Flow Totalizer: m^3 or as otherwise indicated.

E7.7.5 Ingress protection: NEMA 4X / IP67.

E7.8 Output Signal:

E7.8.1 All pressure transmitters shall have PROFIBUS PA communication capability.

E7.8.2 4-20 mA / HART output signals shall be available as an option. Simultaneous HART / PROFIBUS communication capability is not required.

E7.8.3 Configuration:

(a) Configuration menu shall be fixed in English or user-selectable in English.

(b) Desired feature:

(i) Protection of configuration via security jumper and/or software-based password.

E7.8.4 The transmitter shall incorporate non-volatile memory for storage of the configuration and the flow totalizer, and shall not require a battery to ensure protection of stored configuration.

E7.8.5 Ambient Temperature Range Requirements:

(a) Minimum Range: -20°C to 40°C

(b) Desired Range: -40°C to 60°C

E7.8.6 Desired features:

(a) Copper-free aluminum enclosure with epoxy / polyester powder paint coat (thermally treated)

(b) Backlit display.

E7.9 Verification / Testing

E7.9.1 Provide a means to verify and test the integrity of the flow measurement and validate the calibration without removing the flowmeter from service or performing a known volume calibration.

E7.10 Electrical Classification - Where the instrument is specified to be classified for a hazardous location, the following shall apply:

E7.10.1 Certified by CSA for installation within the specified hazardous location.

E7.10.2 CSA certificates shall be provided for each instrument and associated equipment.

E7.10.3 The mode of protection for hazardous explosive atmosphere shall be as defined in the instrument specifications or on the data sheets of the instruments.

E7.10.4 Desired features:

(a) Available CSA Class I, Div/Zone 1 electrical classification approval.

(b) Optional intrinsically safe outputs.

E7.11 Conduit/Cabling:

E7.11.1 Conduit/cable entries shall be ½-14 or ¾-14 NPT threads.

E7.11.2 The connection between flowtubes and remote transmitters should utilize readily available cables, offered by 3rd party cable manufacturers.

E7.11.3 Provide coil and signal cables for connection of flowtubes and transmitters.

(a) For flowtubes with remote transmitters, supply 8m of coil and signal cables.

E7.12 Nameplate:

E7.12.1 All flow tubes and transmitters shall be provided with a manufacturer's standard name plate. The following information shall be shown:

(a) Manufacturer's name

(b) Instrument model number

(c) Instrument serial number

(d) Calibration range

(e) Materials

(f) Electrical classification

E7.13 Identification:

E7.13.1 Provide a stainless steel metal tag firmly attached to the instrument and engraved with the instrument identifier.

E7.14 Factory Calibration

E7.14.1 Perform a minimum 3-point factory calibration to within 0.5% of the flow rate, or as otherwise indicated, for each instrument.

E7.14.2 Provide a factory calibration certificate for each instrument.

E7.14.3 Provide a means to seamlessly transfer the factory calibration of a flowtube to a new replacement transmitter in the field.

E7.15 Factory Testing:

E7.15.1 Completely test the system to assure full compliance with the specification prior to shipment.

E7.16 Inspection Requirements:

E7.16.1 A full visual inspection of all products shall be carried out after fabrication and also before shipment.

E7.16.2 The use of incorrect materials, components, or component parts improperly manufactured, injurious defects, excessive repairs or repairs not authorized by the Contract Administrator, non-conformance to the requirements of this specification, or the lack of proper identification and certification shall be cause for rejection.

E7.17 Provide the following documentation (at minimum):

(a) Complete operations and maintenance manual.

(b) Complete installation instruction manual.

(c) Factory testing and calibration certificates.

E7.18 Software

E7.18.1 Provide PROFIBUS DTM/GSD/EDDL files and all updates to the files at no additional cost.

E7.18.2 Provide any configuration software offered by the vendor to configure the instrument at no additional charge.

E8. ELECTROMAGNETIC FLOWMETER – TYPE 1, 50 MM

E8.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E8.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E8.3 Application Requirements:

(a)	Fluid:	Polymer Solution Aqueous solution of diluted cationic liquid polymer with an approximate active polymer concentration of 0.5% by weight, pH ranging from 3 to 12
(b)	Specific gravity:	1.02
(c)	Fluid Temperature:	4 - 25°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	50 mm (2”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Integral Local Mounting

E8.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 95%
(c)	Location:	Indoor
(d)	Electrical Classification:	Non-hazardous
(e)	Enclosure:	NEMA 4X / IP67
(f)	Submergence:	Not Required

E8.5 Materials

E8.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E8.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) PFA (Perfluoroalkoxy); or

(ii) PTFE (Teflon); or

(iii) Ceramic.

E8.5.3 Grounding Rings: 316 Stainless Steel

E8.6 Power Supply: 24 VDC (independent of PROFIBUS PA network)

E8.7 Output Signal: PROFIBUS PA

E9. ELECTROMAGNETIC FLOWMETER – TYPE 2, 100 MM

E9.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E9.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E9.3 Application Requirements:

(a)	Fluid:	Water with up to 20 mg/L of organic solids, chloraminated
(b)	Specific gravity:	1.0
(c)	Fluid Temperature:	8 - 16°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	100 mm (4”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Integral Local Mounting

E9.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 95%
(c)	Location:	Indoor
(d)	Electrical Classification:	Non-hazardous
(e)	Enclosure:	NEMA 4X
(f)	Submergence:	Not Required

E9.5 Materials

E9.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E9.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) PFA (Perfluoroalkoxy); or

(ii) PTFE (Teflon) , or

(iii) Ceramic, or

(iv) EPDM (Ethyline propylene diene rubber), or

(v) ETFE, or

(vi) Rubber – Ebonite;

E9.5.3 Grounding Rings: 316 Stainless Steel

E9.6 Power Supply: 24 VDC (independent of PROFIBUS PA network)

E9.7 Output Signal: PROFIBUS PA

E10. ELECTROMAGNETIC FLOWMETER – TYPE 3, 150 MM

E10.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E10.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E10.3 Application Requirements:

(a)	Fluid:	Primary Clarifier Scum – Floating solids and organic grease mixed with water, 3 to 5% solids by weight
(b)	Specific gravity:	1.05
(c)	Fluid Temperature:	4 - 20°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	150 mm (6”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Integral Local Mounting

E10.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 95%
(c)	Location:	Indoor
(d)	Electrical Classification:	CSA Class I, Zone 2, Group IIA
(e)	Enclosure:	NEMA 4X
(f)	Submergence:	Not Required

E10.5 Materials

E10.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E10.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) PFA (Perfluoroalkoxy); or

(ii) PTFE (Teflon); or.

(iii) Ceramic.

