



THE CITY OF WINNIPEG

BID OPPORTUNITY

BID OPPORTUNITY NO. 773-2015

**WEST END SEWAGE TREATMENT PLANT (WEWPCC) RETURN ACTIVATED
SLUDGE PIPE REPLACEMENT PROJECT**

TABLE OF CONTENTS

PART A - BID SUBMISSION

| | |
|----------------|---|
| Form A: Bid | 1 |
| Form B: Prices | 3 |

PART B - BIDDING PROCEDURES

| | |
|---|---|
| B1. Contract Title | 1 |
| B2. Submission Deadline | 1 |
| B3. Site Investigation | 1 |
| B4. Enquiries | 1 |
| B5. Confidentiality | 1 |
| B6. Addenda | 2 |
| B7. Substitutes | 2 |
| B8. Bid Components | 3 |
| B9. Bid | 4 |
| B10. Prices | 4 |
| B11. Disclosure | 4 |
| B12. Qualification | 5 |
| B13. Opening of Bids and Release of Information | 6 |
| B14. Irrevocable Bid | 6 |
| B15. Withdrawal of Bids | 6 |
| B16. Evaluation of Bids | 6 |
| B17. Award of Contract | 7 |

PART C - GENERAL CONDITIONS

| | |
|------------------------|---|
| C0. General Conditions | 1 |
|------------------------|---|

PART D - SUPPLEMENTAL CONDITIONS

General

| | |
|--|---|
| D1. General Conditions | 1 |
| D2. Scope of Work | 1 |
| D3. Definitions | 1 |
| D4. Contract Administrator | 1 |
| D5. Contractor's Supervisor | 1 |
| D6. Ownership of Information, Confidentiality and Non Disclosure | 2 |
| D7. Notices | 2 |

Submissions

| | |
|------------------------------------|---|
| D8. Authority to Carry on Business | 2 |
| D9. Safe Work Plan | 3 |
| D10. Insurance | 3 |
| D11. Performance Security | 3 |
| D12. Subcontractor List | 4 |
| D13. Detailed Work Schedule | 4 |

Schedule of Work

| | |
|------------------------------|---|
| D14. Commencement | 5 |
| D15. Substantial Performance | 5 |
| D16. Total Performance | 5 |
| D17. Liquidated Damages | 6 |

Control of Work

| | |
|--|---|
| D18. Job Meetings | 6 |
| D19. Prime Contractor – The Workplace Safety and Health Act (Manitoba) | 6 |
| D20. The Workplace Safety and Health Act (Manitoba) – Qualifications | 6 |
| D21. Responsibility for City Preurchased Valves | 6 |

Measurement and Payment

| | |
|---------------|---|
| D22. Invoices | 7 |
| D23. Payment | 7 |

Warranty

| | |
|---|----|
| D24. Warranty | 7 |
| Form H1: Performance Bond | 8 |
| Form H2: Irrevocable Standby Letter of Credit | 10 |
| Form J: Subcontractor List | 12 |

PART E - SPECIFICATIONS

General

| | |
|--|---|
| E1. Applicable Specifications and Drawings | 1 |
| E2. Description of Work | 1 |
| E3. Demolition | 2 |
| E4. New Construction | 2 |
| E5. Work Inside Bioreactors | 3 |
| E6. Tie-ins and Construction Sequencing | 3 |
| E7. Commissioning | 4 |
| E8. City Pre-Purchased Items | 4 |
| E9. Process Piping | 4 |
| E10. Instrumentation | 8 |

PART B - BIDDING PROCEDURES

B1. CONTRACT TITLE

B1.1 WEST END SEWAGE TREATMENT PLANT (WEWPCC) RETURN ACTIVATED SLUDGE PIPE REPLACEMENT PROJECT

B2. SUBMISSION DEADLINE

B2.1 The Submission Deadline is 12:00 noon. Winnipeg time, October 2, 2015.

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

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

B3. SITE INVESTIGATION

B3.1 Further to C3.1, a Site meeting will be held at 10:00 am on September 24, 2015 to provide Bidders access to the Site.

B3.2 The Bidder is advised that the drawings do not show all existing equipment, piping and other physical conditions existing at the Site

B3.3 The Bidder shall not be entitled to rely on any information or interpretation received at the Site investigation unless that information or interpretation is the Bidder's direct observation, or is provided by the Contract Administrator in writing.

B4. ENQUIRIES

B4.1 All enquiries shall be directed to the Contract Administrator identified in D4.1.

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

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

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

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

B5. CONFIDENTIALITY

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

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

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

B6. ADDENDA

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

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

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

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

B6.2.3 The Bidder shall acknowledge receipt of each addendum in Paragraph 8 of Form A: Bid. Failure to acknowledge receipt of an addendum may render a Bid non-responsive.

B7. SUBSTITUTES

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

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

B7.3 Requests for approval of a substitute will not be considered unless received in writing by the Contract Administrator at least four (4) Business Days prior to the Submission Deadline.

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

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

B7.5 The Contract Administrator, after assessing the request for approval of a substitute, may in his/her sole discretion grant approval for the use of a substitute as an "approved equal" or as an "approved alternative", or may refuse to grant approval of the substitute.

- B7.6 The Contract Administrator will provide a response in writing, at least two (2) Business Days prior to the Submission Deadline, to the Bidder who requested approval of the substitute.
- B7.6.1 The Contract Administrator will issue an Addendum, disclosing the approved materials, equipment, methods and products to all potential Bidders. The Bidder requesting and obtaining the approval of a substitute shall be responsible for disseminating information regarding the approval to any person or persons he/she wishes to inform.
- B7.7 If the Contract Administrator approves a substitute as an “approved equal”, any Bidder may use the approved equal in place of the specified item.
- B7.8 If the Contract Administrator approves a substitute as an “approved alternative”, any Bidder bidding that approved alternative may base his/her Total Bid Price upon the specified item but may also indicate an alternative price based upon the approved alternative. Such alternatives will be evaluated in accordance with B16.
- B7.9 No later claim by the Contractor for an addition to the Total Bid Price because of any other changes in the Work necessitated by the use of an approved equal or an approved alternative will be considered.