E10.5.3 Grounding Rings: 316 Stainless Steel

E10.6 Power Supply: 24 VDC (independent of PROFIBUS PA network)

E10.7 Output Signal: PROFIBUS PA

E11. ELECTROMAGNETIC FLOWMETER – TYPE 4, 200 MM

E11.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E11.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E11.3 Application Requirements:

(a)	Fluid:	Activated sludge - Light filamentous organic solids in aqueous suspension, 2 to 3 percent by weight
(b)	Specific gravity:	1.05
(c)	Fluid Temperature:	4 - 20°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	200 mm (8”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Remote Wall Mounted

E11.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 95%
(c)	Location:	Indoor
(d)	Electrical Classification:	CSA Class I, Zone 2, Group IIA
(e)	Enclosure:	NEMA 4X
(f)	Submergence:	Not Required

E11.5 Materials

E11.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E11.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) PFA (Perfluoroalkoxy); or

(ii) PTFE (Teflon); or.

(iii) Polyurethane; or

(iv) Neoprene.

(b) Grounding Rings: 316 Stainless Steel

E11.6 Power Supply: 24 VDC (independent of PROFIBUS PA network)

E11.7 Output Signal: PROFIBUS PA

E12. ELECTROMAGNETIC FLOWMETER – TYPE 5, 400 MM

E12.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E12.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E12.3 Application Requirements:

(a)	Fluid:	Activated sludge - Light filamentous organic solids in aqueous suspension, 2 to 3 percent by weight
(b)	Specific gravity:	1.05
(c)	Fluid Temperature:	4 - 22°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	400 mm (16”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Remote Wall Mounted

E12.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 95%
(c)	Location:	Indoor
(d)	Electrical Classification:	CSA Class I, Zone 2, Group IIA
(e)	Enclosure:	NEMA 4X
(f)	Submergence:	Not Required

E12.5 Materials

E12.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E12.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) PFA (Perfluoroalkoxy); or

(ii) PTFE (Teflon); or.

(iii) Polyurethane; or

(iv) Neoprene.

E12.5.3 Grounding Rings: 316 Stainless Steel

E12.6 Power Supply: 120 VAC

E12.7 Output Signal: PROFIBUS PA

E13. ELECTROMAGNETIC FLOWMETER – TYPE 6, 750 MM

E13.1 Provide an electromagnetic flowmeter, in accordance with E7, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E13.2 Major components to be provided include:

(a) Flowtube

(b) Transmitter

(c) Grounding Rings

E13.3 Application Requirements:

(a)	Fluid:	Raw Sewage – water with organic solids in aqueous suspension, 1 to 3 percent by weight, abrasive grit, and organic grease
(b)	Specific gravity:	1.05
(c)	Fluid Temperature:	4 - 22°C
(d)	Fluid Pressure	0 – 100 kPa
(e)	Size - Diameter:	750 mm (30”)
(f)	Pipe Connection:	Flange – Class 150
(g)	Normal Flow Velocity:	1 – 3 m/s
(h)	Transmitter Mounting:	Remote Wall Mounted

E13.4 Environmental:

(a)	Ambient Temperature:	0°C - 40°C
(b)	Relative Humidity:	0 – 100%
(c)	Location:	Indoor
(d)	Electrical Classification:	CSA Class I, Zone 2, Group IIA
(e)	Enclosure:	NEMA 4X, IP68
(f)	Submergence:	Rated to 10 m submergence

E13.5 Materials

E13.5.1 Electrodes: 316L Stainless Steel (preferred) or Hastelloy C

E13.5.2 Liner:

(a) The following liner materials are indicated in order of preference; however the Bidder is encouraged to review the cost impact in accordance with the evaluation criteria identified in B21:

(i) Neoprene; or

(ii) PFA (Perfluoroalkoxy); or

(iii) PTFE (Teflon); or

(iv) Polyurethane.

E13.5.3 Grounding Rings: 316 Stainless Steel or Tantalum

E13.6 Power Supply: 120 VAC

E13.7 Output Signal: PROFIBUS PA

E14. ELECTROMAGNETIC FLOWMETER CALIBRATION VERIFICATION TOOL

E14.1 Supply of an electromagnetic flowmeter calibration verification tool is not a mandatory requirement.

E14.2 Provide a comprehensive flowmeter calibration verification tool, including all required accessories, such as cables, adapters, etc.

E14.3 The purpose of the flowmeter calibration verification tool is to verify, in situ, the integrity of the complete flowmeter system.

E14.4 The calibration verification tool should test the following:

(a) The transmitter

(b) The flowtube wiring insulation

(c) The flowtube wiring magnetism.

E14.5 The tool shall not require removal of the flowtube. A complete test of a flowtube / flow transmitter assembly should not take more than one hour to complete.

E14.6 The tool should record all relevant parameters and provide a detailed report indicating the results of the test and comparison against expected values.

E14.6.1 The report from the tool should be printable.

E14.7 The tool should provide sufficient testing to certify that the flowmeter being tested is within 1% of the factory calibration.

E14.8 The tool should be certified for operation in Class I, Zone 2 hazardous locations.

E14.9 Training

E14.9.1 Provide one training session per unit supplied, to instruct designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.

E14.9.2 The location of the training will be in the City of Winnipeg, in a facility provided by the City.

E14.9.3 Provide competent instructors thoroughly familiar with all aspects of the verification tool.

(a) The Contract Administrator may reject instructors it deems to not be qualified.

E14.9.4 Each training session shall be a minimum of four (4) hours in duration, excluding coffee and lunch breaks, or longer as required to instruct personnel in the required operation.

E15. PRESSURE TRANSMITTERS, GENERAL REQUIREMENTS

E15.1 Function:

(a) Measure gauge or differential pressure and transmit a signal proportional to the gauge pressure, differential pressure, flow, or level to the process control system.

E15.2 Operating principle:

(a) Electronic variable capacitance.

E15.3 Approvals:

(a) CSA certified.

E15.1 Features

(a) Smart electronics.

E15.2 Performance

E15.2.1 Range shall be selected to meet the specified requirements. The maximum process pressure shall be between 40% and 80% of the transmitter maximum pressure.

E15.2.1 Minimum Accuracy: +/- 0.10% of calibrated span, unless otherwise noted.

(a) Desired accuracy: +/- 0.03% of calibrated span

E15.2.2 Specified accuracy to include flow rate the combined effects of linearity, hysteresis, repeatability, and calibration uncertainty.

E15.2.3 The electronics must be temperature compensated to maintain the indicated accuracy across the stated temperature range.

E15.2.4 Minimum stability: +/- 0.25% of URL over five years

(a) Desired stability: +/- 0.05% of URL over five years

E15.3 Sensor Requirements:

E15.3.1 Where the sensor is fluid-filled, fluid shall be silicon oil.

E15.4 Materials:

E15.4.1 Transmitter housing shall be aluminum or 316 stainless steel.

E15.4.2 Process material/wetted parts shall be 316 stainless steel.

E15.4.3 Diaphragm material shall be ceramic, 316L stainless steel, or Hastelloy C-276 unless otherwise indicated.

E15.4.4 O-rings shall be glass-filled TFE, Graphite-filled PTFE, or Viton.

E15.5 Environmental:

(a) Ambient Temperature: -20°C - 60°C

(b) Relative Humidity: 0 – 100%

(c) Enclosure: NEMA 4X / IP68

E15.6 Power Supply: PROFIBUS PA bus powered

E15.7 Output Signal:

E15.7.1 All pressure transmitters shall have PROFIBUS PA communication capability.

E15.7.2 4-20 mA / HART output signals shall be available as an option. Simultaneous HART / PROFIBUS communication capability is not required.

E15.8 Operator Interface: Where specified, local operator interface requirements are as follows:

E15.8.1 Display: LCD, capable if indicating pressure and display 2 lines of a minimum of 20 characters.

E15.8.2 Pushbuttons: Not required unless indicated in detailed specifications.

E15.8.3 Units of operation:

(a) Pressure: kPa or as otherwise indicated.

(b) Flow: L/s or as otherwise indicated.

E15.8.4 Configuration:

(a) Configuration menu shall be fixed in English or user-selectable in English.

(b) Desired feature:

(i) Protection of configuration via security jumper and/or software-based password.

E15.8.5 Desired feature:

(a) Backlit display.

E15.9 Functional Requirements:

(a) User-selectable Square Root Extraction.

(b) Electronic damping of the output.

(c) Suppressed or elevated zero.

(d) Capability to reset configuration to factory settings.

(e) Desired features:

(i) Simulation capability to override transmitter output for testing purposes.

E15.10 Enclosure

E15.10.1 Material: Stainless steel or copper-free aluminum enclosure with epoxy / polyester powder paint coat (thermally treated)

E15.11 Programming and configuration:

E15.11.1 Configurable via PROFIBUS PA interface.

E15.11.2 The transmitter shall incorporate non-volatile memory for storage of the configuration and shall not require a battery to ensure protection of stored configuration.

E15.12 Electrical Classification - Where the instrument is specified to be classified for a hazardous location, the following shall apply:

E15.12.1 Certified by CSA for installation within the specified hazardous location.

E15.12.2 CSA certificates shall be provided for each instrument and associated equipment.

E15.12.3 The mode of protection for hazardous explosive atmosphere shall be as defined in the instrument specifications or on the data sheets of the instruments.

E15.12.4 Minimum Requirements:

(a) Available CSA Class I, Div/Zone 2 explosion-proof electrical classification approval.

(b) Available CSA intrinsically safe electrical classification approval.

E15.13 Process Sealing

(a) Desired Feature: ANSI/ISA 12.27.01-2011 compliance regarding process sealing with flammable or combustible process fluids.

E15.14 Hardware/Software Components:

(a) Inclusions:

(i) Sensor module and sensor electronics,

(ii) Transmitter housing, complete with transmitter electronics, transmitter display, local operator pushbuttons, and field terminals,

(iii) Device identification tag,

(iv) Process flanges and adapters,

(v) Manifold,

(vi) O-rings.

E15.15 Conduit/Cabling Method:

(a) Conduit/cable entries shall be ½-14 NPT threads.

E15.16 Nameplate:

E15.16.1 All transmitters shall be provided with a manufacturer's standard name plate. The following information shall be shown:

(a) Manufacturer's name

(b) Instrument model number

(c) Instrument serial number

(d) Calibration range

(e) Pressure rating

(f) Materials

(g) Electrical classification

E15.17 Identification:

E15.17.1 Provide a stainless steel metal tag firmly attached to the instrument and engraved with the instrument identifier.

E15.18 Factory Calibration

E15.18.1 Perform a factory calibration for each instrument.

E15.18.2 Provide a factory calibration certificate for each instrument.

E15.19 Factory Testing:

E15.19.1 Completely test the system to assure full compliance with the specification prior to shipment.

E15.20 Inspection Requirements:

E15.20.1 A full visual inspection of all products shall be carried out after fabrication and also before shipment.

E15.20.2 The use of incorrect materials, components, or component parts improperly manufactured, injurious defects, excessive repairs or repairs not authorized by the Contract Administrator, non-conformance to the requirements of this specification, or the lack of proper identification and certification shall be cause for rejection.

E15.21 Provide the following documentation (at minimum):

(a) Complete operations and maintenance manual.

(b) Complete installation instruction manual.

(c) Factory testing and calibration certificates.

E15.22 Software

E15.22.1 Provide PROFIBUS DTM/GSD/EDDL files and all updates to the files at no additional cost.

E15.22.2 Provide any configuration software offered by the vendor to configure the instrument at no additional charge.

E16. PRESSURE TRANSMITTER – TYPE 1, GAUGE

E16.1 Provide a pressure transmitter, in accordance with E15, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E16.2 Major components to be provided include:

(a) Pressure transmitter

(b) Isolating diaphragm seal (if required as per E16.6)

(c) Manifold

E16.3 Service:

(a) Gas: Biogas (65% methane, 35% carbon dioxide, 800 ppm H_2S)

(b) Gas temperature: -20 to 50 °C

(c) Gas pressure: 0 to 689.5 kPag (0 to 100 psig)

(d) Measurement Type: gauge

E16.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Class I, Zone 1, Group IIA / Div 1 Group D

(i) Desired Method of Protection: intrinsically safe

(e) Enclosure: NEMA 4X / IP68

(f) Submergence: Not Required

E16.5 User Interface

(a) Display: Required.

(b) Pushbuttons: Not Required.

E16.6 Process Secondary Seal:

E16.6.1 A secondary seal is required in the event that the primary seal fails. Provision of an integral secondary seal in compliance with ANSI/ISA 12.27.01-2011 is desired. In the event that an integral secondary seal cannot be provided, provide an external isolating diaphragm seal as part of a complete sealed system.

(a) It is acknowledged that a manifold cannot typically be integrated with a secondary seal. However, it is required that both the cost of the manifold and the secondary seal be included for the purposes of this RFP. For actual installations, the specific requirements will be determined for each application.

E16.7 Manifold Requirements:

(a) Direct mount to instrument,

(b) Valves:

(i) Qty 1, Isolate

(ii) Qty 1, Vent / Test
(iii) Complete with T-bar handles and colour coded dust caps.

(c) Connections:
(i) Instrument connection: 12.7 mm (1/2") FNTP
(ii) Inlet/process connection: 12.7 mm (1/2") FNTP
(iii) Vent/test connection: 6.35 mm (1/4") FNTP

(d) Body: 316 stainless steel

(e) Seat: as recommended by manufacturer.