B8. BID COMPONENTS

- B8.1 The Bid shall consist of the following components:
- (a) Form A: Bid;
 - (b) Form B: Prices;
- B8.2 Further to B8.1, the Bidder should include the written correspondence from the Contract Administrator approving a substitute in accordance with B7.
- B8.3 All components of the Bid shall be fully completed or provided, and submitted by the Bidder no later than the Submission Deadline, with all required entries made clearly and completely, to constitute a responsive Bid.
- B8.4 The Bid Submission may be submitted by mail, courier or personal delivery, or by facsimile transmission.
- B8.5 If the Bid Submission is submitted by mail, courier or personal delivery, it shall be enclosed and sealed in an envelope clearly marked with the Bid Opportunity number and the Bidder's name and address, and shall be submitted to:
- The City of Winnipeg
Corporate Finance Department
Materials Management Division
185 King Street, Main Floor
Winnipeg, MB R3B 1J1
- B8.5.1 Samples or other components of the Bid Submission which cannot reasonably be enclosed in the envelope may be packaged separately, but shall be clearly marked with the Bid Opportunity number, the Bidder's name and address, and an indication that the contents are part of the Bidder's Bid Submission.
- B8.6 Bidders are advised not to include any information/literature except as requested in accordance with B8.1.
- B8.7 Bidders are advised that inclusion of terms and conditions inconsistent with the Bid Opportunity document, including the General Conditions, will be evaluated in accordance with B16.1(a).
- B8.8 If the Bid Submission is submitted by facsimile transmission, it shall be submitted to 204 949-1178.

B8.8.1 The Bidder is advised that the City cannot take responsibility for the availability of the facsimile machine at any time.

B8.8.2 Bids submitted by internet electronic mail (e-mail) will not be accepted.

B9. BID

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

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

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

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

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

B9.4 Paragraph 10 of Form A: Bid shall be signed in accordance with the following requirements:

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

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

B9.4.2 All signatures shall be original.

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

B10. PRICES

B10.1 The Bidder shall state the lump sum price in Canadian funds for the Work on Form B: Prices.

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

B10.2 Payments to Non-Resident Contractors are subject to Non-Resident Withholding Tax pursuant to the Income Tax Act (Canada).

B11. DISCLOSURE

B11.1 Various Persons provided information or services with respect to this Work. In the City's opinion, this relationship or association does not create a conflict of interest because of this full

disclosure. Where applicable, additional material available as a result of contact with these Persons is listed below.

- B11.2 The Persons are:
- (a) Razar Contracting Services Ltd.

B12. QUALIFICATION

- B12.1 The Bidder shall:
- (a) undertake to be in good standing under The Corporations Act (Manitoba), or properly registered under The Business Names Registration Act (Manitoba), or otherwise properly registered, licensed or permitted by law to carry on business in Manitoba; and
 - (b) be financially capable of carrying out the terms of the Contract; and
 - (c) have all the necessary experience, capital, organization, and equipment to perform the Work in strict accordance with the terms and provisions of the Contract.
- B12.2 The Bidder and any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) be responsible and not be suspended, debarred or in default of any obligations to the City. A list of suspended or debarred individuals and companies is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/debar.stm>
- B12.3 The Bidder and/or any proposed Subcontractor (for the portion of the Work proposed to be subcontracted to them) shall:
- (a) have successfully carried out work similar in nature, scope and value to the Work; and
 - (b) be fully capable of performing the Work required to be in strict accordance with the terms and provisions of the Contract; and
 - (c) have a written workplace safety and health program if required pursuant to The Workplace Safety and Health Act (Manitoba);
- B12.4 Further to B12.3(c), the Bidder shall, within five (5) Business Days of a request by the Contract Administrator, provide proof satisfactory to the Contract Administrator that the Bidder/Subcontractors has a workplace safety and health program meeting the requirements of The Workplace Safety and Health Act (Manitoba), by providing:
- (a) a copy of their valid Manitoba COR certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Certificate of Recognition (COR) Program administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (b) a copy of their valid Manitoba SECOR™ certificate and Letter of Good Standing (or Manitoba equivalency) as issued under the Small Employer Certificate of Recognition Program (SECOR™) administered by the Construction Safety Association of Manitoba or by the Manitoba Heavy Construction Association's WORKSAFELY™ COR™ Program; or
 - (c) a report or letter to that effect from an independent reviewer acceptable to the City. (A list of acceptable reviewers and the review template are available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>).
- B12.5 The Bidder shall submit, within three (3) Business Days of a request by the Contract Administrator, proof satisfactory to the Contract Administrator of the qualifications of the Bidder and of any proposed Subcontractor.
- B12.6 The Bidder shall provide, on the request of the Contract Administrator, full access to any of the Bidder's equipment and facilities to confirm, to the Contract Administrator's satisfaction, that the Bidder's equipment and facilities are adequate to perform the Work.

B13. OPENING OF BIDS AND RELEASE OF INFORMATION

- B13.1 Bids will not be opened publicly.
- B13.2 Following the submission deadline, the names of the Bidders and their Total Bid Prices (unevaluated, and pending review and verification of conformance with requirements) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/bidopp.asp>
- B13.3 After award of Contract, the name(s) of the successful Bidder(s) and the Contract amount(s) will be available on the Closed Bid Opportunities (or Public/Posted Opening & Award Results) page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/>
- B13.4 The Bidder is advised that any information contained in any Bid may be released if required by City policy or procedures, by The Freedom of Information and Protection of Privacy Act (Manitoba), by other authorities having jurisdiction, or by law.

B14. IRREVOCABLE BID

- B14.1 The Bid(s) submitted by the Bidder shall be irrevocable for the time period specified in Paragraph 9 of Form A: Bid.
- B14.2 The acceptance by the City of any Bid shall not release the Bids of the next two lowest evaluated responsive Bidders and these Bidders shall be bound by their Bids on such Work for the time period specified in Paragraph 9 of Form A: Bid.

B15. WITHDRAWAL OF BIDS

- B15.1 A Bidder may withdraw his/her Bid without penalty by giving written notice to the Manager of Materials at any time prior to the Submission Deadline.
- B15.1.1 Notwithstanding C23.3, the time and date of receipt of any notice withdrawing a Bid shall be the time and date of receipt as determined by the Manager of Materials.
- B15.1.2 The City will assume that any one of the contact persons named in Paragraph 3 of Form A: Bid or the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid, and only such person, has authority to give notice of withdrawal.
- B15.1.3 If a Bidder gives notice of withdrawal prior to the Submission Deadline, the Manager of Materials will:
- (a) retain the Bid until after the Submission Deadline has elapsed;
 - (b) open the Bid to identify the contact person named in Paragraph 3 of Form A: Bid and the Bidder's authorized representatives named in Paragraph 10 of Form A: Bid; and
 - (c) if the notice has been given by any one of the persons specified in B15.1.3(b), declare the Bid withdrawn.
- B15.2 A Bidder who withdraws his/her Bid after the Submission Deadline but before his/her Bid has been released or has lapsed as provided for in B14.2 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.