(f) Stem seals: Teflon, or Teflon with Viton core

(g) Dust cap colour coding:
(i) Isolate: Blue
(ii) Vent / Test: Red

E16.8 Output Signal: PROFIBUS PA

E17. PRESSURE TRANSMITTER - TYPE 2, DIFFERENTIAL

E17.1 Provide a pressure transmitter, in accordance with E15, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E17.2 Major components to be provided include:

(a) Pressure transmitter

(b) Isolating diaphragm seals (if required as per E17.7.1)

(c) Manifold

E17.3 Service:

(a) Gas: Foul Air containing H_2S, saturated with H_2O
(i) H2S concentration: 5 ppmV concentration typical, 80 ppmV peak

(b) Gas temperature: 0 to 40 °C

(c) Operating Differential pressure: 0 to 1.5 kPa (0 to 0.22 psi, 0 – 6 inches H_2O)

(d) Desired Measurement Range: -2.0 to 2.0 kPa (-2.29 to 0.29 psi, -8 – 8 inches H_2O)

(e) Measurement Type: Differential

E17.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Class I, Zone 2, Group IIA / Div 2 Group D
(i) Desired Method of Protection: Explosion-proof

(e) Enclosure: NEMA 4X / IP68

(f) Submergence: Not Required

E17.5 User Interface

(a) Display: Required.

(b) Pushbuttons: Not Required.

E17.6 Sensor Process Connection: Flanged, 1/4-18 NPT at 54 mm (2 1/8") centre-to-centre

E17.7 Process Secondary Seal:

E17.7.1 A secondary seal is required in the event that the primary seal fails. Provision of an integral secondary seal in compliance with ANSI/ISA 12.27.01-2011 is desired. In the event that an integral secondary seal cannot be provided, provide external isolating diaphragm seals as part of a complete sealed system.

E17.8 Manifold Requirements:

(a) Valves:
  (i) Qty 2, Isolate
  (ii) Qty 2, Vent / Test
  (iii) Qty 1, Equalization
  (iv) Complete with T-bar handles and colour coded dust caps.

(b) Connections:
  (i) Instrument connection: Flanged for direct connection to instrument, with 54 mm (2 1/8") mounting centres.
  (ii) Inlet/process connections: 12.7 mm (1/2") FNTP
  (iii) Vent/test connections: 12.7 mm (1/2") FNTP

(c) Body: 316 stainless steel,

(d) Seat: as recommended by manufacturer.

(e) Stem seals: Teflon, or Teflon with Viton core

(f) Dust cap colour coding:
  (i) Isolate: Blue
  (ii) Vent / Test: Red
  (iii) Equalize: Green

E17.9 Output Signal: PROFIBUS PA

E18. PRESSURE TRANSMITTER - TYPE 3, FLOW

E18.1 Provide a pressure transmitter, in accordance with E15, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E18.2 Major components to be provided include:

(a) Pressure transmitter

(b) Isolating diaphragm seals (if required as per E17.7.1)

(c) Manifold

E18.3 Application:

(a) Connected to a differential pressure flow element, such as an orifice plate.

(b) Include temperature and pressure compensation.

(c) Temperature to be measured via a remote RTD.

E18.4 Service:

(a) Gas: Foul Air containing H_2S, saturated with H_2O
  (i) H2S concentration: 5 ppmV concentration typical, 80 ppmV peak
(b) Gas temperature: -20 to 40 °C
(c) Gas Density: 1.146 kg/m^3
(d) Measured ΔP: 0.0 to 2.0 kPa
(e) P1: 5 kPa

E18.5 Environmental:

(a) Ambient Temperature: 0°C - 40°C
(b) Relative Humidity: 0 – 95%
(c) Location: Indoor
(d) Electrical Classification: Class I, Zone 2, Group IIA / Div 2 Group D
  (i) Desired Method of Protection: Intrinsic Safety
(e) Enclosure: NEMA 4X / IP68
(f) Submergence: Not Required

E18.6 User Interface

(a) Display: Required.
(b) Pushbuttons: Required.

E18.7 Sensor Process Connection: Flanged, 1/4-18 NPT

E18.8 Process Secondary Seal:

E18.8.1 A secondary seal is required in the event that the primary seal fails. Provision of an integral secondary seal in compliance with ANSI/ISA 12.27.01-2011 is desired. In the event that an integral secondary seal cannot be provided, provide external isolating diaphragm seals as part of a complete sealed system.

E18.9 Manifold Requirements:

(a) Valves:
  (i) Qty 2, Isolate
  (ii) Qty 2, Vent / Test
  (iii) Qty 1, Equalization
  (iv) Complete with T-bar handles and colour coded dust caps.
(b) Connections:
  (i) Instrument connection: Flanged for direct connection to instrument, with 54 mm (2 1/8”) mounting centres.
  (ii) Inlet/process connections: 12.7 mm (1/2”) FNTP
  (iii) Vent/test connections: 12.7 mm (1/2”) FNTP
(c) Body: 316 stainless steel,
(d) Seat: as recommended by manufacturer.
(e) Stem seals: Teflon, or Teflon with Viton core
(f) Dust cap colour coding:
  (i) Isolate: Blue
  (ii) Vent / Test: Red
  (iii) Equalize: Green

E18.10 Components not required to be included:

(a) Remote RTD for temperature compensation.

(b) Impulse lines to flow element.

(c) Flow element (such as orifice plate).

E18.11 Output Signal: PROFIBUS PA (Preferred) or HART

E19. PRESSURE TRANSMITTER – TYPE 4, LEVEL

E19.1 Provide a pressure transmitter, in accordance with E15, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E19.2 Major components to be provided include:

(a) Pressure transmitter

(b) Isolating diaphragm seal

E19.3 Service:

(a) Liquid: Wastewater

(b) Liquid temperature: 8 to 25 °C

(c) Level Measurement Range: 0 – 6 m H_2O (0-8.51 psi, 0-58.7 kPa)

(d) Measurement Type: gauge (single sided pressure measurement)

E19.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Class I, Zone 2, Group IIA / Div 2 Group D

(i) Desired Method of Protection: Explosion-proof or

(e) Enclosure: NEMA 4X / IP68

(f) Submergence: Not Required

E19.5 User Interface

(a) Display: Required.

(b) Pushbuttons: Not Required.

E19.6 Process Connection:

E19.6.1 Direct mount to instrument;

E19.6.2 Flange: 75 mm, Class 150

E19.6.3 Process Diaphragm

(a) Material: 316 Stainless Steel

E19.6.4 Fill Fluid: Silicone

E19.7 Output Signal: PROFIBUS PA

E20. TEMPERATURE TRANSMITTERS, GENERAL REQUIREMENTS

E20.1 Function:

(a) Measure temperature and transmit the temperature signal to the process control system.

E20.2 Approvals:

(a) CSA certified.

E20.3 Technology:

(a) Single element, three-wire RTD, Pt100 / Pt1000.

(b) Smart electronics.

E20.4 Sensor Requirements:

E20.4.1 Single element, three-wire RTD, Pt100 unless otherwise indicated.

(a) Desired feature: Pt1000 compatibility.

E20.4.2 Accuracy: Class B as per IEC 60751, unless otherwise indicated.

E20.4.3 Probe length: as indicated

E20.4.4 Probe diameter: 6.35 mm (1/4”), unless otherwise indicated.

E20.4.5 Probe material: 316 stainless steel, unless otherwise indicated.

E20.5 Environmental Requirements:

(a) Ingress protection: NEMA Type 4X.

(b) Ambient temperature range, operating: -20°C to 60°C.

(c) Relative Humidity: 0 – 100% RH, non-condensing

E20.6 Transmitter Requirements:

E20.6.1 Mounting: Locally on sensor

E20.6.2 Housing material: Aluminum, painted or powder-coated or stainless steel

E20.6.3 The transmitter shall incorporate non-volatile memory for storage of the configuration and shall not require a battery to ensure protection of stored configuration.

E20.6.4 The transmitter shall provide automatic reference junction compensation.

E20.6.5 The transmitter shall provide adjustable electronic damping.

E20.6.6 The transmitter shall provide galvanic isolation between the input and output rated to a minimum of 500 VAC.

(a) Desired feature: Provide galvanic isolation rated to a minimum of 2000 VAC.

E20.6.7 Desired features:

(ii) Protection of configuration via security jumper and/or software-based password.

(iii) Simulation capability to override transmitter output for testing purposes.

E20.7 NAMUR Compliance:

E20.7.1 Desired Feature: The temperature transmitter should be compliant with the following NAMUR recommendations:

(a) NE 21 – Electromagnetic compatibility (EMC) for Process and Laboratory Apparatus

(b) NE 43 – Standard of the signal level breakdown information of digital transmitters

(c) NE 89 – Standard of temperature transmitters with digital signal processing

E20.8 Electrical Classification - Where the instrument is specified to be classified for a hazardous location, the following shall apply:

E20.8.1 Certified by CSA for installation within the specified hazardous location.

E20.8.2 CSA certificates shall be provided for each instrument and associated equipment.

E20.8.3 The mode of protection for hazardous explosive atmosphere shall be as defined in the instrument specifications or on the data sheets of the instruments.

E20.8.4 Desired features:

(a) Available CSA Class I, Div/Zone 1 electrical classification approval.

(b) Optional intrinsically safe outputs.

E20.9 Conduit/Cabling Method:

(a) Conduit/cable entries shall be ½-14 NPT threads.

E20.10 Nameplate:

E20.10.1 All temperature transmitters shall be provided with a manufacturer's standard name plate. The following information shall be shown:

(a) Manufacturer's name

(b) Instrument model number

(c) Instrument serial number

(d) Calibration range

(e) Materials

(f) Electrical classification

E20.11 Identification:

E20.11.1 Provide a stainless steel metal tag firmly attached to the instrument and engraved with the instrument identifier.

E20.12 Factory Calibration

E20.12.1 Perform a minimum five point factory calibration for each instrument, unless otherwise indicated.

E20.12.2 Provide a factory calibration certificate for each instrument.

E20.13 Factory Configuration

E20.13.1 Perform a factory configuration of the instrument, including the range, units and software identification tag.

E20.14 Factory Testing:

E20.14.1 Completely test the system to assure full compliance with the specification prior to shipment.

E20.15 Inspection Requirements:

E20.15.1 A full visual inspection of all products shall be carried out after fabrication and also before shipment.

E20.15.2 The use of incorrect materials, components, or component parts improperly manufactured, injurious defects, excessive repairs or repairs not authorized by the Contract Administrator, non-conformance to the requirements of this specification, or the lack of proper identification and certification shall be cause for rejection.

E20.16 Provide the following documentation (at minimum):

(a) Complete operations and maintenance manual.

(b) Complete installation instruction manual.

(c) Factory testing and calibration certificates.

E20.17 Software

E20.17.1 Provide PROFIBUS DTM/GSD/EDDL files and all updates to the files at no additional cost.

E20.17.2 Provide any configuration software offered by the vendor to configure the instrument at no additional charge.

E21. TEMPERATURE TRANSMITTER - TYPE 1, PROCESS

E21.1 Provide a pressure transmitter, in accordance with E20, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E21.2 Major components to be provided include:

(a) Temperature transmitter

(b) RTD Sensor

(c) Thermowell

E21.3 Service:

(a) Media: Wastewater

(b) Media temperature: -10 °C to 50 °C

(c) Media pressure: 0 to 150 kPa

E21.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Class I, Zone 2, Group IIA

(i) Desired Method of Protection: Intrinsically-Safe (CSA Approved)

(e) Enclosure: NEMA 4X / IP67

(f) Submergence: Not Required – IP68 Desired

E21.5 Sensor Requirements:

(a) Single element, three-wire RTD, Pt100.

(b) Accuracy: IEC 60751 Class B

(c) Probe length: 120 mm

(d) Probe diameter: 6.35 mm (1/4”)

(e) Probe material: 316 stainless steel

(f) Spring loaded insert.

E21.6 Transmitter Requirements:

(a) Output: PROFIBUS PA,

(b) Display: Not required

(i) Desired Feature: Optional LCD display showing real-time temperature measurement.

(c) Pushbuttons: Not required.

(d) Power supply: 24 VDC via PROFIBUS cable (bus powered)

(e) Mounting: Integral to thermowell.

(f) Desired features:

(i) Multiline, alpha-numeric display,

(ii) Backlit display,

(iii) Pushbuttons to facilitate device configuration,

(iv) LCD display may be utilized to facilitate configuration and maintenance activities.

E21.7 Thermowell Requirements:

(a) Material: 316 stainless steel

(b) Instrument connection: Threaded, 12.7 mm (1/2") NPT, female

(c) Process connection: Threaded, 19.05 mm (3/4") NPT, male

(d) Immersion length: 120 mm

(e) Profile: Tapered

E21.8 Performance Requirements:

E21.8.1 Transmitter Accuracy - Digital:

(a) Minimum Requirement: +/- 0.2 °C

(b) Desired: +/- 0.05 °C

E21.8.2 Transmitter long-term stability:

(a) Minimum Requirement: ≤ 0.2°C per year

(b) Desired: ≤ 0.01°C per year

E21.9 Additional Desired Features:

E21.9.1 The transmitter should have a feature to match the sensor and transmitter, whereby RTD constants from the manufacturer can be entered into the transmitter to improve accuracy.

E22. TEMPERATURE TRANSMITTER – TYPE 2, HVAC DUCT

E22.1 Provide a pressure transmitter, in accordance with E20, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E22.2 Major components to be provided include:

(a) Temperature transmitter

(b) RTD Sensor

E22.3 Service:

(a) Media: Air

(b) Media temperature: -40 °C to 60 °C

(c) Media pressure: 0 to 150 kPa

E22.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Non-hazardous

(i) Desired feature: Optional hazardous certifications within the same model series.