B16. EVALUATION OF BIDS

- B16.1 Award of the Contract shall be based on the following bid evaluation criteria:
- (a) compliance by the Bidder with the requirements of the Bid Opportunity or acceptable deviation there from (pass/fail);

- (b) qualifications of the Bidder and the Subcontractors, if any, pursuant to B12 (pass/fail);
- (c) Total Bid Price;
- (d) economic analysis of any approved alternative pursuant to B7.

B16.2 Further to B16.1(a), the Award Authority may reject a Bid as being non-responsive if the Bid is incomplete, obscure or conditional, or contains additions, deletions, alterations or other irregularities. The Award Authority may reject all or any part of any Bid, or waive technical requirements or minor informalities or irregularities, if the interests of the City so require.

B16.3 Further to B16.1(b), the Award Authority shall reject any Bid submitted by a Bidder who does not demonstrate, in his/her Bid or in other information required to be submitted, that he/she is responsible and qualified.

B16.4 Further to B16.1(c), the Total Bid Price shall be the lump sum price shown on Form B: Prices.

B17. AWARD OF CONTRACT

B17.1 The City will give notice of the award of the Contract or will give notice that no award will be made.

B17.2 The City will have no obligation to award a Contract to a Bidder, even though one or all of the Bidders are determined to be responsible and qualified, and the Bids are determined to be responsive.

B17.2.1 Without limiting the generality of B17.2, the City will have no obligation to award a Contract where:

- (a) the prices exceed the available City funds for the Work;
- (b) the prices are materially in excess of the prices received for similar work in the past;
- (c) the prices are materially in excess of the City's cost to perform the Work, or a significant portion thereof, with its own forces;
- (d) only one Bid is received; or
- (e) in the judgment of the Award Authority, the interests of the City would best be served by not awarding a Contract.

B17.3 Where an award of Contract is made by the City, the award shall be made to the responsible and qualified Bidder submitting the lowest evaluated responsive Bid, in accordance with B16.

B17.3.1 Following the award of contract, a Bidder will be provided with information related to the evaluation of his/her Bid upon written request to the Contract Administrator.

B17.4 Notwithstanding C4, the City may issue a Purchase Order to the successful Bidder in lieu of the execution of a Contract.

B17.5 The Contract, as defined in C1.1, in its entirety shall be deemed to be incorporated in and to form a part of the Purchase Order notwithstanding that it is not necessarily attached to or accompany said Purchase Order.

PART C - GENERAL CONDITIONS

C0. GENERAL CONDITIONS

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

PART D - SUPPLEMENTAL CONDITIONS

GENERAL

D1. GENERAL CONDITIONS

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

D2. SCOPE OF WORK

D2.1 The Work to be done under the Contract shall consist of the replacement of existing RAS piping at the WEWPCC.

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

- (a) Replacement of 300mm RAS pipes S740-300-RAS and S741-300-RAS including all valves as shown on the drawings. This work includes a new RAS pipe penetration through the wall of each Bioreactor, and entry into each Bioreactor to complete penetration sealing from the inside.
- (b) The existing actuators on RAS flow control valves S740-FCV and S741-FCV shall be salvaged and re-used on new valves. Instrument air tubing and instrumentation wiring shall be provided to suit the new location of the actuators.
- (c) The existing RAS flowmeters S740-FE and S741-FE shall be salvaged and re-used in the new piping. Instrumentation wiring shall be provided to suit the new location of the flowmeters.
- (d) Relocation of existing 75mm sump pump drain line to avoid conflict with new RAS piping flanges as shown on the drawings.
- (e) Installation of all RAS piping valves pre-purchased by the City. These valves are listed in Part E, Section E8 – City Pre-purchased Items.

D3. DEFINITIONS

D3.1 When used in this Bid Opportunity:

- (a) "**RAS**" means Return Activated Sludge;

D4. CONTRACT ADMINISTRATOR

D4.1 The Contract Administrator is KGS Group, represented by:
Jason Smith
Senior Mechanical Engineer
Telephone No. 204-896-1209
Email jsmith@kgsgroup.com

D4.2 At the pre-construction meeting, Jason Smith will identify additional personnel representing the Contract Administrator and their respective roles and responsibilities for the Work.

D4.3 Bids Submissions must be submitted to the address in B8.5.

D5. CONTRACTOR'S SUPERVISOR

D5.1 At the pre-construction meeting, the Contractor shall identify his/her designated supervisor and any additional personnel representing the Contractor and their respective roles and responsibilities for the Work.

D6. OWNERSHIP OF INFORMATION, CONFIDENTIALITY AND NON DISCLOSURE

- D6.1 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.
- D6.2 The Contractor shall not make any public announcements or press releases regarding the Contract, without the prior written authorization of the Contract Administrator.
- D6.3 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.
- D6.4 A Contractor who violates any provision of D6 may be determined to be in breach of Contract.

D7. NOTICES

- D7.1 Except as provided for in C23.2.2, all notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the Contractor shall be sent to the address or facsimile number identified by the Contractor in Paragraph 2 of Form A: Bid.
- D7.2 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications to the City, except as expressly otherwise required in D7.3, D7.4 or elsewhere in the Contract, shall be sent to the attention of the Contract Administrator at the facsimile number identified in D4.1.
- D7.3 Notwithstanding C21., all notices of appeal to the Chief Administrative Officer shall be sent to the attention of the Chief Financial Officer at the following facsimile number:
- The City of Winnipeg
Chief Financial Officer
Facsimile No.: 204 949-1174
- D7.4 All notices, requests, nominations, proposals, consents, approvals, statements, authorizations, documents or other communications required to be submitted or returned to the City Solicitor shall be sent to the following facsimile number:
- The City of Winnipeg
Legal Services Department
Attn: Director of Legal Services
Facsimile No.: 204 947-9155

D7.5 Bids Submissions must be submitted to the address in B8.5.

SUBMISSIONS

D8. AUTHORITY TO CARRY ON BUSINESS

- D8.1 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.

D9. SAFE WORK PLAN

- D9.1 The Contractor shall provide the Contract Administrator with a Safe Work Plan at least five (5) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.
- D9.2 The Safe Work Plan should be prepared and submitted in the format shown in the City's template which is available on the Information Connection page at The City of Winnipeg, Corporate Finance, Materials Management Division website at <http://www.winnipeg.ca/matmgt/Safety/default.stm>

D10. INSURANCE

- D10.1 The Contractor shall provide and maintain the following insurance coverage:
- (a) commercial general liability insurance, in the amount of at least two million dollars (\$2,000,000.00) inclusive, with The City of Winnipeg added as an additional insured, with a cross-liability clause, such liability policy to also contain contractual liability, unlicensed motor vehicle liability, non-owned automobile liability and products and completed operations, to remain in place at all times during the performance of the Work and throughout the warranty period;
 - (b) if applicable, Automobile Liability Insurance covering all motor vehicles, owned and operated and used or to be used by the Contractor directly or indirectly in the performance of the Work. The Limit of Liability shall not be less than \$2,000,000 inclusive for loss or damage including personal injuries and death resulting from any one accident or occurrence;
 - (c) all risks installation floater, carrying adequate limits to cover all machinery, equipment, supplies and/or materials intended to enter into and form part of any installation.
- D10.2 Deductibles shall be borne by the Contractor.
- D10.3 The Contractor shall provide the Contract Administrator with a certificate(s) of insurance, in a form satisfactory to the City Solicitor, at least two (2) Business Days prior to the commencement of any Work but in no event later than seven (7) Calendar Days from notification of the award of Contract by Purchase Order.
- D10.4 The Contractor shall not cancel, materially alter, or cause each policy to lapse without providing at least thirty (30) Calendar Days prior written notice to the Contract Administrator.

D11. PERFORMANCE SECURITY

- D11.1 If the Contract Price exceeds twenty-five thousand dollars (\$25,000.00), the Contractor shall provide and maintain performance security until the expiration of the warranty period in the form of:
- (a) a performance bond of a company registered to conduct the business of a surety in Manitoba, in the form attached to these Supplemental Conditions (Form H1: Performance Bond), in the amount of fifty percent (50%) of the Contract Price; or
 - (b) an irrevocable standby letter of credit issued by a bank or other financial institution registered to conduct business in Manitoba and drawn on a branch located in Winnipeg, in the form attached to these Supplemental Conditions (Form H2: Irrevocable Standby Letter of Credit), in the amount of fifty percent (50%) of the Contract Price; or
 - (c) a certified cheque or draft payable to "The City of Winnipeg", drawn on a bank or other financial institution registered to conduct business in Manitoba, in the amount of fifty percent (50%) of the Contract Price.
- D11.1.1 Where the performance security is in the form of a certified cheque or draft, it will be deposited by the City. The City will not pay any interest on certified cheques or drafts furnished as performance security.

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

D12. SUBCONTRACTOR LIST

D12.1 The Contractor shall provide the Contract Administrator with a complete list of the Subcontractors whom the Contractor proposes to engage (Form J: Subcontractor List) at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than seven (7) Calendar Days from notification of the award of Contract.

D13. DETAILED WORK SCHEDULE

D13.1 The Contractor shall provide the Contract Administrator with a detailed work schedule at least two (2) Business Days prior to the commencement of any Work on the Site but in no event later than the date specified in C4.1 for the return of the executed Contract.

D13.2 The detailed work schedule shall consist of the following:

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

D13.3 Further to D13.2(a), the C.P.M. schedule shall clearly identify the start and completion dates of all of the following activities/tasks making up the Work as well as showing those activities/tasks on the critical path:

- (a) Installation of new valve S741-HV1 at TP-02.
- (b) Replacement of RAS line 2 (S741-300-RAS), including connection to TP-04 and new penetration into Bioreactor 2.
- (c) Testing and commissioning of new RAS line 2, and startup of Bioreactor 2. A period of 3 weeks is required following startup of Bioreactor 2 before Bioreactor 1 can be taken offline.
- (d) Installation of new valve S740-HV1 at TP-01.
- (e) Replacement of RAS line 1 (S740-300-RAS), including connection to TP-03 and new penetration into Bioreactor 1.
- (f) Testing and commissioning of new RAS line 1, and startup of Bioreactor 1.
- (g) Relocation of the 75mm sump drainage line from TP-05 to TP-06.

D13.4 Further to D13.2(b), the Gantt chart shall show the time on a weekly basis, required to carry out the Work of each trade, or specification division. The time shall be on the horizontal axis, and the type of trade shall be on the vertical axis.

D13.5 The detailed work schedule shall be based on the following time constraints pertaining to work at the WEWPCC:

- (a) Standard working hours at the WEWPCC from 7:00 am to 4: 00 pm Monday to Friday;
- (b) No work allowed at the WEWPCC on December 24, 2015 after 12:00 noon.
- (c) From December 29 to 31, 2015, no work allowed at the WEWPCC that requires involvement of facility operational personnel, such as piping tie-ins, penetration into Bioreactors, or work inside Bioreactors.

SCHEDULE OF WORK

D14. COMMENCEMENT

- D14.1 The Contractor shall not commence any Work until he/she is in receipt of a Purchase Order from the Award Authority authorizing the commencement of the Work.
- D14.2 The Contractor shall not commence any Work on the Site until:
- (a) the Contract Administrator has confirmed receipt and approval of:
 - (i) evidence of authority to carry on business specified in D8;
 - (ii) evidence of the workers compensation coverage specified in C6.15;
 - (iii) the Safe Work Plan specified in D9;
 - (iv) evidence of the insurance specified in D10;
 - (v) the performance security specified in D11;
 - (vi) the Subcontractor list specified in D12; and
 - (vii) the detailed work schedule specified in D13.
 - (b) the Contractor has attended a pre-construction meeting with the Contract Administrator, or the Contract Administrator has waived the requirement for a pre-construction meeting.
- D14.3 The Contractor shall commence the Work on the Site within seven (7) Working Days of receipt of the Purchase Order.
- D14.4 The City intends to award this Contract by October 21, 2015
- D14.4.1 If the actual date of award is later than the intended date, the dates specified for Critical Stages, Substantial Performance, and Total Performance will be adjusted by the difference between the aforementioned intended and actual dates.

D15. SUBSTANTIAL PERFORMANCE

- D15.1 The Contractor shall achieve Substantial Performance by March 15, 2016.
- D15.2 When the Contractor considers the Work to be substantially performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Substantial Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D15.3 The date on which the Work has been certified by the Contract Administrator as being substantially performed to the requirements of the Contract through the issue of a certificate of Substantial Performance is the date on which Substantial Performance has been achieved.