(e) Enclosure: NEMA 4X / IP67

(f) Submergence: Not Required – IP68 Desired

E22.5 Sensor Requirements:

(a) Single element, three-wire RTD, Pt100.

(b) Accuracy: IEC 60751 Class B

(c) Probe length: 150 mm (6”)

(d) Probe diameter: 6.35 mm (1/4”)

(e) Probe material: 316 stainless steel

(f) Process connection: Threaded, 12.7 mm (1/2”) NPT, male

E22.6 Transmitter requirements:

(a) Output: Analog 4 to 20 mA DC with HART.

(b) Display: None

(c) Pushbuttons: None

(d) Power supply: 24 VDC loop powered

(e) Mounting: Integral to sensor

E22.7 Thermowell Requirements:

(a) Not required.

E22.8 Performance Requirements:

E22.8.1 Transmitter Accuracy - Digital:

(a) Minimum Requirement: +/- 0.5 °C

(b) Desired: +/- 0.1 °C

E22.8.2 Transmitter Long-term stability:

(a) Minimum Requirement: ≤ 0.2°C per year

(b) Desired: ≤ 0.1°C per year

E22.9 Factory Calibration

E22.9.1 Notwithstanding E20.12.1, perform a minimum three point factory calibration for each instrument, unless otherwise indicated.

E23. TEMPERATURE TRANSMITTER – TYPE 3, HVAC WALL-MOUNT

E23.1 Provide a pressure transmitter, in accordance with E20, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E23.2 Major components to be provided include:

(a) Temperature transmitter

(b) RTD Sensor

E23.3 Service:

(a) Media: Air

(b) Media temperature: 0 °C to 40 °C

(c) Media pressure: atmospheric

E23.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Relative Humidity: 0 – 100%

(c) Location: Indoor

(d) Electrical Classification: Non-hazardous

(i) Desired feature: Optional hazardous certifications within the same model series.

(e) Enclosure: NEMA 4X / IP67

(f) Submergence: Not Required – IP68 Desired

E23.5 Sensor Requirements:

(a) Single element, three-wire RTD, Pt100.

(b) Accuracy: IEC 60751 Class B

(c) Probe length: 100 mm (4”) or less

(d) Probe diameter: 6.35 mm (1/4”) or greater

(e) Probe material: 316 stainless steel

(f) Desired feature: It is desired that the sensor be suitable for ambient temperature monitoring and protected from physical damage due to wall mounting

E23.6 Transmitter requirements:

(a) Output: Analog 4 to 20 mA DC with HART.

(b) Display: None

(c) Pushbuttons: None

(d) Power supply: 24 VDC loop powered

(e) Mounting: Wall

E23.7 Thermowell Requirements:

(a) Not required.

E23.8 Performance Requirements:

E23.8.1 Transmitter Accuracy - Digital:

(a) Minimum Requirement: +/- 0.5 °C

(b) Desired: +/- 0.1 °C

E23.8.2 Transmitter Long-term stability:

(a) Minimum Requirement: ≤ 0.2°C per year

(b) Desired: ≤ 0.1°C per year

E23.9 Factory Calibration

E23.9.1 Notwithstanding E20.12.1, perform a minimum three point factory calibration for each instrument, unless otherwise indicated.

E24. ULTRASONIC LEVEL TRANSMITTERS, GENERAL REQUIREMENTS

E24.1 Approvals:

(a) CSA certified.

E24.2 Function:

(a) Continuously measure liquid level and transmit the level signal to the process control system.

E24.3 Operating principle:

(a) Acoustic impulses emitted from an ultrasonic sensor are reflected back from the material surface and are received by the same sensor. The transit time of the pulse from transmission generation to echo reception is recorded. The elapsed time is proportional to the distance between the sensor and material surface based on the speed of sound.

E24.4 Technology:

(a) Single point measurement

(b) Non-contacting

(c) Ultrasonic

(d) Temperature compensated

(e) Echo interference suppression

(f) Smart electronics

E24.5 Environmental Requirements:

(a) Ingress protection:

(i) Wall mount transmitters / controllers: NEMA Type 4X, IP65 or as indicated.

(ii) Sensors / transducers: NEMA Type 4X, IP68.

E24.6 Transmitter Requirements:

(a) Interference echo suppression to ensure interference echoes are not interpreted as a level echo.

(b) Real-time temperature compensation for time-of-flight correction.

(c) Integral LCD display for indication of real-time level measurement and status indication.

(d) There shall be no internal potentiometers or switches used in the programming or adjusting of the transmitter.

(e) The transmitter shall incorporate non-volatile memory for storage of the configuration and shall not require a battery to ensure protection of stored configuration.

(f) Alarming:

(i) Loss of Echo or Cable Fault.

(g) Desired features:

(i) Configurable interference echo suppression.

(ii) Custom linearization map for liquid volume calculation in abnormal vessel shapes.

(iii) Simulation capability to override transmitter output for testing purposes.

(iv) Means to connect multiple ultrasonic level transmitters to cancel echo interference if mounted in close proximity.

E24.6.1 Desired features:

(a) Graphic LCD display with capability to display envelope curve,

(b) Backlit display,

(c) Display may be utilized for local indication sensor temperature,

(d) Liquid volume calculation with pre-programmed linearization curves for the following vessel shapes:

(i) Horizontal, cylindrical tank

(ii) Spherical tank

(iii) Tank with pyramidal bottom

(iv) Tank with conical bottom

(v) Tank with flat, inclined bottom

E24.7 Mounting

E24.7.1 Provide mounting flange or other hardware as indicated:

E24.7.2 Desired feature: Mounting flange or other mounting hardware to be constructed of stainless steel or other non-corrosive material.

E24.8 Hardware/Software Components:

(a) Inclusions:

(i) Sensor.

(ii) Sensor cable for remote transmitters

(iii) Transmitter housing, complete with transmitter electronics and field terminals.

(iv) Mounting Flange.

(v) Device identification tag.

(b) Exclusions:

(i) Handheld configuration tool. See E27.

E24.9 Conduit/Cabling Method:

(a) Conduit/cable entries shall be ½-14 NPT threads.

E24.10 Nameplate:

E24.10.1 All flow tubes and transmitters shall be provided with a manufacturer's standard name plate. The following information shall be shown:

(a) Manufacturer's name

(b) Instrument model number

(c) Instrument serial number

(d) Calibration range

(e) Materials

(f) Electrical classification

E24.11 Identification:

E24.11.1 Provide a stainless steel metal tag firmly attached to the instrument and engraved with the instrument identifier.

E24.12 Documentation:

(a) Complete operations and maintenance manual.

(b) Complete installation instruction manual.

(c) Factory testing and calibration certificates.

E24.13 Software

E24.13.1 Provide PROFIBUS DTM/GSD/EDDL files and all updates to the files at no additional cost.

E24.13.2 Provide any configuration software offered by the vendor to configure the instrument at no additional charge.

E24.14 Factory Testing:

(a) Completely test the system to assure full compliance with the specification prior to shipment.

E24.15 Inspection Requirements:

(a) A full visual inspection of all products shall be carried out after fabrication and also before shipment.

(b) The use of incorrect materials, components, or component parts improperly manufactured, injurious defects, excessive repairs or repairs not authorized by the Contract Administrator, non-conformance to the requirements of this specification, or the lack of proper identification and certification shall be cause for rejection.

E25. ULTRASONIC LEVEL TRANSMITTER – TYPE 1, INTEGRATED UNIT

E25.1 Provide an ultrasonic level transmitter, in accordance with E24, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E25.2 Major components to be provided include:

(a) Transmitter with integral sensor

(b) Mounting Flange

E25.3 Service:

(a) Application: Sludge Hopper Monitoring

(b) Fluid: Activated sludge - Light filamentous organic solids in aqueous suspension, 2 to 3 percent by weight

(c) Vapour Space Pressure: Atmospheric

E25.4 Environmental

(a) Operating Temperature: -20 to 40 °C

(i) Desired Temperature Range: -40 to 75 °C

(b) Relative Humidity: 0 – 100%

(c) Electrical Classification: Class I, Zone 1, Group IIA

(i) Method of Protection: Intrinsically-Safe (CSA Approved)

(ii) Desired feature: non-incendive: Optional Class I, Zone 2, Group IIA or Div 2 Group D

(d) Enclosure: NEMA 4X / IP68

E25.5 Performance Requirements:

E25.5.1 Accuracy:

(a) Minimum: 0.2% of maximum range or 6 mm, whichever is greater.

(b) Desired: 0.1% of maximum range or 3 mm, whichever is greater.

E25.5.2 Resolution:

(a) Minimum: 0.1% of maximum range or 3 mm, whichever is greater.

(b) Desired: 0.033% of maximum range or 1 mm, whichever is greater.

E25.6 Sensor Requirements:

(a) Range: 0.25 to 3 meters from sensor face
  (i) Desired feature: Additional optional ranges available.

(b) Beam angle: 12 degrees or less

(c) Integral heater: Not Required

(d) Temperature compensation: Integral to unit

E25.7 Transmitter Requirements:

E25.7.1 Mounting: Local, sensor mounted.

E25.7.2 Output signal:

(a) PROFIBUS PA

E25.7.3 Power supply:

(a) PROFIBUS PA Bus powered

E25.7.4 Display: Required

(a) Desired feature: Display is rotatable after mounting.

E25.7.5 Local Keypad / Controls: Not Required

E25.7.6 Output relays: Not Required

E25.8 Mounting:

E25.8.1 75 mm (3") ASME Flange

E25.8.2 Aiming Kit: Not required

E26. ULTRASONIC LEVEL TRANSMITTER – TYPE 2, REMOTE SENSOR

E26.1 Provide an ultrasonic level transmitter, in accordance with E24, with the following features:

(a) The instrument specified is a prototype instrument to be utilized for the purpose of responding to this RFP only. The instrument to be supplied must be provided to the individual specifications of the given application.

E26.2 Major components to be provided include:

(a) Transmitter

(b) Sensor / Transducer

(c) Mounting Flange

E26.3 Service:

(a) Application: Process Sump Pump Control

(b) Fluid: Water or diluted wastewater

(c) Vapour Space Pressure: Atmospheric

E26.4 Environmental:

(a) Ambient Temperature: 0°C - 40°C

(b) Location: Indoor

E26.5 Performance Requirements:

E26.5.1 Accuracy:

(a) Minimum: 0.5% of maximum range or 12 mm, whichever is greater.

(b) Desired: 0.1% of maximum range or 2 mm, whichever is greater.

E26.5.2 Resolution:

(a) Minimum: 0.25% of maximum range or 5 mm, whichever is greater.

(b) Desired: 0.05% of maximum range or 1 mm, whichever is greater.

E26.6 Sensor Requirements:

E26.6.1 Environmental

(a) Operating Temperature: -20 to 40 °C

(i) Desired Temperature Range: -40 to 95 °C

(a) Relative Humidity: 0 – 100%

(b) Electrical Classification: Class I, Zone 2, Group IIA

(c) Enclosure: NEMA 4X / IP68

(d) Submergence: Not Required – IP68 Desired

E26.6.2 Sensor Range: 0.25 to 6 meters from sensor face

E26.6.3 Calibrated Range: 0.25 to 4 meters from sensor face

E26.6.4 Beam angle: 12 degrees or less

E26.6.5 Integral heater: Not Required

E26.6.6 Temperature compensation: Required - Integral to unit preferred.

E26.7 Transmitter Requirements:

E26.7.1 Mounting: Remote, wall mounted.

E26.7.2 Environmental

(a) Operating Temperature: 0 to 40 °C

(i) Desired Temperature Range: -20 to 50 °C

(a) Relative Humidity: 5 – 95%

(b) Electrical Classification: Non-hazardous

(i) Desired Feature: Class I, Zone 2, Group IIA electrical classification

(c) Enclosure: NEMA 4X / IP65

(i) Desired feature: IP66 rated enclosure

E26.7.3 Output signal:

(a) PROFIBUS DP or PROFIBUS PA

E26.7.4 Power supply (in order of preference):

(a) 120 VAC

(b) 24 VDC

E26.7.5 Display: Required

E26.7.6 Local Keypad / Controls: Desired Feature

E26.7.7 Output relays - Provision of output relays is a desired, but not mandatory feature. Desired features as follows:

(a) Relays in proposed product: Qty 3

(b) Total number of relays available as an option: Qty 6

(c) SPDT relays are preferred over SPST relays.

(d) Programmable relays are preferred over fixed function relays.

(e) Relay contact rating of 5A @ 120 VAC.

E26.7.8 Additional Desired features:

(a) High, Low, High-High, or Low-Low level alarm(s) based on real-time level measurement and alarm level setpoints.

(b) Pump Control capability

E26.8 Sensor Cable Requirements:

(a) Cable shall be approved for use with the proposed ultrasonic level sensor and transmitter.

(b) Cable length: 10 meters

E26.9 Mounting:

E26.9.1 100 mm (4”) ASME Flange

E26.9.2 Aiming Kit: Not required

E27. ULTRASONIC LEVEL TRANSMITTER HARDWARE CONFIGURATION TOOL

E27.1 Supply of a hardware configuration tool is not a mandatory requirement.

E27.2 Where available as part of the manufacturer’s product offering, provide a hardware configuration tool to be utilized to setup and configure the ultrasonic level transmitter.