D16. TOTAL PERFORMANCE

- D16.1 The Contractor shall achieve Total Performance by April 29, 2016.
- D16.2 When the Contractor or the Contract Administrator considers the Work to be totally performed, the Contractor shall arrange, attend and assist in the inspection of the Work with the Contract Administrator for purposes of verifying Total Performance. Any defects or deficiencies in the Work noted during that inspection shall be remedied by the Contractor at the earliest possible instance and the Contract Administrator notified so that the Work can be reinspected.
- D16.3 The date on which the Work has been certified by the Contract Administrator as being totally performed to the requirements of the Contract through the issue of a certificate of Total Performance is the date on which Total Performance has been achieved.

D17. LIQUIDATED DAMAGES

- D17.1 If the Contractor fails to achieve Substantial Performance in accordance with the Contract by the day fixed herein for Substantial Performance, the Contractor shall pay the City five thousand dollars (\$5,000) per Working Day for each and every Working Day following the day fixed herein for Substantial Performance during which such failure continues.
- D17.2 The amount specified for liquidated damages in D17.1 is based on a genuine pre-estimate of the City's damages in the event that the Contractor does not achieve Substantial Performance by the day fixed herein for same.
- D17.3 The City may reduce any payment to the Contractor by the amount of any liquidated damages assessed.

CONTROL OF WORK

D18. JOB MEETINGS

- D18.1 Regular weekly job meetings will be held at the Site. These meetings shall be attended by a minimum of one representative of the Contract Administrator, one representative of the City and one representative of the Contractor. Each representative shall be a responsible person capable of expressing the position of the Contract Administrator, the City and the Contractor respectively on any matter discussed at the meeting including the Work schedule and the need to make any revisions to the Work schedule. The progress of the Work will be reviewed at each of these meetings.
- D18.2 The Contract Administrator reserves the right to cancel any job meeting or call additional job meetings whenever he/she deems it necessary.

D19. PRIME CONTRACTOR – THE WORKPLACE SAFETY AND HEALTH ACT (MANITOBA)

- D19.1 Further to C6.24, the Contractor shall be the Prime Contractor and shall serve as, and have the duties of the Prime Contractor in accordance with The Workplace Safety and Health Act (Manitoba).

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

- D20.1 Further to B12.4, the Contractor/Subcontractor must, throughout the term of the Contract, have a Workplace Safety and Health Program meeting the requirements of The Workplace Safety and Health Act (Manitoba). At any time during the term of the Contract, the City may, at its sole discretion and acting reasonably, require updated proof of compliance, as set out in B12.4.

D21. RESPONSIBILITY FOR CITY PREPURCHASED VALVES

- D21.1 Further to C10, the City shall assume the risk of and responsibility for the prepurchased valves listed in Section E8 until they are delivered and unloaded at the site. At that point the Contractor shall review the materials and confirm they are in good condition. He shall then confirm in writing that he has received the valves in good condition.
- D21.2 If there are any defects or damage to the valves they must be documented and a report submitted to the Contract Administrator for further action. Once any issues are resolved, the Contractor shall review the valves again and accept responsibility for them until they are fully incorporated into the Project work.
- D21.3 From that point forward the Contractor will be responsible for the valves and for incorporating them into the Project work.

MEASUREMENT AND PAYMENT

D22. INVOICES

D22.1 Further to C12, the Contractor shall submit an invoice for each portion of Work performed. 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

D22.2 Invoices must clearly indicate, as a minimum:

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

D22.3 The City will bear no responsibility for delays in approval of invoices which are improperly submitted.

D22.4 Bids Submissions must be submitted to the address in B8.5.

D23. PAYMENT

D23.1 Further to C12, the City may at its option pay the Contractor by direct deposit to the Contractor's banking institution.

WARRANTY

D24. WARRANTY

D24.1 Warranty is as stated in C13.

FORM H1: PERFORMANCE BOND
(See D11)

KNOW ALL MEN BY THESE PRESENTS THAT

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

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

_____ dollars (\$_____)

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

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

BID OPPORTUNITY NO. 773-2015

WEST END SEWAGE TREATMENT PLANT (WEWPCC) RETURN ACTIVATED SLUDGE PIPE
REPLACEMENT PROJECT

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

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

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

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

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

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

_____ day of _____, 20____.

SIGNED AND SEALED
in the presence of:

(Witness as to Principal if no seal)

(Name of Principal)

Per: _____ (Seal)

Per: _____

(Name of Surety)

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

**FORM H2: IRREVOCABLE STANDBY LETTER OF CREDIT
(PERFORMANCE SECURITY)**
(See D11)

(Date)

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

RE: PERFORMANCE SECURITY - BID OPPORTUNITY NO. 773-2015

WEST END SEWAGE TREATMENT PLANT (WEWPCC) RETURN ACTIVATED SLUDGE PIPE
REPLACEMENT PROJECT

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

(Name of Contractor)

(Address of Contractor)

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

_____ Canadian dollars.

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

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

Partial drawings are permitted.

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

(Address)

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

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

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

(Date)

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

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

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

(Name of bank or financial institution)

Per: _____
(Authorized Signing Officer)

Per: _____
(Authorized Signing Officer)

PART E - SPECIFICATIONS

GENERAL

E1. APPLICABLE SPECIFICATIONS AND DRAWINGS

E1.1 These Specifications shall apply to the Work.

E1.2 The following are applicable to the Work:

| <u>Drawing No.</u> | <u>Consultant Drawing No.</u> | <u>Drawing Name/Title</u> |
|------------------------|-------------------------------|---|
| 1-0103S-M0030-001 | M01 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – DEMOLITION PLAN |
| 1-0103S-M0031-001 | M02 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PLAN |
| 1-0103S-M0032-001 | M03 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PART PLAN – SHEET 1 OF 3 |
| 1-0103S-M0032-002 | M04 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PART PLAN – SHEET 2 OF 3 |
| 1-0103S-M0032-003 | M05 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PART PLAN – SHEET 3 OF 3 |
| 1-0103S-M0033-001 | M06 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – ELEVATIONS |
| 1-0103S-M0034-001 | M07 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – DRAINAGE PIPE RELOCATION |
| 1-0103S-M0035-001 | M08 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – SECTIONS AND DETAILS |
| 1-0103S-M0036-001 | M09 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PIPE SPOOL DETAILS – SHEET 1 OF 5 |
| 1-0103S-M0036-002 | M10 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PIPE SPOOL DETAILS – SHEET 2 OF 5 |
| 1-0103S-M0036-003 | M11 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PIPE SPOOL DETAILS – SHEET 3 OF 5 |
| 1-0103S-M0036-004 | M12 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PIPE SPOOL DETAILS – SHEET 4 OF 5 |
| 1-0103S-M0036-005 | M13 | WEWPCC RAS PIPE REPLACEMENT – MECHANICAL – RAS PIPING – PIPE SPOOL DETAILS – SHEET 5 OF 5 |
| 1-01038-A0005-001-03 * | L12.07 | PROCESS – AREA S – SECONDARY CLARIFIER 3 – RETURN ACTIVATED SLUDGE PUMPING – P&ID |
| 1-01038-A0001-001-04 * | L12.01 | PROCESS – AREA S – BIOREACTORS – BIOREACTOR 1 – P&ID |
| 1-01038-A0001-002-05 * | L12.02 | PROCESS – AREA S – BIOREACTORS – BIOREACTOR 1 – P&ID |
| 1-01038-A0002-001-04 * | L12.03 | PROCESS – AREA S – BIOREACTORS – BIOREACTOR 2 – P&ID |
| 1-01038-A0002-002-05 * | L12.04 | PROCESS – AREA S – BIOREACTORS – BIOREACTOR 2 – P&ID |

* On P&IDs, only the clouded regions noted as “Project 773-2015” are applicable to the Work

E2. DESCRIPTION OF WORK

E2.1 This specification covers the replacement of RAS piping for the WEWPCC.

- E2.2 All equipment and material shall be supplied by the Contractor except for valves pre-purchased by the City. These valves are listed in E8.
- E2.3 Make reference to drawings when setting out Work. Consult with respective Divisions and the Contract Administrator to ensure valve stem orientations for example are correctly installed. Jointly resolve all conflicts on-site before fabricating or installing any materials or equipment.
- E2.4 Accuracy of dimensions for new piping, flanges, valves and other equipment items is the Contractor's responsibility. Any fit issues between Site conditions and new materials to be installed remain with the Contractor.
- E2.5 Where dimensional details are required, collect Site dimensions and coordinate with the applicable drawings. However responsibility for dimensional accuracy remains with the Contractor.

E3. DEMOLITION

- E3.1 Demolish existing RAS pipes S740-300-RAS and S741-300 RAS as shown on the drawings, and dispose of all demolished piping unless noted otherwise.
- E3.2 All valves in existing piping shall be turned over to the City.
- E3.3 All repair clamps in existing piping shall be removed to allow for re-use, and turned over to the City.
- E3.4 Existing pipe supports shall remain in place unless indicated otherwise, for use with new piping. Visually examine the condition of all existing pipe supports for signs of damage and deterioration and report all findings to the Contract Administrator. Existing pipe supports that are not deemed by the Contract Administrator to be in suitable condition for re-use shall be replaced.
- E3.5 Salvage sections of existing RAS piping as indicated by the Contract Administrator, for forensic analysis by others. Salvaged sections of piping shall not be damaged, altered or cleaned, and shall be placed indoors in a location indicated by the Contract Administrator.

E4. NEW CONSTRUCTION

- E4.1 Supply and install new RAS pipes S740-300-RAS and S741-300-RAS as shown on the drawings, including installation of valves pre-purchased by the City. This work includes a new RAS pipe penetration through the wall of each Bioreactor, which requires entry into the Pre-Anoxic chamber of each Bioreactor to complete penetration sealing from the inside.
- E4.2 Salvage existing actuators on RAS flow control valves S740-FCV and S741-FCV and re-install actuators on new valves pre-purchased by the City. Perform operational shop-test of actuator assemblies on new valves S740-FCV and S741-FCV prior to installation in the field. Provide instrument air tubing and instrumentation wiring to suit the new location of the actuators. Valves and actuators for S740-FCV and S741-FCV are as follows:
- (a) New valves: Class 150B AWWA flanged butterfly valve
 - (b) Existing pneumatic actuators: Bettis model CBA725-M3HW w/ PMV model D3 digital positioner, 4-20 mA
- E4.3 Salvage existing RAS magnetic flowmeters S740-FE and S741-FE and re-install in the new RAS piping. Provide instrumentation wiring to suit the new location of the flowmeters. Existing flowmeters are Fischer & Porter model 10D1465PD17PB51AY14A1.
- E4.4 Relocate existing 75mm drain line from sump pumps as shown on the drawings. Provide new piping as required to complete the relocation.

E5. WORK INSIDE BIOREACTORS

- E5.1 Entry into the Pre-Anoxic chamber of each Bioreactor is considered confined space entry. Access into each Pre-Anoxic chamber is through an outdoor hatch in the roof of each chamber. The Contractor shall comply with the requirements of the Manitoba Labour Guidelines for Confined Entry Work, and the Manitoba Labour Fall Protection Guideline.
- E5.2 Each Bioreactor will be drained and flushed with final effluent water by the City prior to construction, but residual mixed liquor sludge up to 150 mm deep may be present in each Bioreactor during construction.
- E5.3 Hazards associated with work inside the Bioreactors include, but are not limited to, wastewater sludge, hazardous atmosphere and working at height.
- E5.4 The Contractor shall provide temporary heating and ventilation as required for work inside each Bioreactor.