E27.2.1 Refer to B9.17 for pricing in the event that a hardware tool is not proposed.

E27.2.2 Where a different tool is required for the various ultrasonic level transmitters proposed, provide one of each type of tool within each unit indicated on Form B.

E27.3 Tool to communicate to the transmitter via Bluetooth or Infrared communication.

E27.4 Desired Approvals:

(a) CAN/CSA-C22.2 NO. 157

E27.5 Provision of a laptop computer, handheld computer, or smartphone is not required.

E28. FIELD SETUP AND COMMISSIONING OF INSTRUMENT

E28.1 Provide a factory-trained field service technician to perform field setup and commissioning services for an instrument.

(a) This service shall be provided on an as-requested basis.

E28.2 The services provided are to include at all standard manufacturer recommended start-up and commissioning procedures, as well as the following:

E28.2.1 Visual Inspection

(a) Inspect instrument for signs of damage.

(b) Verify mechanical and piping installation per drawings and manufacturer requirements.

(c) Verify wiring installation per drawings and manufacturer requirements.

(d) Inspect electrical terminal compartment for foreign objects.

E28.2.2 Mechanical Inspection

(a) Check all connections and bolts for tightness and to the correct torque.

(b) Check for alignment.

(c) Ensure appropriate clearances for all connecting bushings and connecting faces.

E28.2.3 Electrical Inspection

(a) Check all power wiring connections for tightness.

(b) Check all fuses in the instrument for continuity.

(c) Confirm input voltage is correct.

(d) Confirm that the signal / fieldbus connections are correct.

E28.2.4 Start-up Services

(a) Coordinate turning on power to the instrument.

(b) Configure all applicable settings and parameters that could not be configured prior to installation.

(c) Perform functional tests.

(d) Coordinate with City personnel and designated representatives to confirm and finalize the application requirements.

(e) Configure and document all settings, as appropriate for the application.

(f) Coordinate to perform test demonstrations to verify instrument performance.

(g) Verify that all configuration values are in the correct state.

(h) Transfer the configuration settings to on-site personnel.

E28.2.5 Documentation

(a) Provide a signed documented commissioning form for each instrument, in a format acceptable to the Contract Administrator.

E28.3 Travel

(a) Provide all travel and accommodations at no additional cost.

E28.4 Personnel:

E28.4.1 Personnel shall be factory trained in the maintenance, configuration, and service of the proposed instrumentation.

E28.5 Responsibility of the Installation Contractor:

E28.5.1 It is the responsibility of the Installation Contractor to ensure that the installation of the instrumentation is complete and that the instrument is ready to commission.

E29. LOCAL TRAINING SESSION - GENERAL

E29.1 Overview:

E29.1.1 Provide instruction to designated City personnel in the operation, configuration, and maintenance of the proposed instruments and associated components.

E29.1.2 The City shall not be obligated to participate or receive training under this contract. The City will elect to purchase training sessions at their discretion, as the need arises.

E29.2 Location:

E29.2.1 The location of the training will be in the City of Winnipeg, in a facility provided by the City. The room will be classroom style.

E29.3 Submittals:

E29.3.1 Submittals to be in accordance with E5.

E29.3.2 Submit the names and qualifications of the proposed instructors.

E29.3.3 Submit training proposal complete with hour by hour schedule including brief overview of content of each training segment a minimum of 30 Calendar Days prior to anticipated date of beginning of training.

E29.4 Quality Assurance:

E29.4.1 Provide competent instructors thoroughly familiar with all aspects of the instruments.

E29.4.2 The Contract Administrator may reject instructors it deems to not be qualified.

E29.4.3 In the event that the training provided is not satisfactory, reduction in payment as per D20.4 may be applied.

E29.5 Materials:

E29.5.1 Provide equipment, visual and audio aids, and materials.

E29.5.2 Sample instruments of each type shall be provided, along with all equipment required to power and configure the instruments.

E29.5.3 Supply manual for each trainee, describing in detail the information included in each training program.

E29.6 Attendees:

E29.6.1 The attendees are expected to include, but not be limited to:

(a) Electrical and instrumentation maintenance personnel.

E30. LOCAL TRAINING SESSION – ELECTROMAGNETIC FLOWMETER, PRESSURE, TEMPERATURE

E30.1 Provide a local training session, in accordance with E29:

E30.2 Duration:

E30.2.1 Each training session shall be a minimum of six (6) hours in duration, excluding coffee and lunch breaks.

E30.2.2 Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.

E30.3 Scope:

E30.3.1 Each training session shall address the complete scope of all products proposed.

E30.4 For each instrument, provide the following training content:

E30.4.1 Overview of the instrument,

E30.4.2 Equipment maintenance training, including:

(a) Installation,
(b) Troubleshooting,
(c) Preventative maintenance,
(d) Replacement of components,
(e) Fieldbus network troubleshooting and diagnostics, and
(f) Calibration procedures.

E30.4.3 Maintenance use of associated software and HART/PROFIBUS parameters, including:

(a) Basic operation of software,
(b) Connecting to instruments,
(c) Configuration of parameters,
(d) Download and upload software configuration, and
(e) Diagnostics and troubleshooting.

E31. LOCAL TRAINING SESSION – ULTRASONIC LEVEL

E31.1 Provide a local training session, in accordance with E29:

E31.2 Duration:

E31.2.1 Each training session shall be a minimum of three (3) hours in duration, excluding coffee and lunch breaks.

E31.2.2 Each day shall be assumed to be independent of other training days, and not necessarily aligned with other on-site work or training.

E31.3 Scope:

E31.3.1 Each training session shall address the complete scope of all products proposed.

E31.4 For each instrument, provide the following training content:

E31.4.1 Overview of the instrument,

E31.4.2 Equipment maintenance training, including:

(a) Installation,

(b) Troubleshooting,

(c) Preventative maintenance,

(d) Replacement of components,

(e) Fieldbus network troubleshooting and diagnostics, and

(f) Calibration procedures.

E31.4.3 Maintenance use of associated software and HART/PROFIBUS parameters, including:

(a) Basic operation of software,

(b) Connecting to instruments,

(c) Configuration of parameters,

(d) Download and upload software configuration, and

(e) Diagnostics and troubleshooting.

E32. FIELD SERVICE

E32.1 Provide on-site field service at an hourly rate, as requested by the City.

E32.2 Provide on-site field service, on an as-requested basis, on the instrument installations. Field service shall not be applicable for warranty.

E32.3 The rate provided for field service shall be all inclusive and include travel expenses, tools, shop supplies, etc.

E32.4 The hourly rate for field service may apply to travel time from a location within Winnipeg to site, up to a maximum of one hour per visit.

E32.5 Field service rates shall not apply to instrumentation set-up and commissioning services under E28.

E32.6 Service Personnel:

E32.6.1 Service personnel shall be factory trained in the maintenance, configuration, and service of the proposed instrumentation.