E6. TIE-INS AND CONSTRUCTION SEQUENCING

- E6.1 Replacement of the RAS pipes must be coordinated around the operational constraints of the WEWPCC. To remove each RAS line and valves, the associated Bioreactor must be taken out of service and drained, thus decreasing the WEWPCC secondary treatment capacity. To maintain WEWPCC operations, only one Bioreactor can be taken offline at a time. A three (3) week period is required after startup of a Bioreactor before the other one can be taken offline. Pipe replacement works must be completed between October 1st and March 15th, which corresponds to the period of low flow for the WEWPCC. Pipe replacement works must be coordinated with the Contract Administrator so that Bioreactor downtime is kept to a minimum.
- E6.2 Installation of RAS isolation valves S740-HV1 at tie-point TP-01 and S741-HV1 at TP-02 must be coordinated around the operational constraints of the WEWPCC. Prior to installing each valve, the applicable RAS line must be isolated and drained. The RAS pumps will be briefly shut down to de-pressurize the RAS header when each of the new valves at TP-01 and TP-02 are installed. This work must be coordinated with the Contract Administrator so that each outage of the RAS pumps does not exceed thirty (30 minutes).
- E6.3 Relocation of the 75mm (3") sump drainage line from TP-05 to TP-06 must be coordinated around the operational constraints of the WEWPCC. The Contractor shall coordinate this work with the Contract Administrator to avoid disrupting the operation of the associated sump pumps.
- E6.4 All work necessary to complete tie-ins and construction shall be performed by the Contractor unless noted otherwise, and shall be coordinated with the Contract Administrator. Shutdown and startup of operating systems to enable tie-ins and construction will be performed by the City.
- E6.5 Tie-ins and construction shall be sequenced in accordance with the following sequential steps. The Contractor shall provide a detailed construction schedule that includes tie-in and construction sequencing in accordance with D16.
- (a) Installation of new valve S741-HV1 at TP-02 as shown on drawings. This work requires RAS line 2 (S741-300-RAS) to be isolated and drained while RAS line 1 (S740-300-RAS) remains in operation. Following draining of RAS line 2, the RAS pumps will be de-energized for installation of new valve S741-HV1 at TP-02. The duration of RAS pump outage during this step must not exceed thirty (30) minutes.
 - (b) Replacement of RAS line 2 (S741-300-RAS) as shown on drawings, while RAS line 1 (S740-300-RAS) remains in operation. This work requires shutdown and draining of Bioreactor 2 by the City. A period of 1 week is required for the City to shutdown and drain Bioreactor 2.
 - (c) Testing and commissioning of new RAS line 2, and startup of Bioreactor 2. A period of 3 weeks is required following startup of Bioreactor 2 before Bioreactor 1 can be taken offline.

- (d) Installation of new valve S740-HV1 at TP-01 as shown on drawings. This work requires RAS line 1 (S740-300-RAS) to be isolated and drained while RAS line 2 (S741-300-RAS) remains in operation. Following draining of RAS line 1, the RAS pumps will be de-energized for installation of new valve S740-HV1 at TP-01. The duration of RAS pump outage during this step must not exceed thirty (30) minutes.
- (e) Replacement of RAS line 1 (S740-300-RAS) as shown on drawings while RAS line 2 (S741-300-RAS) remains in operation. This work requires shutdown and draining of Bioreactor 1 by the City. A period of 1 week is required for the City to shutdown and drain the Bioreactor.
- (f) Testing and commissioning of new RAS line 1, and startup of Bioreactor 1.
- (g) Relocation of the 75mm sump drainage line from TP-05 to TP-06 may occur during any part of the construction sequence.

E7. COMMISSIONING

- E7.1 The Contractor shall perform commissioning of the new RAS piping in coordination with the Contract Administrator. Commissioning shall include the following:
- (a) In-service testing of flow control valves S740-FCV and S741-FCV
 - (b) In-service of flowmeters S740-FE and S741-FE
 - (c) In-service testing of all manual isolation valves

E8. CITY PRE-PURCHASED ITEMS

- E8.1 The City will pre-purchase the following valves for this project. Install all pre-purchased valves provided by the City as shown on the drawings.

| Valve Tag | Size | Type | Actuator |
|-----------|-------------|----------------|--|
| S740-FCV | 300mm (12") | Butterfly | Pneumatic, existing |
| S740-HV1 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S740-HV2 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S740-HV3 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S740-HV4 | 200mm (8") | Eccentric Plug | Manual chainwheel w/ chain, 2m fall length |
| S741-FCV | 300mm (12") | Butterfly | Pneumatic, existing |
| S741-HV1 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S741-HV2 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S741-HV3 | 300mm (12") | Eccentric Plug | Manual handwheel |
| S741-HV4 | 200mm (8") | Eccentric Plug | Manual chainwheel w/chain, 2 m fall length |

E9. PROCESS PIPING

- E9.1 General
- (a) Specification covers the requirements for materials, fabrication and erection of piping and components. Erection shall consist of complete installation of piping systems as defined by the piping drawings and documents. It includes installation of all piping, piping components, and related examination, inspection and testing. It includes fabrication in place or in the field fabrication shop for all piping not furnished as pipespools

- (b) Fabrication and erection of piping shall be in accordance with the applicable requirements of Process Piping ASME B31.3, and Canadian and Provincial Acts and Regulations.
- (c) Contractor shall be responsible for obtaining and providing registrations, data reports, certifications, permits and other authorizations required for compliance with codes and regulations. Contractor shall provide such assistance as may be required to enable Owner to obtain certification and acceptance of piping systems by the Authority having Jurisdiction.
- (d) Contractor is to have a current Certificate of Authorization for pressure piping installation registered with the Authority having Jurisdiction. Provide proof of registration to the Contract Administrator.

E9.2 Material Control, Handling and Storage

- (a) Precautions shall be taken during handling, fabrication, storage, loading, and installation to protect flange surface finishes and all ends from damage. All ends shall be capped when delivered.
- (b) Piping which has been coated with paint prior to erection shall be handled with care to avoid damage to coatings. Slings protected with fabric or hose sleeves shall be used for lifting.
- (c) Shipping protection provided for pipe, pipespools, and piping components shall be visually inspected by Contractor when material is received at the site before unloading from truck. Any damaged or deficient protection shall be brought to the attention of Owner for resolution.
- (d) Raw materials, equipment and components shall be protected at all times against exposure to salt water or spray, rain, and moisture from an industrial atmosphere.
- (e) Raw materials and fabricated components shall preferably be stored inside a warehouse. Where this is not possible, storage shall be such that it is out of contact with the ground and has adequate moisture proof coverage. All fabricated items shall have all openings blanked or otherwise sealed with water and moisture tight covers.

E9.3 Flanges

- (a) Protection of flange face surface finish is required. Precautions shall be taken throughout handling and fabrication operations to protect the gasket surface finish of the flanges.
- (b) Loose flanges and fittings, other than installing materials, that require attachment by field welding, shall be shipped tack-welded to the piece to which they are to be welded at the point marked FW (field weld) or FFW (field-fit weld).

E9.4 Welding

- (a) Welding shall be in accordance with approved welding procedures registered by or acceptable to the Authority having Jurisdiction.
- (b) Welding shall be performed by certified welders or welding machine operators holding a current pressure welders authorization issued by or acceptable to the Authority having Jurisdiction. The welder or welding machine operator shall not perform welding utilizing procedure for which he has not been duly authorized.

E9.5 Cleaning

- (a) After completion of fabrication, piping shall be free of loose scale, weld spatter, sand, chips, oil, grease, and other foreign material. Each pipespool shall be visually inspected to ensure proper cleanliness.

E9.6 Installation

- (a) Pipe, pipespools, and in-line components shall be inspected internally for foreign material during final installation. Material shall be removed prior to installation and bolting or welding in place.

- (b) End protectors shall not be removed from piping and equipment until ready for final connection. Weld end and gasket surfaces shall be inspected for damage when covers are removed. Contract Administrator shall be informed of any damage. Repairs shall not be made without approval of Contract Administrator.
- (c) Piping shall be properly supported to prevent excessive deflection during handling and installation.
- (d) Bolting - The use of washers or other packing to use up excessive length of flange bolts is not acceptable. The length of machine and stud bolts shall be such that nuts are fully engaged with a minimum of two full threads protruding and that studs are centered.
- (e) Valve actuators shall be installed at the orientation indicated on the piping drawings. Actuators shall not obstruct operating aisles or walkways.
- (f) Field-routed piping shall be located such that it does not obstruct operating aisles, walkways, or equipment operation, maintenance, or removal.
- (g) Provide threaded plug in end of all vent and drain valves, material to match valve body.

E9.7 Pipe Supports

- (a) Re-use existing pipe supports unless indicated otherwise, and provide additional new pipe supports as shown on drawings. Visually examine the condition of all existing pipe supports for signs of damage and deterioration and report all findings to the Contract Administrator. Replace existing pipe supports that are not deemed by the Contract Administrator to be in suitable condition for re-use.
- (b) New pipe supports shall conform to MSS SP-58.
- (c) New pipe support hangers, structural attachments and accessories shall be hot-dipped galvanized following fabrication.

E9.8 Return Activated Sludge (RAS) Piping

- (a) Design, inspection and test information
 - (i) Operating Limits: 0-750 kPa at 5-30°C
 - (ii) Inspection and testing standard: ASME B31.3, Normal Fluid Service
 - (iii) Radiographic examination of welds: 5%
 - (iv) Test Conditions: Hydrotest at 1200 kPa for 120 minute duration
- (b) Pipe
 - (i) 50mm (2") and under: Carbon steel, sch 80, threaded , A106-B seamless
 - (ii) 75mm (3") and over: Ductile iron or carbon steel as shown on drawings
 - Ductile iron pipe with ductile iron flanges, AWWA C115, ANSI B16.1 125 lb, special thickness class 53, double thickness cement-mortar lined w/sealcoat to AWWA C104
 - Carbon steel pipe, standard wall, bevelled-end, A106-B seamless
- (c) Fittings
 - (i) 50mm (2") and under: Carbon steel, 3000 lb, threaded, A105N
 - (ii) 75mm (3") and over: Ductile iron or carbon steel as shown on drawings
 - Ductile iron flanged fittings, AWWA C110, ANSI B16.1 125 lb, double thickness cement-mortar lining w/sealcoat to AWWA C104
 - Carbon steel fittings, standard wall, bevelled-end, A234-WPB seamless
- (d) Flanges: Carbon steel, ANSI B16.5 150 lb, flat-face, weld-neck or slip-on, A105
- (e) Flange Gaskets: Full-face gasket, neoprene elastomer, 3mm (1/8") thick, AWWA C111, high performance type with minimum 3 bulb-type rings molded into both faces of the gasket, suitable for B16.1 125 lb and B16.5 150 lb flanges
- (f) Flange Bolting: Stainless steel bolts, A193 Grade B8, C1.1, with A194 Grade 8 nuts

E9.9 Drainage Piping from Sump Pumps

- (a) Design, inspection and test information
 - (i) Operating Limits: 0-750 kPa at 5-30°C
 - (ii) Inspection and testing standard: ASME B31.3, Category D Service
 - (iii) Test Conditions: Service test
- (b) New 75mm (3") piping for sump drain line relocation shall be carbon steel with grooved couplings and fittings to match existing.

E9.10 Drain and Vent Valves

- (a) 860 kPa minimum working pressure, stainless steel body and ball, 2 pc body, full port, NPT connections, PTFE seat
- (b) Acceptable Product: Flow-Tek, MAS, Apollo or approved equal

E9.11 Pipe Interior Finishes (Linings) for RAS Piping

- (a) Carbon steel pipe spools and fittings shall be lined with shop-applied epoxy coating in accordance with AWWA C210.
- (b) Epoxy coating shall conform to manufacturer requirements regarding:
 - (i) Surface preparation including sand blasting.
 - (ii) Conditions under which painting system can be applied.
 - (iii) Prime and final coat thicknesses.
- (c) Epoxy coating Acceptable Products: Two (2) prime coats Devoe Bar Rust 236, 6 mil DFT per coat, with Devoe Devgrip 238 abrasion resistant finish coat, 6 mil DFT. Total lining DFT 18 mil.
- (d) Field applied interior epoxy finishes shall conform to AWWA C210, and shall only be used to make up cutback distances at field welds.
- (e) Ductile iron flanged pipe and fittings shall be lined with shop (factory) applied double thickness cement-mortar w/sealcoat in accordance with AWWA C104.

E9.12 Pipe Exterior Finishes (Coatings)

- (a) Apply epoxy finish to the exterior of all ductile iron and carbon steel piping in accordance with AWWA C210.
- (b) Provide a 3 year warranty from project substantial performance date for entire painting system.
- (c) Conform to manufacturer requirements regarding:
 - (i) Surface preparation including sand blasting.
 - (ii) Conditions under which painting system can be applied.
 - (iii) Prime and final coat thicknesses.
- (d) Acceptable Products: Two (2) coats Devoe Bar Rust 235, 6 mil DFT per coat or approved equal.
- (e) Exterior finish coat colour to be as per the following:

| System | Colour Name | Sherwin Williams Paint Code |
|-------------------------------|---------------------|------------------------------------|
| Return Activated Sludge (RAS) | Invigorate (orange) | SW 6886 |
| Sump Pump Drainage | To match existing | - |

- (f) Perform surface preparation and painting off site. Then deliver finished products to the Site for final assembly. Only touch-up surface preparation and painting will be permitted on-site.
- (g) Handle piping with care during delivery to Site, storage and installation so as to minimize touch-up required.
- (h) After piping system installation is complete, touch up paint to original condition.
- (i) Do not paint on flange faces where gaskets will be applied.
- (j) Field touch-up painting shall not applied in conditions where pipe surface condensation (sweating) may occur during the paint curing period.

E10. INSTRUMENTATION

- E10.1 Instrument air tubing and instrumentation wiring for the relocation of flow control valves S740-FCV and S741-FCV shall match the materials and workmanship of existing.
- E10.2 Instrumentation wiring for the relocation of magnetic flowmeters F740-FE and S741-FE shall match materials and workmanship of existing.